

# THE PORN EPIDEMIC

Facts  
Stats &  
Solutions

by: Josh D. McDowell

## BRAIN



**Josh  
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## #1 MISCELLANEOUS

“Joseph J. Plaud, a private, clinical forensic psychologist in Boston, Massachusetts, who has studied the effects of pornography.”

“When people look at sexual imagery, dopamine floods these brain regions, causing an intense feeling of pleasure. Over time, people come to associate those direct images (called reinforcers) with the pleasurable feelings. Anything associated with those images, including Playboy’s trademark bunny image, could also prime people to seek out that positive rush.”

“However, if that pleasure response gets triggered over and over – with frequent doses of Playboy or other sexually charged imagery – a person will need bigger hits to feel a response, Plaud said.”

“The more you do and the greater degree of access, the more explicit [it is], you seem to need more and more, Plaud told Live Science.”

“Porn may also literally shrink the brain, a 2014 study in the journal JAMA Psychiatry found. Men who regularly consumed porn had smaller brain volume and fewer connections in the striatum, a brain region tied to reward processing, compared with those who didn’t view porn.”

“However, it’s possible this brain region shrinks simply because people become accustomed to viewing pornographic images, and thus find them less rewarding, one researcher previously told Live Science.”

“Additionally, the same brain regions are smaller in people who are depressed or suffer from alcoholism, and those people are less likely to be in relationships or have busy lives. So it may simply be that people who are depressed are more likely to view pornography, not that porn literally shrinks the brain, the researcher speculated.”

“Watching porn may also make people value immediate payoffs over delayed gratification, a study published in September in the Journal of Sex Research found.”



“And contrary to the notion that pornography fuels misogyny, men who viewed porn tended to hold more egalitarian views about women than did non-porn-using men. Frequent porn users view powerful women, working women and women who have had abortions more favorably than do other men, a study published in August in the Journal of Sex Research found.”

“That may be the case, but women in relationships with porn spectators reported being less happy in those relationships than gals paired up with men who didn’t view pornography, found research published in 2012 in the journal Sex Roles.”

“We’re being flooded by an immense amount of very hard-core pornography, and it’s a question [what effect it has],’ Plaud said. ‘I think it may have very large implications in the future.’” (Tia Ghose, Fox News, October 14, 2015, “5 Ways Porn Affects The Brain”, <http://www.foxnews.com/health/2015/10/14/5-ways-porn-affects-brain.html>)

### **“BRAIN STRUCTURE AND FUNCTIONAL CONNECTIVITY ASSOCIATED WITH PORNOGRAPHY CONSUMPTION”**

“...accessibility, affordability, and anonymity [Josh, would add availability, appealing, addictive,]” (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“In studies on pharmacological addiction in humans, volumetric alterations have been shown in the striatum and prefrontal cortex.” (Barrós-Loscertales A, Garavan H, Bustamante JC, et al. Reduced striatal volume in cocaine-dependent patients. *Neuroimage*. 2011;56 (3):1021-1026. Das D, Cherbuin N, Anstey KJ, Sachdev PS, Eastaugh S. Lifetime cigarette smoking is associated with striatal volume measures. *Addict Biol*. 2012;17 (4):817-825. Ersche KD, Barnes A, Jones PS, Morein-Zamir S, Robbins TW, Bullmore ET. Abnormal structure of frontostriatal brain systems is associated with aspects of impulsivity and compulsivity in cocaine dependence. *Brain*. 2011;134(pt 7):2013-2024) (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Recent research is telling us a lot about the brain when it comes to watching porn.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, *Covenant Eyes*, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“Recent studies are validating her theory about brain chemicals and porn addiction.”

**“Common warning signs that an adolescent may be experiencing compulsive sexual behavior problems”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“A demonstrated lack of empathy toward other individuals involved (either directly or indirectly) in the child’s sexual behavior.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Viewing and/or masturbating to pornography for multiple hours per day/night.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Decreased interest in and/or declining performance in school and extracurricular activities.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Diminished interest in ad/or ability to socialize with peers.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Excessive interest (or a total lack of interest) in typical adolescent dating activity.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Secretiveness around computer and smartphone usage such as erasing browser histories, password protecting devices, etc.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Lying to parents or others about the nature or the amount of sexual/romantic activities.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Sexual aggression, incest, age-inappropriate relationships, etc.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now,

September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Secrecy in general, such as spending large amounts of time alone in a room with the door locked.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Sexual behavior involving drug use.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

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<http://www.salvomag.com/new/articles/salvo13/13hilton.php>  
<http://thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain/>  
<http://yourbrainonporn.com/>  
<http://www.freedominstitute.org/blog/adolescents/teenagers-porn-and-sexual-addiction-what-s-the-problem/>  
<http://youtu.be/wSF82AwSDiU>  
<http://youtu.be/1Ya67aLaaCc>  
 (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Inability to control use and use that interferes with one's life are two cardinal signs of addiction. Priorities have shifted due to changes in the brain that we'll look at later. In effect, life's natural rewards, such as friendship, exercise and accomplishment, can no longer compete. Your brain now believes that IT – in this case internet porn use – is an important goal, and equates it with your survival.”** (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p39)

**“Human brain development does not finish until around age 25”** (“14 Things You Didn't Know About Your Brain”, Huffington Post, November 6, 2014, [http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list\\_n\\_5597311.html](http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list_n_5597311.html))

**“Brain is the only object that can contemplate itself.”** (“14 Things You Didn't Know About Your Brain”, Huffington Post, November 6, 2014, [http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list\\_n\\_5597311.html](http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list_n_5597311.html))

**“Wonder why it's tougher to learn new things as we grow older? U.S. researchers have concluded that the reason might be our inability to filter and eliminate old information, rather than a limited capacity to absorb new ideas.”** (“Interesting Facts About the HumanBrain”, The Times of India, August 27, 2015,

<http://timesofindia.indiatimes.com/life-style/health-fitness/health-news/Interesting-facts-about-the-human-brain/articleshow/18237406.cms>)

**“Nerve impulses to and from the brain travel as fast as 170 miles per hour. Ever wonder how you can react so fast to things around you or why that stubbed toe hurts right away? It’s due to the super-speedy movement of nerve impulses from your brain to the rest of your body and vice versa, bringing reactions at the speed of a high powered luxury sports car.”** (Gourav Gola, “10 Unbelievable Facts About Human Brain That Everyone Should Know”, July 2, 2012, <http://www.unbelievable-facts.com/2012/07/10-unbelievable-facts-about-human-brain.html>)

**“The brain operates on the same amount of power as 10-watt light bulb.** The cartoon image of a light bulb over your head when a great thought occurs isn’t too far off the mark. Your brain generates as much energy as a small light bulb even when you’re sleeping.” (Gourav Gola, “10 Unbelievable Facts About Human Brain That Everyone Should Know”, July 2, 2012, <http://www.unbelievable-facts.com/2012/07/10-unbelievable-facts-about-human-brain.html>)

**“The human brain cell can hold 5 times as much information as the Encyclopedia Britannica.** Or any other encyclopedia for that matter. Scientists have yet to settle on a definitive amount, but the storage capacity of the brain in electronic terms is thought to be between 3 or even 1,000 terabytes. The National Archives of Britain, containing over 900 years of history, only takes up 70 terabytes, making your brain’s memory power pretty darn impressive.” (Gourav Gola, “10 Unbelievable Facts About Human Brain That Everyone Should Know”, July 2, 2012, <http://www.unbelievable-facts.com/2012/07/10-unbelievable-facts-about-human-brain.html>)

**“Water.** The brain is made up of about 75% water.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Neurons.** Your brain consists of about 100 billion neurons.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Synapses.** There are anywhere from 1,000 to 10,000 synapses for each neuron.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Neurons.** Neurons develop at the rate of 250,000 neurons per minute during early pregnancy.” (“100 Fascinating Facts You Never Knew About the Human Brain”,

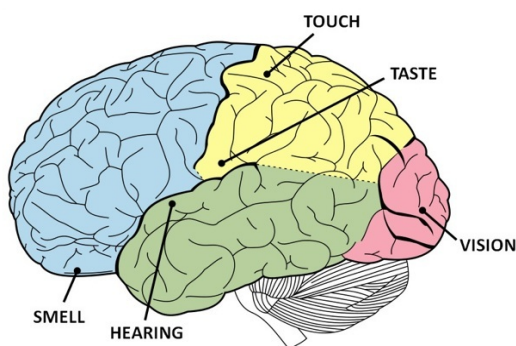


Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Size at birth.** At birth, your brain was almost the same size as an adult brain and contained most of the brain cells for your whole life.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Speed.** Information can be processed as slowly as 0.5 meters/sec or as fast as 120 meters/sec (about 268 miles/hr).” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)

**“Wattage.** While awake, your brain generates between 10 and 23 watts of power—or enough energy to power a light bulb.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>)



**“Stress.** Excessive stress has shown to alter brain cells, brain structure and brain function.” (“100 Fascinating Facts You Never Knew About the Human Brain”, Nursing Assistant Central, December 31, 2008, <http://www.nursingassistantcentral.com/blog/2008/100-fascinating-facts-you-never-knew-about-the-human-brain/>) (“10 Surprising Facts About How Our Brain Works”, Buffer, September 12, 2013, <https://blog.bufferapp.com/10-surprising-facts-about-how-our-brain-works>)

**“The average brain has around 50,000 thoughts per day and 70% of them are believed to be negative”** (Hara Estroff Marano, “Depression Doing the Thinking”, Psychology Today, July 1, 2001, <https://www.psychologytoday.com/articles/200107/depression-doing-the-thinking>), (Raj Raghunathan, “How Negative is Your ‘Mental Chatter’”, Psychology Today, October 10, 2013, <https://www.psychologytoday.com/blog/sapient-nature/201310/how-negative-is-your-mental-chatter>)

**“There is no such thing as a left-brain or right-brain personality type. We are not left-brained or right-brained: we are ‘whole brained’. The average brain has around 50,000 thoughts per day and 70% of them are believed to be negative”** (Hara Estroff Marano, “Depression Doing the Thinking”, Psychology Today, July 1, 2001, <https://www.psychologytoday.com/articles/200107/depression-doing-the-thinking>), (Raj

Raghunathan, "How Negative is Your 'Mental Chatter'", Psychology Today, October 10, 2013, <https://www.psychologytoday.com/blog/sapient-nature/201310/how-negative-is-your-mental-chatter>)

**"Multitasking makes you less productive. When you multitask, your brain simply rapidly toggles back and forth between tasks. This results in decreases in attention span, learning, performance, and short-term memory."** (Matt Richtel, "Multitasking Takes toll on Memory, Study Finds", April 11, 2011, [http://bits.blogs.nytimes.com/2011/04/11/multitasking-takes-toll-on-memory-study-finds/?\\_r=1](http://bits.blogs.nytimes.com/2011/04/11/multitasking-takes-toll-on-memory-study-finds/?_r=1))

**"Surprisingly, millennials (aged 18 to 34) are more forgetful than baby boomers. They are more likely to forget what day it is or where they put their keys than their parents!"** (Deane Alban, "50 Amazing Human Brain Facts (Based on the Latest Science", Be Brain Fit, Accessed January 12, 2016, <http://bebrainfit.com/human-brain-facts/>)

**"Prescription sleeping pills don't put you to sleep. They put your brain into a state similar to being in a coma. This essentially bypasses any restorative value of sleep."** (Deane Alban, "50 Amazing Human Brain Facts (Based on the Latest Science", Be Brain Fit, Accessed January 12, 2016, <http://bebrainfit.com/human-brain-facts/>)

**"In 2000, the average attention span was 12 seconds. Now it's 8 seconds. That's shorter than the attention span of the average goldfish which is 9 seconds."** ("Attention Span Statistics", Statistic Brain, Accessed January 12, 2016, <http://www.statisticbrain.com/attention-span-statistics/>)

**"It's often said there are 100,000 miles of blood vessels in the brain when it fact that number is closer to 400 miles. Still a substantial amount!"** (MJ Cipolla, "The Arteries", The Cerebral Circulation, Morgan & Claypool Life Sciences, 2009, <http://www.ncbi.nlm.nih.gov/books/NBK53086/>)

**"If you were drinking and don't remember what you did last night, it's not because you forgot. While you are drunk your brain is incapable of forming memories."** (Aaron M. White, "What Happened? Alcohol, Memory Blackouts and the Brain", National Institute on Alcohol Abuse and Alcoholism, July 2004, <http://pubs.niaaa.nih.gov/publications/arh27-2/186-196.htm>)

**"One half a brain is as good as a whole one."** (Charles Choi, "Strange but True: When Half a Brain is Better than a Whole One", Scientific American, May 24, 2007, <http://www.scientificamerican.com/article/strange-but-true-when-half-brain-better-than-whole/>)

**"Think you're in control of your life? Think again. 95% of your decisions take place in your *subconscious* mind."** (Bruce Lipton, "Epigenetics", Bruce Lipton.com, February 7, 2012, <https://www.brucelipton.com/resource/article/epigenetics>), (Gerald Zaltman, "The Subconscious Mind of the Consumer – and How to Reach It", Harvard Business School, January 13, 2003, <http://hbswk.hbs.edu/item/the-subconscious-mind-of-the-consumer-and-how-to-reach-it>)

“A blood-brain barrier protects your brain from foreign substances. But it doesn’t work perfectly. The nicotine in smoke rushes into the brain in a mere 7 seconds. Alcohol on the other hand takes 6 minutes.” (“21 Effective Clinical Tobacco Intervention”, Therapeutics Initiative, October 31, 1997, <http://www.ti.ubc.ca/1997/10/31/effective-clinical-tobacco-intervention/>), (“From the Glass to the Brain in Six Minutes”, Science Daily, June 26, 2009, <http://www.sciencedaily.com/releases/2009/06/090615144339.htm>)

“Although pain is processed in your brain, your brain has no pain receptors and feels no pain. This explains how brain surgery can be performed while the patient is awake with no pain or discomfort.” (Brian D. Greenwald, MD, “Can the Brain Itself Feel Pain?”, Brain Line, Accessed January 12, 2016, <http://www.brainline.org/content/2012/07/can-the-brain-itself-feel-pain.html>)

“The human brain consumes the largest portion of the total energy that is generated in the human body. To be precise, the brain consumes 20% of that energy despite the fact that it only represents only 2% of the total body weight. The energy is vital for maintaining healthy brain cells and fueling nerve impulses.” (“10 Interesting Facts About the Human Brain”, EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

## **THE BRAIN DESIGN**

“The number of neurons present in the brain is approximately 100 billion which is about 15 times of the total human population on earth.” (“10 Interesting Facts About the Human Brain”, EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

“The human brain is regarded as the fattest organ in the human body. About 60% of the human brain is comprised of fat which is the highest concentration of fat that is present in a single organ in a healthy human being. Furthermore, 75% of the total brain mass is comprised of water which regulates various functions in the brain.” (“10 Interesting Facts About the Human Brain”, EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

“During early pregnancy, neurons have shown to multiply at a rate of 250,000 neurons per minute.” (“10 Interesting Facts About the Human Brain”, EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

“The energy consumed by the brain which is approximately 25 watts is sufficient enough to illuminate a light bulb.” (“10 Interesting Facts About the

Human Brain", EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

**"Your brain uses three times the amount of oxygen that your muscles do!"** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"The blood vessels in your brain can circle the earth four times."** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"There are 100,000 miles of blood vessels in the brain. That's ... a lot."** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"You have 70,000 thoughts a day."** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"Many of these are the same thought repeating itself. Let's hope most of them are good thoughts."** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"A single neuron generates only a tiny amount of electricity, but all your neurons together can generate between 10 and 23 watts of power."** (Richelle Meiss, "10 Facts About Your Amazing Brain that May Surprise You", SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**"When recall is easy, learning is low"** (Dr. Jeremy Dean, "Memory and Recall: 10 Amazing Facts You Should Know", PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

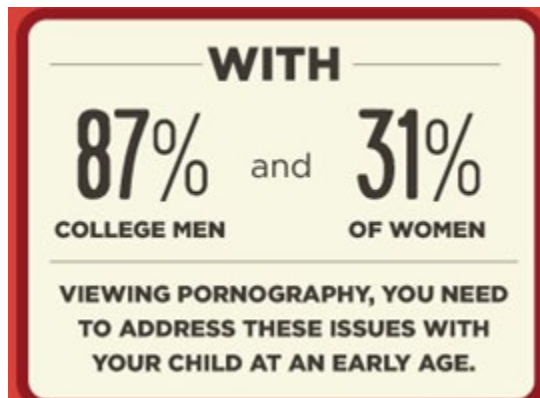
**"We feel clever when we recall something instantly and stupid when it takes ages. But in terms of learning, we should feel the exact reverse. When something comes to mind quickly, i.e. we do no work to recall it, no learning occurs. When we have to work hard to bring it to consciousness, something cool happens: we learn."** (Dr. Jeremy Dean, "Memory and Recall: 10 Amazing Facts You Should Know", PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

“The chemical school won this debate: over 99% of all synapses in the brain use chemical transmission....[Excitatory] transmission at fast synapses occurs in less than 1/1000 of a second.” (Science Magazine, November 18, 2001, pp. 1024-5.) (Judith A. Reisman, PhD, “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

## **“9 THINGS YOU SHOULD KNOW ABOUT PORNOGRAPHY AND THE BRAIN”**

“He rates [his lover] not only on attractiveness, but also on warmth and intelligence” (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“...more recently brain researchers have the ability to look into the brain while someone is viewing pornographic materials and see what effects it has on its activity.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)



### **“THE SCIENCE: WHAT HAPPENS TO THE TEENS BRAIN”**

“The circuitry in the brain undergoes an explosion of growth followed by a rapid pruning of neuron pathways between 10 and 13.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Brain scans have also found the teenage brain is dominated by areas associated with pleasure and reward, and emotional response, perhaps explaining the emotional roller-coaster years associated with puberty.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Dopamine is a neurotransmitter that is central in our drive for personal reward. When teens take part in stimulating or potentially addictive habits, such as pornography, there is a flood of dopamine in the brain. With repetitive increases of dopamine released into the teen brain it is rewired to crave the same effect.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”,



Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Teen brains are the most sensitive to dopamine at around age 15 and react up to four times more strongly to images perceived as exciting.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“A teen’s brain is at its peak of dopamine production and neuroplasticity, making it highly vulnerable to addiction and rewiring as their brain is not yet finished developing.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Sexuality specifically increases DeltaFosB a protein that serves a role as a mediator in natural reward memory. This study also found that overexpression of DeltaFosB induced a hypersexual syndrome.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“She also highlighted research which has suggested that watching pornography can effectively shrink the brains of teenagers because they are not fully developed.” (Laura Hughes, “Children May be Too Clever for our Internet Porn Filters, Minister Admits,” The Telegraph, November 5, 2015, <http://www.telegraph.co.uk/news/predictions/technology/11978699/Children-may-be-too-clever-for-our-internet-porn-filters-minister-admits.html>)

## **“9 Things you Should Know About Pornography and the Brain”**

*[Note: The following contains a frank, though non-graphic, discussion of pornography addiction. Parents are therefore cautioned to examine the material themselves before sharing it with children or teenagers.]*



“Because the human brain is the biological anchor of our psychological experience, it is helpful to understand how it operates.” says [William M. Struthers](#), associate professor of psychology at Wheaton College. “Knowing how it is wired together and where it is sensitive can help us understand why pornography affects people the way it does.” Here are 9 things you should know about pornography affects the brain.

1. “Sexually explicit material triggers mirror neurons in the male brain. These neurons, which are involved with the process for how to mimic a behavior, contain a motor system that correlates to the planning out of a behavior. In the case of pornography, this mirror neuron system triggers the arousal, which leads to sexual tension and a need for an outlet. “The unfortunate reality is that when he acts out (often by masturbating), this leads to hormonal and neurological consequences, which are designed to bind him to the object he is focusing on,” [says Struthers](#). “In God's plan, this would be his wife, but for many men it is an image on a screen. Pornography thus enslaves the viewer to an image, hijacking the biological response intended to bond a man to his wife and therefore inevitably loosening that bond.”

2. “In men, there are five primary chemicals involved in sexual arousal and response. The one that likely plays the most significant role in pornography addiction is [dopamine](#). Dopamine plays a major role in the brain system that is responsible for reward-driven learning. Every type of reward that has been studied increases the level of dopamine transmission in the brain, and a variety of addictive drugs, including stimulants such as cocaine, amphetamine, and methamphetamine, act directly on the dopamine system. Dopamine surges when a person is exposed to novel stimuli, particularly if it is sexual, or when a stimuli is more arousing than anticipated. Because erotic imagery triggers more dopamine than sex with a familiar partner, exposure to pornography leads to “arousal addiction” and teaches the brain to prefer the image and become less satisfied with real-life sexual partners.”

3. “Why do men seek out a variety of new explicit sexual images rather than being satisfied with the same ones? The reason is attributed to the [Coolidge effect](#), a phenomenon seen in mammalian species whereby males (and to a lesser extent females) exhibit renewed sexual interest if introduced to new receptive sexual partners, even after refusing sex from prior but still available sexual partners. This neurological mechanism is one of the primary reasons for the abundance and addictiveness of Internet pornography.”

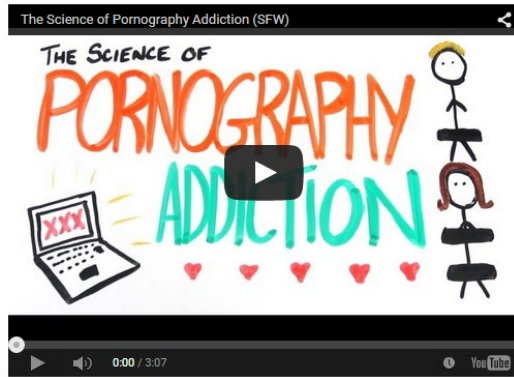
4. “Overstimulation of the reward circuitry—such as occurs with repeated dopamine spikes related to viewing pornography—creates desensitization. As [Gary Wilson explains](#), “When dopamine receptors drop after too much stimulation, the brain doesn't respond as much, and we feel less reward from pleasure. That drives us to search even harder for feelings of satisfaction—for example, by seeking out more extreme sexual stimuli, longer porn sessions, or more frequent porn viewing—thus further numbing the brain.”

5. “The psychological, behavioral, and emotional habits that form our sexual character will be based on the decisions we make,” says Struthers. “Whenever the sequence of arousal and response is activated, it forms a neurological memory that will influence future processing and response to sexual cues. As this pathway becomes activated and traveled, it becomes a preferred route—a mental journey—that is regularly trod. The consequences of this are far-reaching.”

6. “What makes Internet porn unique? Wilson identifies a number of reasons, including: (1) Internet porn offers extreme novelty; (2) Unlike food and drugs, there are almost no physical limitations to Internet porn consumption; (3) With Internet porn one can escalate both with more novel “partners” and by viewing new and unusual genres; (4) Unlike drugs and food, Internet porn doesn't eventually activate the brain's natural aversion system; and (5) The age users start watching porn. A teen's brain is at its peak of dopamine production and neuroplasticity, making it highly vulnerable to addiction and rewiring.”

7. “Men's exposure to sexually explicit material is correlated with [social anxiety](#), [depression](#), [low motivation](#), [erectile dysfunction](#), [concentration problems](#), and [negative self-perceptions](#) in terms of physical appearance and sexual functioning.”

8. “The following video offers a brief overview of the affect of pornography on the brain.”



9. "In this video, Gary Wilson discusses the disturbing symptoms showing up in some heavy Internet porn users, the surprising reversal of those symptoms, and the science behind these phenomena. Although it is not presented from a Christian perspective, the discussion is highly recommended for better understanding the deleterious and wide-ranging effects pornography has on men."



(Joe Carter, "9 Things you Should Know about Pornography and the Brain", The Gospel Coalition, May 8, 2013, <http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

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## #2 INTRODUCTION

“What we're saying here is that an event which lasts half a second within five to ten minutes has produced a structural change that is in some ways as profound as the structural changes one sees in [brain] damage.”

(Neuroscientist, Dr. Gary Lynch, University of California at Irvine, discussing the brain's processing of sensory communication. In, the award winning program series *The Brain: Learning and Memory*, The Annenberg/CPB Collection, WNET, 1984) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“...more recently brain researchers have the ability to look into the brain while someone is viewing pornographic materials and see what effects it has on its activity.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“According to Dr. Roberts, churches often treat this issue as a moral one, but fail to recognize it’s mainly a brain problem” (Terry Cu-Unjieng, “Why 68% of Christian Men Watch Porn”, Conquer Series, Accessed April 5, 2017, <https://conquerseries.com/why-68-percent-of-christian-men-watch-porn/>)

“To understand behavior, porn and the brain, one must understand our incredible brains.”

### **“GREY MATTER: 50 SHADES, PORNOGRAPHY AND THE SHAPING OF OUR BRAINS”**

“*Fifty Shades of Grey* hits UK cinemas this Valentine’s day. Six years on from writing a major feature on porn and the UK Church for *Premier Christianity*, Martin Saunders explores the growing impact of sexually explicit content on modern culture.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Porn, and the way it is shaping our individual and collective cultural mindset, has moved on dramatically since I last wrote on the subject for this title six years ago. Sexually explicit material is no longer on the fringes of our culture; it’s in the mainstream.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Why, when the Church has apparently woken up to its porn problem, is its use even more prolific than we perhaps imagined? What has



enabled this? Is it time to respond in ways other than the existing, and seemingly flawed ones? To answer these questions, let's take a step back and look at how society's relationship with adult material has shifted in recent years." (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

## **"Blurred Lines"**

"The lines between pornographic and mainstream culture have become increasingly blurry; a slow creep in a more 'liberated' direction seems to have reached a tipping point. When poorly written publishing phenomenon *Fifty Shades of Grey* (Random House) made the transition from Kindle to paperback in 2012, pre-existing shame barriers simply disappeared. People were happy to discuss how much they enjoyed the sexually explicit book. They were proud to sit and read a copy on the train. Without any announcement, the boundaries of acceptability had shifted. I recently noticed a dad reading a copy as he sat poolside at our children's swimming lesson." (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

"Of course, erotic literature, just like risqué art house cinema, is nothing new. What is interesting is how this material is now viewed: not as something to be kept hidden, or at least to be enjoyed in private, but as culturally mainstream as *The X Factor* and James Bond. Just before Christmas, British porn star Brooklyn Blue even released an innuendo-based festive single, which received plenty of lighthearted media coverage, if not critical acclaim. Porn is no longer viewed as a dirty, secret habit. It is considered a bit of fun as long as it's kept out of the hands of children." (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

## **THE BRAIN SIZE**

"Did you know that the brain has 100,000 miles [400?] (160,934 Kilometers) of blood vessels?" (Reagan M., "10 Interesting Facts About the Brain You Don't Want to Miss", Boggling Facts, September 21, 2015, <http://www.bogglingfacts.com/lists/science/human-body/10-interesting-facts-about-the-brain-you-dont-want-to-miss/>)

“More than 100,000 chemical reactions take place in your brain every second.” (Reagan M., “10 Interesting Facts About the Brain You Don’t Want to Miss”, Boggling Facts, September 21, 2015, <http://www.bogglingfacts.com/lists/science/human-body/10-interesting-facts-about-the-brain-you-dont-want-to-miss/>) (Clement Ejiofor, “Discover These Amazing Facts About Your Brain”, NAIJ, February, 2015, <https://www.naij.com/373420-discover-these-amazing-facts-about-your-brain.html>)

“It is estimated that the human brain has a raw **computational power between 10 power(13) and 10 Power(16) operations per second**. It is far more that 1 million times the number of people on Earth.” (“Amazing Facts About Human Brain”, The Unusual Facts, September 21, 2015, <http://www.theunusualfacts.com/2012/09/amazing-facts-about-human-brain.html>)

“The study, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” was published in the journal *JAMA Psychiatry*.” (Jim Liebelt, “Porn Viewing Linked to Less Brain Grey matter”, Home Word, June 3, 2014, [https://homeword.com/2014/06/03/porn-viewing-linked-to-less-brain-grey-matter/#.VcJnB\\_IVhBc](https://homeword.com/2014/06/03/porn-viewing-linked-to-less-brain-grey-matter/#.VcJnB_IVhBc))

“Participants in the study watched four hours of pornography per week. The researchers scanned the men’s brains using magnetic resonance imaging (MRI) technology while showing them sexually explicit images from websites, along with non-sexual images. When showed the sexually explicit images, the men’s MRIs revealed diminished function in the part of the brain responsible for motivation, suggesting a smaller amount of grey matter volume.” (Jim Liebelt, “Porn Viewing Linked to Less Brain Grey matter”, Home Word, June 3, 2014, [https://homeword.com/2014/06/03/porn-viewing-linked-to-less-brain-grey-matter/#.VcJnB\\_IVhBc](https://homeword.com/2014/06/03/porn-viewing-linked-to-less-brain-grey-matter/#.VcJnB_IVhBc))

“There is no such thing as ‘just looking’ at porn...it affects us neurologically...” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The repeated viewing of porn literally changes the physical structure of their brain.”(Terry Cu-Unjieng, “Why 68% of Christian Men Watch Porn”, Conquer Series, Accessed April 5, 2017, <https://conquerseries.com/why-68-percent-of-christian-men-watch-porn/>)

“How does this ‘brain sabotage’ occur? Brain scientists tell us that "in 3/10 of a second a visual image passes from the eye through the brain, and whether or not one wants to, the brain is structurally changed and memories are created - we literally 'grow new brain' with each visual experience.” (Restak in Bill Moyers, "Mind & Body: The Brain," PBSTV, February 1993.) (Hearing

on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

“The ease of access, variety of images, and the vigorous sensory constitution of this media go beyond the strength of mental imagery and fantasy. People can see whatever they want, whenever they want, however they want.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Women are perpetually available for their pleasure with minimal immediate consequences.” (Read Mercer Schuchardt, “Hugh Hefner’s Hollow Victory: How the Playboy Magnate Won the Culture War, Lost His Soul, and Left Us with a Mess to Clean Up,” Christianity Today, December 2003, 50–54) (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

- 1. Available**
- 2. Accessable**
- 3. Affordable**
- 4. Anonymity**
- 5. Appealing**
- 6. Addictive**

### #3 DOPAMINE

“Frequent porn consumption tends to escalate. Because of porn’s addictive nature, porn consumers usually need an ever-increasing dosage over time in order to feel the same level of enjoyment, and they often have to seek out more extreme and hard-core forms of porn. Porn consumers can reach a point where they enjoy porn less and less, but want it more and more.”

(“Why Consuming Porn is an Escalation Behavior”, Fight the New Drug, August 23, 2017, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

“Long-term abuse can wear out these pathways, reducing the number of receptors that respond to dopamine. Some of Volkow's more chilling PET scan images show the brains of former methamphetamine users: Some have been drug free for months but their dopamine systems are still not firing on all cylinders. *Dopamine fuels motivation and pleasure, [and] it's also crucial for learning and movement.*”

(*Science*, “Getting. the Brain's Attention,” Volume 278, Number 5335, Issue of 3 Oct 1997, at 35-35. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Once the brain becomes less sensitive to dopamine, it ‘*becomes less sensitive to natural reinforcers,*’ Volkow says, such as the ‘pleasure of seeing a friend, watching a movie, the curiosity that drives exploration.’ The only stimuli still strong enough to activate the sputtering motivation circuit, she says, are [euphoric exogenous or endogenously produced] drugs. (*Science*, “Getting. the Brain's Attention,” Volume 278, Number 5335, Issue of 3 Oct 1997, at 984. Emphasis added.)” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“In “Getting the Brain's Attention,” *Science reports* that dopamine appears to highlight and aid addiction to biologically significant stimuli, even when the rewards are long since past (in this case, read pornographic, autoerotic activity) rather than merely signaling pleasure as previously thought.” (*Science*, “Getting. the Brain's Attention,” Volume 278, Number 5335, Issue of 3 Oct 1997, at 35-37. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“[T]he neurotransmitter dopamine may contribute to addiction...Dopamine release within the brain highlights, or draws attention to, certain significant or surprising events [not just]

consuming a tasty morsel of food or *engaging in sexual activity*, but also events that predict rewards, and stimuli, like loud noises and flashing lights, that are simply startling. By underscoring such events, say these researchers, the dopamine signal helps the animal learn to recognize them--*and in some cases, to repeat them.*" (*Science*, "Getting. the Brain's Attention," Volume 278, Number 5335, Issue of 3 Oct 1997, at 35-37. Emphasis added.) (Judith A. Reisman, PhD, "The Psychopharmacology of Pornography: A Clear & Present Danger", The Insti Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"This new view of dopamine as an aid to learning rather than a pleasure mediator may help explain why many addictive drugs, which unleash massive surges of the neurotransmitter in the brain, can drive continued use without producing pleasure—as when cocaine addicts continue to take hits long after the euphoric effects of the drug have worn off or when [sex and pornography] use continues long after it has become distasteful." (*Science*, "Getting. the Brain's Attention," Volume 278, Number 5335, Issue of 3 Oct 1997, at 35-37. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"...dopamine functions within the body to motivate you to do what is in the best interest of your genes. The more dopamine that is released in your body, the more you are drawn to a particular experience. The highest amount of dopamine is released when someone is sexually stimulated and experiences sexual release. Other researchers have described dopamine as essentially the glue that holds together the connection of nerves in our brain that lead us to repeat behaviors." (Daigle, N. (2010). Acquiring tastes and loves. In (J.R. Stoner & D.M. Hughes, Eds.) *The social costs of pornography*. USA: Witherspoon Institute.) (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"Frequent porn consumption tends to escalate. Because of porn's addictive nature, porn consumers usually need an ever-increasing dosage over time in order to feel the same level of enjoyment, and they often have to seek out more extreme and hard-core forms of porn. Porn consumers can reach a point where they enjoy porn less and less, but want it more and more." (Fight the New Drug, August 23, 2017, "Why Consuming Porn Is an Escalating Behavior", site accessed 11.1.17, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)



“We learn from neuroscience that dopamine works alongside opioids. Dopamine influences the desire for an experience; the opioid makes you like it. Internet porn provides unlimited sexual stimuli, stimulating dopamine to continuously release to a chemical level that is nearly impossible to match through natural human bodily experiences. Thus the brain becomes trained for a level of stimulation (to quickly and constantly available computer images) that can’t possibly be duplicated in real life.” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“In the process of using more and more pornography, the brain gets used to self-stimulation to porn and feeling a pleasurable release. What people don’t usually realize is that gradually, their brain starts to fight them. Professor Wilson found that when the brain keeps experiencing abnormally high levels of stimulation (such as with sexual release while watching porn), it moves into a protective mode of lowering the dopamine release, so that people will want less of the overly stimulating experience. So with less dopamine, the viewer becomes less satisfied with self-stimulating to the same old porn. The individual is then compelled to desperately seek stimulation that might elicit the same levels of a dopamine experienced previously. The brain changes, physically, and becomes desensitized to the images it saw before and needs more and more to reach the same levels of arousal. ... This greater need for stimulation is called tolerance. And tolerance is one of the key markers of addiction.” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“Like any potentially addictive substance, porn triggers the release of dopamine into a part of the brain called the reward center (a.k.a. reward pathway or system). [2] Basically, the reward center’s job is to make you feel good whenever you do something healthy, like eating a great meal, having sex, or getting a good workout. [3] The “high” you get makes you want to repeat the behavior again and again. [4] (See How Porn Affects The Brain Like A Drug.) Your brain is hardwired to motivate you to do things that will improve your health and chance of survival. [5] Simple.” [2]

National Institute On Drug Abuse: The Reward Pathway. (2016). Retrieved From <http://www.drugabuse.gov/publications/teaching-packets/understanding-drug-abuse-addiction/section-1/4->

Reward-Pathway; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017; Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. Cell, 162 (8), 712-725. Doi:10.1016/J.Cell.2015.07.046; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. Journal Of Neuroscience, 33 (8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013 [3] Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMr1511480; Zatorre, R. J., & Salimpoor, V. N., (2013) From Perception To Pleasure: Music And Its Neural Substrates. Proceedings Of The National Academy Of The Sciences Of The United States Of America, 110, 2. Doi:10.1073/Pnas.1301228110; Hedges, V. L., Chakravarty, S., Nestler, E. J., & Meisel, R. L. (2009). Delta FosB Overexpression In The Nucleus Accumbens Enhances Sexual Reward In Female Syrian Hamsters. Genes Brain And Behavior, 8(4), 442-449. Doi:10.1111/J.1601-183X.2009.00491.X [4] Bostwick, J. M., & Bucci, J. E. (2008). Internet Sex Addiction Treated With Naltrexone. Mayo Clinic Proceedings, 83(2), 226-230. Doi:10.4065/83.2.226; Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books. (106-108). [5] Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. American Psychologist, 71(8), 670-679. Doi:10.1037/Amp0000059; Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. Neuron, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Paul, P. (2007). Pornified: How Pornography Is Transforming Our Lives, Our Relationships, And Our Families. (75) New York: Henry Hold And Co.; Hyman, S. E. (2005). Addiction: A Disease Of Learning And Memory. American Journal Of Psychiatry, 162(8), 1414-1422. ("Why Consuming Porn is an Escalation Behavior", Fight the New Drug, August 23, 2017, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

**"The brain's sensitivity to dopamine, the 'Gotta get it!' neurochemical crests, which spurs novelty-seeking, overrides executive control, and helps consolidate learning and habits."** (Gary Wilson and Marnia Robinson, "Why Shouldn't Johnny Watch Porn If He Likes", Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

**"In fact, teen brains respond to anything perceived as exciting with *twice to four times* the reward-circuitry activation of adults thanks to their extra dopamine sensitivity and bigger spikes of dopamine. Both novelty and searching/seekingspike dopamine in *all* human brains, but cyber erotica's endless possibilities prove an irresistible lure for many teens."**

***The first time I looked at those hot pictures the feeling seemed to be out of this world, just ineffable. Suddenly I knew there was something worth living for, everything else was just boring, everyday life. I fled to this artificial drug: porn and masturbation. It was not unusual to watch porn for hours a day.*** (Gary Wilson and Marnia Robinson, "Why Shouldn't Johnny Watch Porn If He Likes", Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“‘Ineffable?’ Yes. Teens are more likely to register sexual arousal, and other highs, as transcendental, memorable experiences. *That* is why you can still recall the shimmering details of that first centerfold. But there's more evidence of hypersensitivity to thrills.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“Importantly, the feedback loop doesn't run on dopamine. It runs on *glutamate*. Both neurochemicals have the power to activate ‘Go get it!’ signals in your reward circuitry. Glutamate stimulation is why porn can still ring your chimes even when your reward circuitry has stopped responding to dopamine and real partners. Reward circuit (*dopamine*) → PFC (associations formed) → feedback loop (*glutamate*) to reward circuit.” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

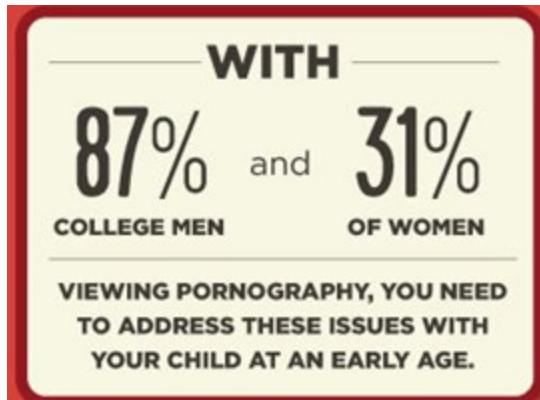
“Our brains are wired to be drawn to things that provide natural rewards: things like food or sex. Porn mimics what our brains want to see, triggering surge after surge of dopamine, overriding our natural satiation mechanisms, and causing a buildup of the protein Delta-FosB in the brain’s reward circuit.” (Matt Fradd, “Does Porn Impact the Brain”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“This numbs a person’s response to other pleasures (desensitization) makes someone hyper-reactive to porn (sensitization), and leads to an erosion of willpower (hypofrontality) (Matt Fradd, “Does Porn Impact the Brain”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“Dr. Norman Doidge, author of *The Brain That Changes Itself*, explains in his book that porn is more exciting than satisfying because we have two separate pleasure systems in our brains: one for exciting pleasure and another for satisfying pleasure.” (Sam Black, “Porn Can’t Give No Satisfaction”, Covenant Eyes, April 26, 2013, <http://www.covenanteyes.com/2013/04/26/porn-no-satisfaction/>)

“Pornography, Doidge writes, hyperactivates the appetite system. But the satisfying system is left starving for the real thing, which includes actual touching, kissing, caressing, and a connection not only with the body but also the mind and soul. The satisfying system releases

Reward Circuitry Research	
Unique Adolescent Features	Notes
Enhanced sensitivity to cues and rewards	Especially if reward is unexpected, or violates expectations
Enhanced novelty seeking	Novelty is its own reward, as each new experience stimulates dopamine
Peak of baseline dopamine	Amplifies rewards
Peak of dopamine receptor density, enhancing rewards	Dopamine receptors decline almost 50% by early twenties
Cannabinoid (CB1) receptors peak during adolescence, enhancing rewards	Significant decline in CB1 receptors by adulthood
Less aversion to overconsumption of drugs and natural rewards	Can consume more with fewer negative consequences
Sex hormones enhance reward circuitry dopamine	Dopamine is central to libido and memory formation



oxytocin and endorphins, and bellows, in the words of Marvin Gaye, 'Ain't nothing like the real thing, Baby.'" (Sam Black, "Porn Can't Give No Satisfaction", Covenant Eyes, April 26, 2013, <http://www.covenanteyes.com/2013/04/26/porn-no-satisfaction/>)

"Users also frequently notice numbed sensitivity to pleasure (probably from lower dopamine receptors), which shows up as skyrocketing libido, that is, a need for more frequent stimulation (more dopamine) to self-medicate restlessness or anxiety. Often they require more extreme material to achieve climax, develop erectile dysfunction, or discover that sex with a willing partner doesn't satisfy them (leading back to supplemental, or perhaps exclusive) porn use." ("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Cambridge Neuropsychiatrist Valerie Voon was featured last year in the UK documentary *Porn on the Brain* (<http://www.deseretnews.com/article/865587003/New-UK-study-finds-porn-affects-brain-like-drugs-alcohol.html?pg=all>). Her research demonstrates that the brains of habitual porn users show great similarity to the brains of alcoholics. A brain structure called the ventral striatum plays a significant role in the reward system of the brain – the pleasure pathways. It is the same part of the brain that 'lights up' when an alcoholic sees a picture of a drink."

"Dr. William Struthers, author of *Wired for Intimacy* (<http://www.amazon.com/Wired-Intimacy-Pornography-Hijacks-Brain/dp/0830837000>), sounds a similar alarm, teaching that viewing pornography and masturbating actually *weakens the region of our brain known as the cingulate cortex* (<http://www.covenanteyes.com/2012/07/09/how-does-porn-affect-the-body-and-brain/>) – the region that is responsible for moral and ethical decision making and willpower."

"(<http://www.covenanteyes.com/science-of-porn-addiction-ebook/>) In *The Porn Circuit* (<http://www.covenanteyes.com/science-of-porn-addiction-ebook/>). Sam Black describes the various hormones and

neurotransmitters involved when someone views porn and how each ingredient in this neuro-cocktail contributes to the problem:

- “When having sex or watching porn, dopamine is released into a region of the brain responsible for emotion and learning, giving the viewer a sense of sharp focus and a sense of craving ‘I have got to have this thing; this is what I need right now.’ It supplies a great sense of pleasure. The next time the viewer gets the ‘itch’ for more sexual pleasure, small packets of dopamine are released in the brain telling the user: ‘Remember where you got your fix last time. Go there to get it.’”
- “Norepinephrine is also released, creating alertness and focus. It is the brain’s version of adrenaline. It tells the brain, ‘Something is about to happen, and we need to get ready for it.’”
- “Sex or porn also trigger the release of oxytocin and vasopressin. These hormones help to lay down the long-term memories for the cells. They ‘bind’ a person’s memories to the object that gave him or her the sexual pleasure.”
- “The body releases endorphins, natural opiates that create a ‘high,’ a wave of pleasure over the whole body.”
- “After sexual release serotonin levels also change, bringing a sense of calm and relaxation.”

“This system works the way it is supposed to work when you’re having sex with your spouse. Together you can experience a high, an alertness of sexual pleasure, and the deep calm afterwards (norepinephrine, endorphins, and serotonin). With each sexual embrace you are emotionally bonding to this person (oxytocin and vasopressin). Over time a craving for sex is transformed into a desire for one another (dopamine).”

“But porn short-circuits the system.”

“Multiple problems happen when porn is used. First, instead of forming a deep connection to a person, your brain ends up ‘bonding’ to a pornographic experience. Your brain remembers where the sexual high was experienced, and each time you desire sexual



stimulation, you feel a sharp sense of focus: I've got to go back to the porn."

"In addition, pornography gives the brain an unnatural high. In a recent TEDx talk, physiology teacher Gary Wilson (<http://www.covenanteyes.com/2012/11/08/why-guys-get-addicted-to-internet-porn-the-neuroscience-behind-obsessive-behavior/>) explained that when men look at porn, they experience surge after surge of dopamine in the brain. The brain eventually fatigues, stopping the production of dopamine, leaving the viewer wanting more but unable to reach a level of satisfaction. As a result, everyday pleasures stop causing excitement and the viewer seeks out more novel, more intense pornography to get the same high as before."

"This imbalance in the brain leads to many problems: impotence with your spouse, frequent masturbation with very little satisfaction, anxiety, fatigue, lack of motivation, inability to concentrate, and escalating tastes for more bizarre or novel porn."

"Get free from porn. From a behavioral standpoint, change is possible. Men and women have broken free from the grip of pornography and reclaimed their sexuality. You can learn more in the free book, The Porn Circuit: Understanding your Brain and Break Porn Habits in 90 Days (<http://www.covenanteyes.com/science-of-porn-addiction-ebook/>)."

(Luke Gilderson, Covenant Eyes, February 3, 2014, "Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us", <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

"Scans show that porn can alter the reward centre too."

"Once the reward centre is altered, a person will compulsively seek out the activity or place that triggered the dopamine discharge." (Like addicts who get excited passing the alley where they first tried cocaine, the patients got excited thinking about their computers.) They crave despite negative consequences. (This is why those patients could crave porn without liking it.) Worse, over time, a damages dopamine system makes one more 'tolerant' to the activity and needing more stimulation, to get the rush and

quiet the craving. ‘Tolerance’ drives a search for ramped-up stimulation, and this can drive the change in sexual tastes towards the extreme.”

“The most obvious change in porn is how sex is so laced with aggression and sadomasochism. As tolerance to sexual excitement develops, it no longer satisfies; only by releasing a second drive, the aggressive drive, can the addict be excited. And so – for people psychologically predisposed – there are scenes of angry sex, men ejaculating insultingly on women’s faces, angry anal penetration, etc. Porn sites are also filled with the complexes Freud described: “Milf” (‘mothers I’d like to fuck’\_ sites show us the Oedipus complex is alive; spanking sites sexualize a childhood trauma; and many other oral and anal fixations. All these features indicated that porn’s dirty little secret is that what distinguishes ‘adult sites’ is how ‘infantile,’ they are, in terms of how much power they derive from our infantile complexes and forms of sexuality and aggression. Porn doesn’t ‘cause’ these complexes, but it can strengthen them, by wiring them into the reward system. The porn triggers a ‘new-sexuality’ – an interplay between the pornographer’s fantasies, and the viewer’s.”

“Teenagers’ brains are especially plastic. Now, 24/7 access to internet porn is laying the foundation of their sexual tastes. In Beeban Kidron’s InRealLife, a gripping film about the effects of the internet on teenagers, a 15-year-old boy... it’s so hard for me to actually find a connection to a girl.”

“The sexual tastes and the romantic longings of these boys have become dissociated from each other. Meanwhile, the girls have ‘downloaded’ on to them the expectation that they play roles written by pornographers. Once, porn was used by teens to explore, prepare and relieve sexual tension, in anticipation of a real sexual relationship. Today, it supplants it.”

“In her book, Bunny Tales: Behind Closed Doors at the Playboy Mansion, Izabella St James, who was one of Hugh Hefner’s former ‘official girlfriends’, described sex with Hef. Hef, in his late 70’s would have sex twice a week, sometimes with four or more of his girlfriends at once, St James among them. He had novelty, variety, multiplicity and women willing

to do what he pleased. At the end of the happy orgy, wrote St James, came ‘the grand finale: he masturbated while watching porn’.

“Here, the man who could actually live out the ultimate porn fantasy, with real porn starts, instead turned from their real flesh and touch, to the image on the screen. Now, I ask you, what is wrong with this picture?” (Norman Doidge, The Guardian, September 26, 2013, “Brain scans of porn addicts: what’s wrong with this picture?”, <https://www.theguardian.com/commentisfree/2013/sep/26/brain-scans-porn-addicts-sexual-tastes>)

### **“The Science: What Happens to the Teens Brain”**

“The circuitry in the brain undergoes an explosion of growth followed by a rapid pruning of neuron pathways between 10 and 13.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Brain scans have also found the teenage brain is dominated by areas associated with pleasure and reward, and emotional response, perhaps explaining the emotional roller-coaster years associated with puberty.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Dopamine is a neurotransmitter that is central in our drive for personal reward. When teens take part in stimulating or potentially addictive habits, such as pornography, there is a flood of dopamine in the brain. With repetitive increases of dopamine released into the teen brain it is rewired to crave the same effect.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“Teen brains are the most sensitive to dopamine at around age 15 and react up to four times more strongly to images perceived as exciting.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“A teen’s brain is at its peak of dopamine production and neuroplasticity, making it highly vulnerable to addiction and rewiring as their brain is not yet finished developing.” (“How Pornography Addiction

Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Sexuality specifically increases DeltaFosB a protein that serves a role as a mediator in natural reward memory. This study also found that overexpression of DeltaFosB induced a hypersexual syndrome.”**

(“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Why is it that some consider adrenaline and dopamine to be drugs if drug companies produce them, yet they will not acknowledge these *same chemicals* to be drugs if pornography stimulates the brain to produce them?”** (Donald L. Hilton, Jr., MD, “He Restoreth My Soul,” Forward Press Publishing, LLC, © 2009).

### **“Porn Changes the Brain”**

**B87 “If you’re wondering what a neuron is and why it’s on fire, here’s what that means. A neuron is a brain cell, and when brain cells get activated at the same time by something you see or hear or smell or whatever, they release chemicals that help strengthen the connection between those**

**neurons.”** (Bostwick, J. M. and Bucci, J. E. (2008). Internet Sex Addiction Treated with Naltrexone. Mayo Clinic Proceedings 83, 2: 226–230; Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, 63.) (“Porn Changes the Brain”, Fight the New Drug, August 8, 2014, <http://fightthenewdrug.org/porn-changes-the-brain/#sthash.f4KEwobK.dpbs>)

**“For example, when you eat something delicious, your brain releases dopamine, a chemical that makes you feel good.”** (Hilton, D. L., and Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective. Surgical Neurology International, 2: 19; (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3050060/>) Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, 107; Paul, P. (2007). Pornified: How Pornography Is Transforming Our Lives, Our Relationships, and Our Families. New York: Henry Hold and Co., 75; Nestler, E. J. (2005). Is There a Common Molecular Pathway for Addiction? Nature Neuroscience 9, 11: 1445–1449.) (“Porn Changes the Brain”, Fight the New Drug, August 8, 2014, <http://fightthenewdrug.org/porn-changes-the-brain/#sthash.f4KEwobK.dpbs>)

### **“Porn is like a Drug”**

**“...the brain is trying to protect itself from the overload of dopamine by getting rid of some of its chemical receptors...”** (Hilton, D. L., and Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective. Surgical Neurology International, 2: 19; (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3050060/>) Angres, D. H. and Bettinardi-Angres, K. (2008). The Disease of Addiction: Origins, Treatment, and Recovery. Disease-a-Month 54: 696–721.) (“Porn is Like a Drug”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-like-a-drug/#sthash.7UjH4NAT.dpbs>)

“...endless novelty, shock, and surprise—all of which increase the dopamine surge.” (Paul, P. (2007). *Pornified: How Pornography Is Transforming Our Lives, Our Relationships, and Our Families*. New York: Henry Hold and Co., 75; Caro, M. (2004). *The New Skin Trade*. Chicago Tribune, September 19; Brosius, H. B., et al. (1993). Exploring the Social and Sexual ‘Reality’ of Contemporary Pornography. *Journal of Sex Research* 30, 2: 161–70.) (“Porn is Like a Drug”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-like-a-drug/#sthash.7UjH4NAT.dpbs>)

“Little things that used to make them happy, like seeing a friend or playing their favorite sport, can’t compete with the dopamine flood that comes with porn, so they’re left feeling anxious or down until they can get back to it.” (Paul, P. (2007). *Pornified: How Pornography Is Transforming Our Lives, Our Relationships, and Our Families*. New York: Henry Hold and Co., 90.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“...iFosB’s job is to help you remember to do things that feel good or are important.” (Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered in the Context of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“While dopamine is motivating your brain to do things and rewarding it for doing them, iFosB is quietly leaving trail markers in your brain, creating a pathway to help you get back there. When this happens with healthy behaviors, it’s a very good thing.” (Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered in the Context of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“...a teen brain’s reward pathway has a response two to four times more powerful than an adult brain—which means teen brains release even higher levels of dopamine.” (Sturman, D. and Moghaddam, B. (2011). Reduced Neuronal Inhibition and Coordination of Adolescent Prefrontal Cortex during Motivated Behavior. *The Journal of Neuroscience* 31, 4: 1471-1478.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“Teen brains also produce higher levels of iFosB, leaving them extra vulnerable to addiction.” (Ehrlich, M. E., Sommer, J., Canas, E., and Unterwald, E. M. (2002). Periadolescent Mice Show Enhanced DeltaFosB Upregulation in Response to Cocaine and Amphetamine. *The Journal of Neuroscience* 22: 9155–9159.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

## **“A Drug Is a Drug”**

“Dopamine is important in the parts of our brain that allow us to move, and when the dopamine-producing parts of the brain are damaged, Parkinson’s

disease results. To treat Parkinson's, physicians prescribe dopamine as a drug, and it helps the patient move again. So is dopamine a drug only if the pharmaceutical lab makes it, and not if the brain makes the same chemical for the same purpose?" (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

"...both of these brain drugs are very important in human sexuality—and in pornography and sexual addiction. Dopamine, in addition to its role in movement, is an integral neurotransmitter, or brain drug, in the pleasure/reward system in the brain." (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

### **"Disruption of Dopamine"**

"In the center of the brain is the nucleus accumbens. This almond-sized area is a key pleasure reward center, and when activated by dopamine and other neurotransmitters, it causes us to value and desire pleasure rewards. Dopamine is essential for humans to desire and value appropriate pleasure in life. Without it, we would not be as incentivized to eat, procreate, or even to try to win a game." (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

"It's the overuse of the dopamine reward system that causes addiction. When the pathways are used compulsively, a downgrading occurs that actually decreases the amount of dopamine in the pleasure areas available for use, and the dopamine cells themselves start to atrophy, or shrink. The reward cells in the nucleus accumbens are now starved for dopamine and exist in a state of dopamine craving, as a downgrading of dopamine receptors on the pleasure cells occurs as well. This resetting of the 'pleasure thermostat' produces a 'new normal.' In this addictive state, the person must act out in addiction to boost the dopamine to levels sufficient just to feel normal." (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

"As the desensitization of the reward circuits continues, stronger and stronger stimuli are required to boost the dopamine. In the case of narcotic addiction, the addicted person must increase the amount of the drug to get the same high. In pornography addiction,



progressively more shocking images are required to stimulate the person.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Pornography addiction is frantic learning, and perhaps this is why many who have struggled with multiple addictions report that it was the hardest for them to overcome. Drug addictions, while powerful, are more passive in a ‘thinking’ kind of way, whereas pornography viewing, especially on the internet, is a much more active process neurologically. The constant searching for and evaluating of each image or video clip for its potency and effect is an exercise in neuronal learning, limited only by the progressively rewired brain. Curiosities are thus fused into compulsions, and the need for a larger dopamine fix can drive the person from soft-core to hard-core to child pornography—and worse. A paper published in the Journal of Family Violence in 2009 revealed that 85 percent of men arrested for child pornography had also physically abused children.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

**“Dopamine** is a neurotransmitter that is known to underlie all drugs of addiction. Dopamine seems to play an important role in helping people identify what things in their environment are significant. This chemical is going to be the primary reason why craving occurs. Often dopamine is referred to as a pleasure chemical. Its levels are increased when we do things that generally perpetuate our lives and the survival of our species. For example, satisfying hunger by eating a meal, satisfying thirst by drinking water, and satisfying the sex drive by engaging in intercourse all are correlated with heightened dopamine levels. External or internal sexual cues can trigger the release of dopamine in key brain regions that are also sensitive to testosterone. The key element to remember here is that dopamine is directing us toward resolving the tension that is being produced by the sexual images and anticipation of sexual release. It provides the rush that men feel when they view pornography.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equipt.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“‘Because the human brain is the biological anchor of our psychological experience, it is helpful to understand how it operates,’ says William M. Struthers, associate professor of psychology at Wheaton College. ‘Knowing how it is wired together and where it is sensitive can help us understand why

pornography affects people the way it does.’ Here are 9 things you should know about pornography affects the brain.”

1. “Sexually explicit material triggers mirror neurons in the male brain. These neurons, which are involved with the process for how to mimic a behavior, contain a motor system that correlates to the planning out of a behavior. In the case of pornography, this mirror neuron system triggers the arousal, which leads to sexual tension and a need for an outlet. ‘The unfortunate reality is that when he acts out (often by masturbating), this leads to hormonal and neurological consequences, which are designed to bind him to the object he is focusing on,’ says Struthers. ‘In God’s plan, this would be his wife, but for many men it is an image on a screen. Pornography thus enslaves the viewer to an image, hijacking the biological response intended to bond a man to his wife and therefore inevitable loosening that bond.”

2. “In men, there are five primary chemicals involved in sexual arousal and response. The one that likely plays the most significant role in pornography addiction is dopamine. Dopamine plays a major role in the brain system that is responsible for reward-driven learning. Every type of reward that has been studied increases the level of dopamine transmission in the brain, and a variety of addictive drugs, including stimulants such as cocaine, amphetamine, and methamphetamine, act directly on the dopamine system. Dopamine surges when a person is exposed to novel stimuli, particularly if it is sexual, or when a stimuli is more arousing than anticipated. Because erotic imagery triggers more dopamine than sex with a familiar partner, exposure to pornography leads to ‘arousal addiction’ and teaches the brain to prefer the image and become less satisfied with real-life sexual partners.”

(Joe Carter, The Gospel Coalition, May 8, 2013, “9 Things You Should Know About Pornography and the Brain, <https://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

## **“PORN, NOVELTY AND THE COOLIDGE EFFECT”**

“Nothing natural comes close to releasing as much dopamine as sex... Dopamine is the ‘gotta get it!’ neurochemical behind all motivation. When

dopamine drops, so does motivation.” (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“...a primitive part of your brain assumes quantity of dopamine equals value of activity even when it doesn't.” [value neutral] (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“While dopamine and norepinephrine may provide the immediate rush that men get from viewing porn, the key event in determining whether or not viewing becomes a habitual pattern is going to be the release of endogenous opiates produced during sexual release (most notably in response to orgasm). Many men will report that this experience is accompanied by feelings of transcendence and euphoria that are known to be related to the release of endogenous opiates. It has been known for decades that the brain produces its own opiates...” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Dopamine isn't just released in response to novelty. When something is more arousing than anticipated the brain's reward circuitry releases dopamine and fires like crazy. Internet porn always offers something unexpected, something kinkier.” (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“The desire and motivation to pursue sex arises from a neurochemical called dopamine.” (F. Giuliano, J. Allard, “Dopamine and male sexual function,” Eur Urol 40/6 (2001): 601-608) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p73)

“Dopamine amps up the centrepiece of a primitive part of the brain known as the reward circuitry. It's where you experience cravings and pleasure and where you get addicted.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p73)

“The evolutionary purpose of dopamine is to motivate you to do what serves your genes.” (Natalie Angier, “A Molecule of Motivation, Dopamine Excels at Its Task,” The New York Times, October 26, 2009, <http://www.nytimes.com/2009/10/27/science/27angier.html>.) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p74)

“The bigger the squirt the more you want something. No dopamine and you just ignore it. High-calorie chocolate cake and ice cream – a big blast. Celery – not so much. Dopamine surges are the barometer by which you

determine the value of any experience. They tell you what to approach or avoid, and where to put your attention. Further, dopamine tells you what to remember by helping to rewire your brain.” (Cathleen Genova, "Learning addiction: Dopamine reinforces drug-associated memories," research press release, September 9, 2009, [http://www.eurekalert.org/pub\\_releases/2009-09/cp-lad090309.php](http://www.eurekalert.org/pub_releases/2009-09/cp-lad090309.php)) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p74)

“Sexual stimulation and orgasm add up to the biggest natural blast of dopamine available to your reward circuitry. Although dopamine is sometimes referred to as the ‘pleasure molecule’, it's actually about seeking and searching for pleasure, not pleasure itself.” (John D. Salamone and Mercè Correa, "The Mysterious Motivational Functions of Mesolimbic Dopamine," *Neuron* 76/3 (2012): 470–485, <http://dx.doi.org/10.1016/j.neuron.2012.10.021>.) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p74)

“Thus dopamine rises with anticipation.” (Robert Sapolsky, "Dopamine Jackpot! Sapolsky on the Science of Pleasure," FORA TV, February 1, 2012, [http://www.dailymotion.com/video/xh6ceu\\_dopamine-jackpot-sapolsky-on-the-science-of-pleasure\\_news](http://www.dailymotion.com/video/xh6ceu_dopamine-jackpot-sapolsky-on-the-science-of-pleasure_news)) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p74)

“It's your motivation and drive to pursue potential pleasure or long term goals.” (Bridget M. Kuehn, "Willingness to Work Hard Linked to Dopamine Response in Brain Regions," *News@JAMA*, May 2, 2012, <http://newsatjama.jama.com/2012/05/02/willingness-to-work-hard-linked-to-dopamine-response-inbrain-regions>; and Lisa Franchi, "Dopamine Keeps the Brain Motivated to Pursue a Distant Goal," *NaturalTherapyForAll.com*, August 07, 2013, <http://blog.naturaltherapyforall.com/2013/08/07/dopamine-keeps-thebrain-motivated-to-pursue-a-distant-goal>) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p74)

“Bingeing on porn feels like a promise of pleasure, but recall that the message of dopamine isn't ‘satisfaction’. It's, ‘keep going, satisfaction is j-u-s-t around the corner’.” (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p81)

“What's a brain to do when it has unlimited access to a super-stimulating reward it never evolved to handle? Some brains adapt – and not in a good way. The process is gradual. At first, using porn and masturbating to orgasm resolves sexual tension and registers as satisfying.” (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p82)

“But if you chronically overstimulate yourself, your brain may start to work against you. It protects itself against excessive dopamine by decreasing its responsiveness to it, and you feel less and less gratified.” (P.J. Kenny, G. Voren and P.M. Johnson, "Dopamine D2 receptors and striatopallidal transmission in addiction and obesity," *Curr Opin Neurobiol*, 23/4 (2013): 535-538, doi: 10.1016/j.conb.2013.04.012. This has been confirmed by German researchers Simone Kühn and Jürgen Gallinat, "Brain Structure and Functional Connectivity

Associated With Pornography Consumption: The Brain on Porn," *JAMA Psychiatry* (2014), doi:10.1001/jamapsychiatry.2014.93) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p82)

"This decreased sensitivity to dopamine pushes some users into an even more determined search for stimulation, which, in turn, drives lasting changes, actual physical alterations of the brain. They can be challenging to reverse. As one user said, 'Porn goes in like a needle but comes out like a fishhook.'" (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p82)

"Superficial conditioning (or learning) can be summed up as, 'So this is how people have sex and this is how I should do it.' Unconscious sexual conditioning can be summed up as, 'This is what turns me on' or, at a brain level, 'This is what jacks up my dopamine'. It could be as simple as preferring redheads. Or maybe dainty feet or pecs appeal more than breasts." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p84)

"However our preferences arise, our brains evolved to record what turns us on. This phenomenon rests on a crucial neural principle: Nerve cells that fire together wire together. Briefly, the brain links together the nerve cells for sexual excitement (in the reward circuit) with the nerve cells that store memories of the events associated with the excitement. For example, type in your favourite porn site and you activate nerve cells that blast your reward circuitry. Up goes your dopamine." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p84)

"Even if you're watching tame porn and haven't developed any porn-induced fetishes, the issue of how you get your jollies can have repercussions. If you use internet porn, you may be training yourself for the role of voyeur or to need the option of clicking to something more arousing at the least drop in your dopamine, or to search and search for just the right scene for maximum climax. Also, you may be masturbating in a hunched-over position – or watching your smartphone in bed nightly." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, p86)

"...dopamine... 'feel-good neurotransmitter' because it mediates pleasurable responses to stimuli like sex, drugs, and food. The addictive potential of a drug is related to how much it increases the pool of extracellular dopamine (meth spikes dopamine levels higher than food, sex,

or crack).” (Cicada, “You don’t always like what you want”, Bioephemera, March 4, 2007, <http://bioephemera.com/2007/03/04/you-dont-always-like-what-you-want/>)

“About a decade ago, Kent Berridge suggested that ‘liking’ (pleasure) and ‘wanting’ (incentive) are distinct reward center impulses that can be assessed separately, and that dopamine is primarily involved in ‘wanting.’” (Cicada, “You don’t always like what you want”, Bioephemera, March 4, 2007, <http://bioephemera.com/2007/03/04/you-dont-always-like-what-you-want/>)

“Dopamine, the chemical triggered by sexual arousal and orgasm, is also the chemical that triggers addiction pathways in the brain...Donald L. Hilton Jr., MD, a practicing neurosurgeon and a clinical associate professor of neurosurgery at the University of Texas, observes:

*Pornography is a visual pheromone, a powerful 100 billion dollar-per-year brain drug that is changing sexuality even more rapidly through the cyber-acceleration of the Internet. It is “inhibiting orientation” and “disrupting pre-mating communication between the sexes by permeating the atmosphere.”* (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

### **“How Pornography Drugs and Changes your Brain” G1 3.20.2017**

“...current scientific evidence regarding the brain and addiction.”

“This article will seek to answer two questions: (1) Biologically, is the brain affected by pornography and other sexual addictions? (2) If so, and if such addictions are widespread, can they have a societal effect as well?”

“...brain drug...”

“Fallacy No. 1: Pornography is not a drug.”

“Fallacy No. 2: Pornography is therefore not a real addiction.”

“No one ever died from looking at porn.”

“...whether pornography is a ‘physical, chemical’ agent, i.e., ‘a drug,’”

“...adrenaline, also called epinephrine,...”



“...are excitatory neurotransmitters that tell the brain to Go! ... when the dopamine-producing parts of the brain are damaged, Parkinson’s disease results. To treat Parkinson’s, physicians prescribe dopamine as a drug,...

“Dopamine, in addition to its role in movement, is an integral neurotransmitter, or brain drug, in the pleasure/reward system in the brain.”

“...cerebral cortex, a layer of nerve cells that carry conscious, volitional thought. In the front, over the eyes, are the frontal lobes. ... important in judgment, and, if the brain were a car, the frontal lobes would be the brakes. These lobes have important connections to the pleasure pathways, so pleasure can be controlled.”

“In the center of the brain is the nucleus accumbens. ... key pleasure reward center, and when activated by dopamine and other neurotransmitters, it causes us to value and desire pleasure rewards.”

“It’s the overuse of the dopamine reward system that causes addiction. ... decreases the amount of dopamine in the pleasure areas available for use, and the dopamine cells themselves start to atrophy, or shrink. ... cells in the nucleus accumbens are now starved for dopamine and exist in a state of dopamine craving, as a downgrading of dopamine receptors on the pleasure cells occurs as well. This resetting of the ‘pleasure thermostat’ produces a ‘new normal.’ In this addictive state, the person must act out in addiction to boost the dopamine to levels sufficient just to feel normal.”

“...desensitization of the reward circuits continues, stronger and stronger stimuli are required to boost the dopamine. In the case of narcotic addiction, the addicted person must increase the amount of the drug to get the same high. In pornography addiction, progressively more shocking images are required to stimulate the person.”

“...the frontal lobes also atrophy, or shrink. ... ‘wearing out of the brake pads.’ This physical and functional decline in the judgment center of the brain causes the person to become impaired in his ability to process the consequences of acting out in addiction. ... hypofrontality, and have noted a similarity in the behavior of addicted persons to the behavior of patients with frontal brain damage.”

“...speak of the brain as being plastic, or subject to change and re-wiring.”

“Drug addictions, while powerful, are more passive in a ‘thinking’ kind of way, whereas pornography viewing, especially on the internet, is a much more active process neurologically. ... Curiosities are thus fused into compulsions, and the need for a larger dopamine fix can drive the person from soft-core to hard-core to child pornography-and worse. A paper published in the Journal of Family Violence in 2009 revealed that 85 percent of men arrested for child pornography had also physically abused children.”

“Oxytocin and vasopressin are important hormones in the brain with regard to physically performing sexually. Studies show that oxytocin is also important in increasing trust in humans, in emotional bonding between sexual mates, and in parental bonding. We are wired to bond to the object of our sexuality.”

“...in the context of pornography use, it can result in the formation of a virtual mistress of sorts.”

“A frequent side effect is that it also dramatically reduces their capacity to love (e.g., it results in a marked dissociation of sex from friendship, affection, caring, and other normal healthy emotions and traits which help marital relationships). ... develop an ‘alien ego state’ (or dark side), whose core is antisocial lust devoid of most values.”

“In time, the ‘high’ obtained from masturbating to pornography becomes more important than real life relationships. . . . Dr. Doidge notes, ‘Pornographers promise healthy pleasure and a release from sexual tension, but what they often deliver is addiction, and an eventual decrease in pleasure.’”

“‘Porn impotence,’ where the man experiences sexuality preferentially with porn instead of a woman, is a real and growing phenomenon. When a man’s sex drive has been diverted away from his spouse in this way, writes Dr. Cline, the wife can ‘easily sense this, and often [feels] very lonely and rejected.’”

“In 1934 Cambridge anthropologist Dr. J. D. Unwin published Sex and Culture. In it he examined 86 cultures spanning 5,000 years with regard to the effects of both sexual restraint and sexual abandon. His perspective was

strictly secular, and his findings were not based in moralistic dogma. He found, without exception, that cultures that practiced strict monogamy in marital bonds exhibited what he called creative social energy, and reached the zenith of production. Cultures that had no restraint on sexuality, without exception, deteriorated into mediocrity and chaos. In *Houposia, The Sexual and Economic Foundations of a New Society*, published posthumously, he summarized:"

"In human records, there is no instance of a society retaining its energy after a complete new generation has inherited a tradition which does not insist on pre-nuptial and post-nuptial continence. . . . The evidence is that in the past a class has risen to a position of political dominance because of its great energy and that at the period of its rising, its sexual regulations have always been strict. It has retained its energy and dominated the society so long as its sexual regulations have demanded both pre-nuptial and post-nuptial continence. . . ."

"I know of no exceptions to these rules."

"We must face the reality that pornography will affect virtually every family in some way. ... data from five universities, 87 percent of college males and 31 percent of females view pornography."

"Pornography has become the sex education venue for the majority of the next generation,..."

"...professionals to advocate a simple treatment plan that is based upon willpower or moral character."

"I have found that there are four major factors that most predict success in recovery."

- "First, the individual must be personally motivated to be free of his addiction and possess a willingness to do whatever it takes to achieve success. . . . You can never force a person to get well if he doesn't want to. . . ."

- “Second, it is necessary to create a safe environment, which drastically reduces access to porn and other sexual triggers. . .”
- “Third, he should affiliate with a twelve-step support group. . .”
- “Fourth, the individual needs to select a counselor/therapist who has had special training and success in treating sexual addictions.”

(Donald L. Hilton, Jr., “Slave Master: How Pornography Drugs & Changes Your Brain”, Salvo Magazine, Summer 2010, <https://www.movieguide.org/news-articles/slave-master-how-pornography-drugs-a-changes-your-brain.html>)

“Scientists now view depression as a condition of low energy and little motivation. Recent research confirmed that the ‘go get it!’ neurochemical dopamine is the main player.” (Andrew Myers, “Researchers both induce, relieve depression symptoms in mice by stimulating single brain region with light,” Stanford School of Medicine, December 12, 2012, <http://med.stanford.edu/ism/2012/december/deisseroth.html>.) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p69)

“In fact, impaired/restored dopamine signalling may be behind many of the symptoms/improvements reported by recovering users. Again, I’ll have a lot more to say about that in the next chapter.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p69)

“Our brains are wired to be drawn to things that provide natural rewards: things like food or sex. Porn mimics what our brains want to see, triggering surge after surge of dopamine, overriding our natural satiation mechanisms, and causing a buildup of the protein Delta-FosB in the brain’s reward circuit.” (Matt Fradd, “Does Porn Impact the Brain?”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

- “When having sex or watching porn, dopamine is released into a region of the brain responsible for emotion and learning, giving the viewer a sense of sharp focus and a sense of craving: ‘I have got to have this thing; this is what I need right now.’ It supplies a great sense of pleasure. The next time the viewer gets the ‘itch’ for more sexual pleasure, small packets of dopamine are released in the brain telling the user: ‘Remember where you got your fix last time. Go there to get it.’” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“This system works the way it is supposed to work when you’re having sex with your spouse. Together you can experience a high, an alertness of sexual pleasure, and the deep calm afterwards (norepinephrine, endorphins, and serotonin). With each sexual embrace you are emotionally bonding to this person (oxytocin and vasopressin). Over time a craving for sex is transformed into a desire for one another (dopamine).

But porn short-circuits the system.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“In addition, pornography gives the brain an unnatural high. In a recent TEDx talk, physiology teacher Gary Wilson explained that when men look at porn, they experience surge after surge of dopamine in the brain. The brain eventually fatigues, stopping the production of dopamine, leaving the viewer wanting more but unable to reach a level of satisfaction. As a result, everyday pleasures stop causing excitement and the viewer seeks out more novel, more intense pornography to get the same high as before. This imbalance in the brain leads to many problems: impotence with your spouse, frequent masturbation with very little satisfaction, anxiety, fatigue, lack of motivation, inability to concentrate, and escalating tastes for more bizarre or novel porn.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“Wilson’s site references several studies that show how the brain is affected by porn, suggesting that too much Internet porn could be rewiring the brain, even if you’re not addicted, by ‘taking advantage of these innate types of reward circuit responses,’ he said, that keep dopamine—the feel-good chemical in the brain—surging. Although what’s on screen isn’t real sex, the brain naturally finds voyeurism, novelty, shock and surprise, seeking and searching and other aspects sexually stimulating. Every time a person watching porn clicks to a new video with new naked people and new surprises, his dopamine shoots up. David said that while he was watching porn six hours a day, he’d only watch each video for about 10 seconds and then move on to the next.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“In men, there are five primary chemicals involved in sexual arousal and response. The one that likely plays the most significant role in

pornography addiction is dopamine. Dopamine plays a major role in the brain system that is responsible for reward-driven learning. Every type of reward that has been studied increases the level of dopamine transmission in the brain, and a variety of addictive drugs, including stimulants such as cocaine, amphetamine, and methamphetamine, act directly on the dopamine system. Dopamine surges when a person is exposed to novel stimuli, particularly if it is sexual, or when a stimuli is more arousing than anticipated. Because erotic imagery triggers more dopamine than sex with a familiar partner, exposure to pornography leads to 'arousal addiction' and teaches the brain to prefer the image and become less satisfied with real-life sexual partners.” (Joe Carter, “9 Things You Should Know about Pornography and the Brain”, The Gospel Coalition, May 8, 2013, <http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

“Overstimulation of the reward circuitry—such as occurs with repeated dopamine spikes related to viewing pornography—creates desensitization. As Gary Wilson explains, ‘When dopamine receptors drop after too much stimulation, the brain doesn't respond as much, and we feel less reward from pleasure. That drives us to search even harder for feelings of satisfaction—for example, by seeking out more extreme sexual stimuli, longer porn sessions, or more frequent porn viewing—thus further numbing the brain.’” (Joe Carter, “9 Things You Should Know about Pornography and the Brain”, The Gospel Coalition, May 8, 2013, <http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

“The extreme stimulation of today's enticements can hijack our brains. There's no way John Mayer would view the *same* vagina 300 times before rising if, say, he only had a porn magazine, or even a woman. Constant novelty-plus-erotica is riveting. His brain releases more dopamine with each new image, even as it shuts down key nerve cell receptors (to drive him to binge). He is tricked into valuing his pussy panorama even above 3-D stimuli.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“For example, when you eat something delicious, your brain releases dopamine, a chemical that makes you feel good.” (Brown, T. M. and Fee, E. (2003). Alfred C. Kinsey: A Pioneer of Sex Research. American Journal of Public Health 93, 6: 896-897.) (“Porn’s



Harm is Changing Fast”, Fight the New Drug, August 4, 2014, <http://fightthenewdrug.org/porns-harm-is-changing-fast/#sthash.XvAu4Fq3.dpbs>)

“...the brain will actually cut down on its dopamine receptors—the tiny landing docs that take the dopamine in once it’s been released in your brain.” (Hilton, D. L., and Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective. *Surgical Neurology International*, 2: 19; (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3050060/>) Angres, D. H. and Bettinardi-Angres, K. (2008). The Disease of Addiction: Origins, Treatment, and Recovery. *Disease-a-Month* 54: 696–721.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“...the user has to look at more porn, look at porn more often, or find a more hardcore version—or all three—to get aroused.” (Angres, D. H. and Bettinardi-Angres, K. (2008). The Disease of Addiction: Origins, Treatment, and Recovery. *Disease-a-Month* 54: 696–721; Zillmann, D. (2000). Influence of Unrestrained Access to Erotica on Adolescents’ and Young Adults’ Dispositions Toward Sexuality. *Journal of Adolescent Health* 27, 2: 41–44.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“Eventually, as the brain acclimates to the overload of dopamine, users often find that they can’t feel normal without that dopamine high.” (Angres, D. H. and Bettinardi-Angres, K. (2008). The Disease of Addiction: Origins, Treatment, and Recovery. *Disease-a-Month* 54: 696–721; Berridge, K. C. and Robinson, T. E. (2002). The Mind of an Addicted Brain: Neural Sensitization of Wanting Versus Liking. In J. T. Cacioppo, G. G. Bernston, R. Adolphs, et al. (Eds.) *Foundations in Social Neuroscience* (pp. 565–72). Cambridge, Mass.: MIT Press.) (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

“Dopamine is important in the parts of our brain that allow us to move, and when the dopamine-producing parts of the brain are damaged, Parkinson’s disease results. To treat Parkinson’s, physicians prescribe dopamine as a drug, and it helps the patient move again. So is dopamine a drug only if the pharmaceutical lab makes it, and not if the brain makes the same chemical for the same purpose?” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” *Salvo* 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“...both of these brain drugs are very important in human sexuality—and in pornography and sexual addiction. Dopamine, in addition to its role in movement, is an integral neurotransmitter, or brain drug, in the pleasure/reward system in the brain.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” *Salvo* 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

## **“Disruption of Dopamine”**

“Let’s review some of the important components of the reward system of the brain. On the outside is the cerebral cortex, a layer of nerve cells that carry conscious, volitional thought. In the front, over the eyes, are the frontal lobes. These areas are important in judgment, and, if the brain were a car, the frontal lobes would be the brakes. These lobes have important connections to the pleasure pathways, so pleasure can be controlled.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“In the center of the brain is the nucleus accumbens. This almond-sized area is a key pleasure reward center, and when activated by dopamine and other neurotransmitters, it causes us to value and desire pleasure rewards. Dopamine is essential for humans to desire and value appropriate pleasure in life. Without it, we would not be as incentivized to eat, procreate, or even to try to win a game.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“It’s the overuse of the dopamine reward system that causes addiction. When the pathways are used compulsively, a downgrading occurs that actually decreases the amount of dopamine in the pleasure areas available for use, and the dopamine cells themselves start to atrophy, or shrink. The reward cells in the nucleus accumbens are now starved for dopamine and exist in a state of dopamine craving, as a downgrading of dopamine receptors on the pleasure cells occurs as well. This resetting of the ‘pleasure thermostat’ produces a ‘new normal.’ In this addictive state, the person must act out in addiction to boost the dopamine to levels sufficient just to feel normal.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“As the desensitization of the reward circuits continues, stronger and stronger stimuli are required to boost the dopamine. In the case of narcotic addiction, the addicted person must increase the amount of the drug to get the same high. In pornography addiction, progressively more shocking images are required to stimulate the person.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“These Characteristics include novelty-at-a-click, effortless access, and constant violation of expectations via startling stimuli. All of these release the neurotransmitter dopamine in the reward circuitry. Overconsumption

can therefore dysregulate dopamine response in some brains, thus tampering with mood, confidence and ability to respond to pleasure.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain On Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Nothing natural comes close to releasing as much dopamine as sex... Dopamine is the ‘gotta get it!’ neurochemical behind all motivation. When dopamine drops, so does motivation.” (Gary Wilson, “Porn Novelty and the Coolidge

“Internet porn always offers something unexpected, something kinkier.” (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“...a primitive part of your brain assumes quantity of dopamine equals value of activity even when it doesn't.” [value neutral] (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“When people look at sexual imagery, dopamine floods these brain regions, causing an intense feeling of pleasure. Over time, people come to associate those direct images (called reinforcers) with the pleasurable feelings. Anything associated with those images, including Playboy's trademark bunny image, could also prime people to seek out that positive rush. [6 (Other) Great Things Sex Can Do for You]” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“However, if that pleasure response gets triggered over and over — with frequent doses of Playboy or other sexually charged imagery — a person will need bigger hits to feel a response, Plaud said.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“‘The more you do and the greater degree of access, the more explicit [it is], you seem to need more and more,’ Plaud told Live Science.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“Pornography viewing releases dopamine in the brain. This actually occurs in any type of sexual stimulation. Since dopamine supplies a sense of pleasure, it's release trains the brain to return to the same source to get more of it. In the context of a marriage relationship, this release of pleasure inducing dopamine can be a force helping partners return to each other for

sexual pleasure.”

“Pornography points the individual back to porn. If viewed for long periods of time, surges of dopamine can create an unnatural high in the brain eventually leading to fatigue. Once fatigued, the brain limits its release of dopamine, leaving the individual wanting more but unable to reach satisfaction. At this point the brain has become desensitized.”

(The Effects of Pornography – Taylor Counseling Group Article, site link not working 9.22.17, <https://taylorcounselinggroup.com/the-effects-of-pornography/>)

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### **“How Porn Affects the Brain Like A Drug”**

“Since the brain can’t tell the difference between the drugs and a real, healthy reward, it goes ahead and activates the reward center.”<sup>A</sup>

“Want to guess what else does that? Porn.”

“Researchers have found that internet porn and addictive substances like tobacco have very similar effects on the brain,<sup>B</sup> and they are significantly different from how the brain reacts to healthy, natural pleasures like food or sex.<sup>C</sup> Think about it. When you’re munching a snack or enjoying a romantic encounter, eventually your cravings will drop and you’ll feel satisfied. Why? Because your brain has a built-in “off” switch for natural pleasures.

“Dopamine cells stop firing after repeated consumption of a ‘natural reward’ (e.g. food or sex),” explains Nora Volkow, Director of The National Institute of Drug Abuse.<sup>D</sup> But addictive drugs go right on increasing dopamine levels without giving the brain a break.<sup>E</sup> The more hits drug users take, the more dopamine floods their brain, and the stronger their urges are to keep using. That’s why drug addicts find it so hard to stop once they take the first hit.

“[O]ne hit may turn into many hits, or even a lost weekend.”<sup>F</sup>

“Scientists have long known that sexual interest and performance can be increased simply by introducing something new—like a different sexual position, a toy, or a change of partner.<sup>G</sup> That’s because the brain responds to new sexual stimuli by pumping out more and more dopamine, flooding

the brain just like a drug would.<sup>H</sup> And “new” is exactly what internet porn sites provide: an endless stream of fresh erotic images delivered at high speed, in vivid color, 24/7. Before consumers even start to get bored, they can always give themselves another dopamine boost just by clicking on something different, something more stimulating and hardcore than before.”<sup>I</sup>

(“How Porn Affects the Brain Like a Drug”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-affects-the-brain-like-a-drug/>)

- A. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. *New England Journal Of Medicine*, 374, 363-371. Doi:10.1056/NEJMra1511480; Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. *Neuron*, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. *Cell*, 162 (8), 713. Doi:10.1016/J.Cell.2015.07.046; Voon, V., Et Al. (2014). Neural Correlates Of Sexual Cue Reactivity In Individuals With And Without Compulsive Sexual Behaviors, *PLoS ONE*, 9(7), E102419. Doi:10.1371/Journal.Pone.0102419; Georgiadis, J. R., & Kringelbach, M. L. (2012). The Human Sexual Response Cycle: Brain Imaging Evidence Linking Sex To Other Pleasures. *Progressive Neurobiology*, 98, 49-81. Doi:10.1016/J.Pneurobio.2012.05.004) (Kerckel, S.W., (2005). Editorial: The Wide-Ranging Impact Of The Work Of Paul Back-Y-Rita, *Journal Of Integrative Neuroscience*, 4(4) 403-406; Doidge, N. (2007). *The Brain That Changes Itself*. (Xv) New York: Penguin Books.)”
- B. (Voon, V., Et Al. (2014). Neural Correlates Of Sexual Cue Reactivity In Individuals With And Without Compulsive Sexual Behaviors, *PLoS ONE*, 9(7), E102419. Doi:10.1371/Journal.Pone.0102419; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013) (Doidge, N. (2007). *The Brain That Changes Itself*. (Xiiv-Xiv) New York: Penguin Books; Kolb, B., Gibb, R., & Robinson, T.E. (2003). *Brain Plasticity And Behavior*, *Current Directions In Psychological Science*, 12(1) 1-5.)
- C. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017)
- D. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. *New England Journal Of Medicine*, 374: 363-371. Doi:10.1056/NEJMra1511480)
- E. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. *New England Journal Of Medicine*, 374: 363-371. Doi:10.1056/NEJMra1511480; Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. *Cell*, 162 (8), 712-725. Doi:10.1016/J.Cell.2015.07.046; Yanofski, J. (2011). The Dopamine Dilemma—Part II. *Innovations In Clinical Neuroscience*, 8(1), 47-53. Retrieved From <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3036556/>)

- F. (Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. *American Psychologist*, 71(8), 670-679. Doi:10.1037/Amp0000059)
- G. (Dewsbury, D. A., (1981). Effects Of Novelty Of Copulatory Behavior: The Coolidge Effect And Related Phenomena. *Psychological Bulletin*, 89(3), 464-482. Doi:10.1037/0033-2909.89.3.464; Wilson, J. R., Kuehn, R. E., And Beach, F. A. (1963). Modification In The Sexual Behavior Of Male Rats Produced By Changing The Stimulus Female. *Journal Of Comparative And Physiological Psychology*, 56, 636-644. Doi:10.1037/H0042469)
- H. (Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting. *The Journal Of Sex Research*, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123; Banca, P., Et Al. (2016). Novelty, Conditioning, And Attentional Bias To Sexual Rewards. *Journal Of Psychiatric Research*, 72, 91-101. Doi:10.1016/J.Jpsychires.2015.10.017)
- I. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6: 17. Doi.10.3390/Bs6030017; Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting. *The Journal Of Sex Research*, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123)

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## #4 BRAIN DEVELOPMENT

“As neuroscientist Sandra Aamodt quipped on NPR, ‘The car rental companies got to it first, but neuroscientists have caught up.’ Aamodt explained that the prefrontal cortex – that is the area of the brain responsible for impulse control – is not fully developed until your twenties, making 18-year-old ‘adults’ more likely to engage in risky behavior.” (“14 Things You Didn’t Know About Your Brain”, Huffington Post, November 6, 2014, [http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list\\_n\\_5597311.html](http://www.huffingtonpost.com/2014/11/06/brain-fun-facts-list_n_5597311.html))

“The impact of seeing pornography on a young person with a developing brain can be even more impactful than what is seen by an adult. (Owens, E. W., Behun, R. J., Manning, J. C., & Reid, R. C. (2012). The impact of Internet pornography on adolescents: A review of the research. *Sexual Addiction & Compulsivity*, 19(1/2), 99-122. doi:10.1080/10720162.2012.660431) An adolescent brain has not yet fully matured, particularly in the control center for suppressing of anti-social sexual behaviors they see in pornography. Thus, adolescents may be particularly vulnerable to the impact of violent pornography and are at particular risk for acting on what they see.” (Casey, B. J., & Jones, R. M. (2010). Neurobiology of the adolescent brain and behavior: Implications for substance use disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49 (12), 1189–1201.) (Somerville, L. H., Hare, T., & Casey, B. J. (2011). Frontostriatal maturation predicts cognitive control failure to appetitive cues in adolescents. *Journal of Cognitive Neuroscience*, 23 (9), 2103–2114.) (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“Though you may think your darling is growing like a weed as chubby toddlerhood gives way to lanky kid, in the first three years of your child’s life, their brain is growing faster than any other body part. At birth, a baby’s brain is about one-third the size of an adult’s brain. In 90 days, it more than doubles its volume, to 55 percent of its final size. The cerebellum in particular, a brain structure at the back of the brain involved in controlling movement, grows the fastest of all brain structures; in just three months it will be 110 percent bigger than it was at birth.” (Jordan Rosenfeld, “10 Amazing Facts About the Infant Brain”, October 22, 2015, Mental Floss, <http://mentalfloss.com/article/70105/10-amazing-facts-about-infant-brain>)

“By the age of 7, our brains are 95 percent of their adult size.” (Richelle Meiss, “10 Facts About Your Amazing Brain that May Surprise You”, SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**“A newborn baby’s brain grows about three times its size in the first year.”**  
(Richelle Meiss, “10 Facts About Your Amazing Brain that May Surprise You”, SMOSH, October 1, 2015, <http://www.smosh.com/smosh-pit/articles/facts-about-your-amazing-brain-may-surprise-you>)

**“When you were born, your brain was about the size it is now. That is one reason why babies have such large heads relative to their bodies.”** (Clement Ejiofor, “Discover These Amazing Facts About Your Brain”, NAIJ, February, 2015, <https://www.naij.com/373420-discover-these-amazing-facts-about-your-brain.html>)

**“According to estimates, over the course of a lifetime modern human brains will retain up to 1 quadrillion pieces of information.”** (Clement Ejiofor, “Discover These Amazing Facts About Your Brain”, NAIJ, February, 2015, <https://www.naij.com/373420-discover-these-amazing-facts-about-your-brain.html>)

**“Every time you have a thought you are creating new connections (neural pathways) in your brain.”** (“Amazing Facts About Human Brain”, The Unusual Facts, September 21, 2015, <http://www.theunusualfacts.com/2012/09/amazing-facts-about-human-brain.html>)

**“There’s another side to the fact that memories do not decay. That’s the idea that although memories may become less accessible, they can be revived.”** (Dr. Jeremy Dean, “Memory and Recall: 10 Amazing Facts You Should Know”, PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

**“Even things that you have long been unable to recall are still there, waiting to be woken. Experiments have shown that even information that has long become inaccessible can still be revived. Indeed, it is then re-learned more quickly than new information.”** (Dr. Jeremy Dean, “Memory and Recall: 10 Amazing Facts You Should Know”, PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

**“She also highlighted research which has suggested that watching pornography can effectively shrink the brains of teenagers because they are not fully developed.”** (Laura Hughes, “Children May be Too Clever for our Internet Porn Filters, Minister Admits,” The Telegraph, November 5, 2015, <http://www.telegraph.co.uk/news/predictions/technology/11978699/Children-may-be-too-clever-for-our-internet-porn-filters-minister-admits.html>)

**“Scan images show that watching online ‘adult’ sites can alter our grey matter which may lead to a change in sexual tastes.”**

**“Men who describe themselves addicted to porn (and who lost relationships because of it) develop changes in the same brain area – the reward centre – that changes in drug addicts. Knowing the reward centre is changed explains some porn paradoxes.”**

“The patient would also report that, far from getting more turned on by the idea of sex with his partner, he was less attracted to her (paradox 3). Through porn he acquired new sexual tastes.”

“We often talk about addicts as though they simply have ‘quantitative problems’. The ‘use too much’, and should ‘cut back’. But porn addictions also have a qualitative component: they change sexual taste. Here’s how.”

“Until recently, scientists believed our brains were fixed, their circuits formed and finalized in childhood, or ‘hardwired’. Now we know the brain is ‘neuroplastic’, and not only can it change, but that it works by changing its structure in response to repeated mental experience.”

“One key driver of plastic change is the reward centre, which normally fires as we accomplish a goal. A brain chemical, dopamine, is released, giving us the thrill that goes with accomplishment. It also consolidates the connections between neurons in the brain that helped us accomplish that goal. As well, dopamine is secreted at moments of sexual excitement and novelty. Porn scenes, filled with novel sexual ‘partners’, fire the reward centre. The images get reinforced, altering the user’s sexual tastes.” (Norman Doidge, The Guardian, September 26, 2013, “Brain scans of porn addicts: what’s wrong with this picture?”, <https://www.theguardian.com/commentisfree/2013/sep/26/brain-scans-porn-addicts-sexual-tastes>)

## **“WHY SHOULDN’T JOHNNY WATCH PORN IF HE LIKES IT?”**

“What is it about the adolescent brain that makes this guy’s experience not unusual? Answer: During adolescence a temporary neurological imbalance develops. The ‘sex, drugs and rock & roll’ part of the brain is in overdrive. The ‘let’s give this some thought’ part is still under construction, and won’t reach maturity until adulthood.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“There’s a kicker though. The capacity of our teen to wire up new sexual associations mushrooms around 11 or 12 when billions of new neural connections (synapses) create endless possibilities. However, by adulthood his brain must prune his neural circuitry to leave him with a manageable assortment of choices. By his twenties, he may not exactly be stuck with the sexual proclivities he falls into during adolescence, but they

can be like deep ruts in his brain – not easy to ignore or reconfigure.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“The capacity of our teen to wire up new sexual associations mushrooms around 11 or 12 when billions of new neural connections (synapses) create endless possibilities.” (Gary Wilson, “Why Shouldn’t Johnny Watch Porn If He Likes It,” Your Brain on Porn, February 18, 2015, [www.yourgrainonporn.com/book/export/html/664](http://www.yourgrainonporn.com/book/export/html/664))

## **“Teen brains differ from adult brains”**

“When we dug into the brain research on adolescents, we were astonished at how malleable teen brains are. Radical changes in the sexual environment hit them hardest. Here are four vulnerabilities unique to teen brains:” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

### **1. “Much stronger “Go get it!” signals”**

“The reward circuitry is the core of all drives (including libido), emotions, likes, dislikes, motivation...and addiction. In adolescence, sex hormones propel this ancient circuitry into a window of hyperactivity, which subsides by the early twenties. As journalist David Dobbs explains.

*“We all like new and exciting things, but we never value them more highly than we do during adolescence. Here we hit a high in what behavioral scientists call sensation seeking: the hunt for the neural buzz, the jolt of the unusual or unexpected. ...*

*This love of the thrill peaks at around age 15.”* (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“Alas, their heightened sensitivity to reward automatically renders teens more susceptible to addiction than if they encountered the same thrills later in life. (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)”

### **2. “Weaker ‘Stop!’ signals”**

“The sex hormones that initiate teen sensitivity to thrills unfortunately do nothing to speed up development of their brain's self-control center. A teen brain is like a new car with a Ferrari engine and Ford

Pinto brakes.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“At puberty, an extremely reactive ‘accelerator’ comes online: the brain’s emotion-motivation mechanism, or reward circuitry, located below the rational cortex. It overpowers the ‘brakes,’ the brain’s ‘CEO’ or prefrontal cortex in the forehead, which won’t fully mature *for a decade*. The latter assesses risk, thinks ahead, chooses priorities, allocates attention and controls impulses.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“Meanwhile, teens often base their choices on their emotional impulses as opposed to reasoning or planning. Later, as the prefrontal cortex matures, there will be fewer ‘I can’t believe he did that’ moments. Teens make sounder judgments and modulate mood, plan and remember more effectively.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“In the meantime, teens have trouble perceiving the consequences of ‘going for it.’ Again, this is no accident. Daredevil tendencies during adolescence serve species that must take risks then to strike out on their own or find mates. In the case of adolescent humans, evolution has simply not had time to adapt to the hazards of recreational drugs, fast cars, or excessive consumption of junk food, online gaming or Internet porn. That’s why we have the Darwin Awards.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

### 3. “Extreme neuronal growth followed by pruning”

“Human brains go through two stages of dramatic neuronal growth: one in utero and throughout the first several months of life, the other between the ages of 10 and 13— just when most boys (and now, many girls) begin to look at Internet porn. Ideally, during this critical developmental period, we humans are exposed to age-appropriate sexual behavior. We learn how to flirt and connect with potential partners.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“This second burst of neuronal activity entails first multiplication and then *subtraction* of neural connections. No wonder mood swings are a

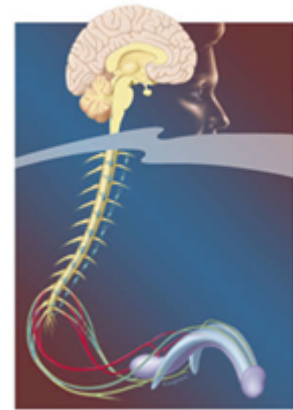
hallmark of adolescence! Together, genes and environment sculpt the clay of a teen's frontal cortex. As use-it-or-lose-it proceeds, the brain reorganizes and fine-tunes itself.”

*The cortex prunes away little used circuits, while strengthening well-worn neural pathways. Nerve cell axons in favored pathways become better insulated with myelin, increasing the speed of nerve impulses. Little branches that receive messages (called dendrites) grow like vines to better hear the incoming signal. The connections between axons and dendrite (synapses) multiply on strong circuits and vanish on weaker ones. In the end you have memories, skills, habits, preferences and ways of coping that stand the test of time.* (ibid., Dobbs, emphasis added) (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“In less glowing terms, we restrict our options—without realizing how critical our choices were during our final, pubescent, neuronal growth spurt.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“No birds or bees, just pixels please”

“Meanwhile, the adolescent brain is ripe for a perfect storm as the genetically driven hunt for novelty and the unexpected collides with the endless erotica of the Internet. Hypnotic Web-surfing—requiring no effort but scrolling and fapping—replaces leaving one's tribe to search the savanna for fertile mates.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)



## **“NEW RESEARCH ON ADOLESCENT BRAIN DEVELOPMENT AND ITS IMPLICATION FOR PREVENTION, INTERVENTION AND TREATMENT PROGRAMS”**

### **“Objectives:”**

- “Participants will learn how the adolescent brain is constructed”
- “Participants will examine effective and ineffective programs serving adolescents”

- “Participants will review new research on the adolescent brain”

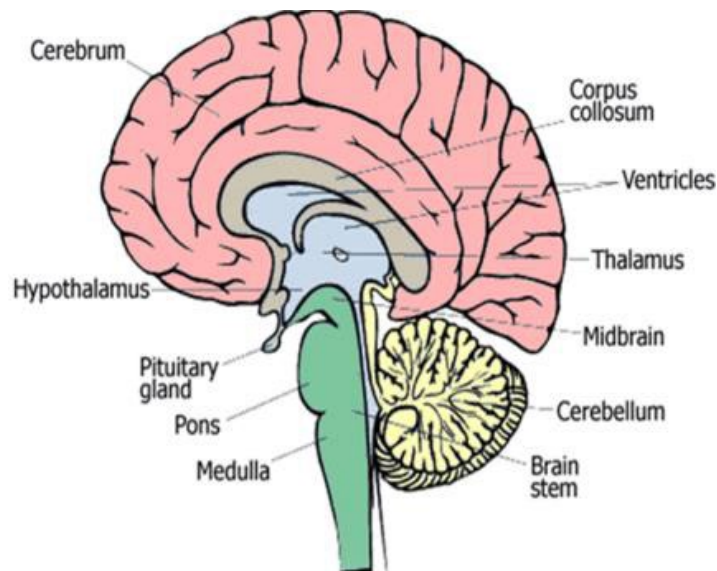
(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### “Learning Points:”

- “The adolescent brain is more similar to the brain of a child than an adult”
- “Environmental experience impacts adolescent brain development”
- “Many current prevention programs do not assist adolescents”
- “There are key elements that are necessary for prevention, intervention and treatment programs to be effective”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### “Adolescent Brain Development”

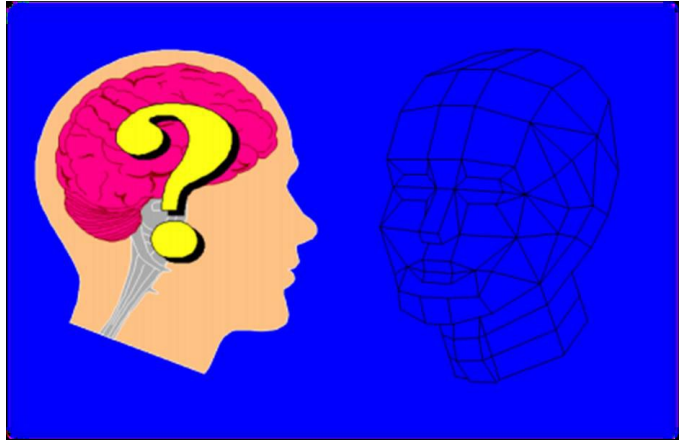


(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### “Adolescent Brain = Construction Zone”

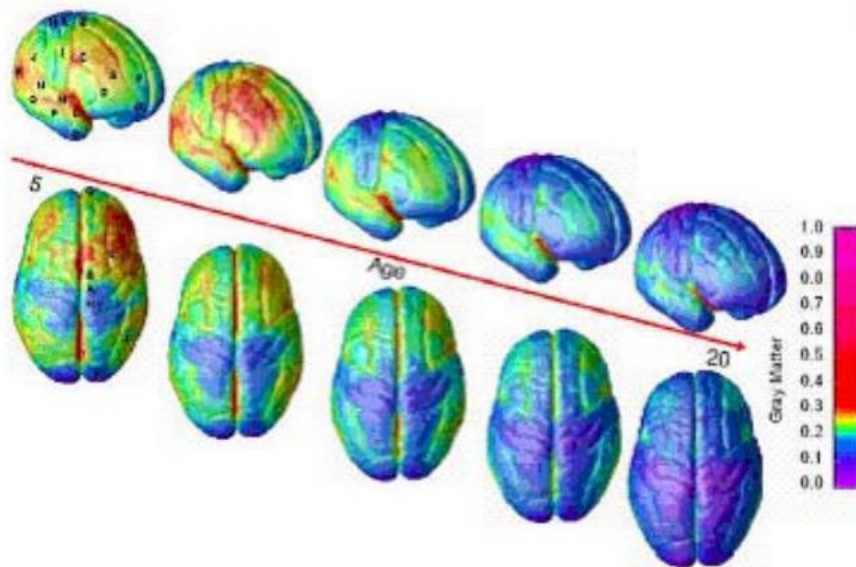


“The adolescent brain is a work in progress that is more similar to the brain of a child than an adult.” (David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015,



<http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### “Imaging Tracks Brain Maturation from ages 5 to 20”

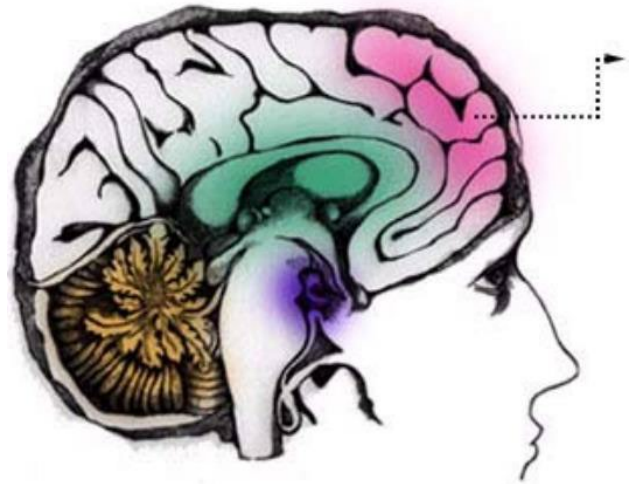


(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

## **“Frontal Cortex”**

- “‘CEO’ of the brain”
- “Responsible for planning, strategizing and judgment”
- “Growth spurt – ages 11-12”
- “Pruning / Organizing teen years”

(UW Extension, 2006) (David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015,



<http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

## **“Prefrontal Cortex and Adolescents”**

- “Know right from wrong and unable to act on knowledge”
- “Unable to hold impulses in check”
- “Children from low socioeconomic backgrounds more likely to commit crimes”
- “Make riskier choices than adults because it’s enjoyable”

(S. Bunge, Ph.D., 2008) (David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

## **“Socioeconomic Impact on brain Physiology of Children”**

- “Functional differences in prefrontal cortex response in lower socioeconomic status kids”
- “Lower socioeconomic levels show brain physiology patterns similar to someone who has frontal lobe damage”
- “Not everyone with lower socioeconomic status has low frontal lobe response”
- “Impoverished environments result in reduction in important brain activities such as less reading, fewer games, social isolation and family chaos”
- “Manifest in poorer problem solving skills and school performance”
- “The solution is proper intervention and training”

(M. Kishiyana, Ph.D., W. Boyce Ph.D., 2008) (David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Brain Activity in Bullies”**

- “Conduct disorder diagnosed adolescents vs. controls”
- “Controls functional MRI’s showed amygdala activated at the same time as prefrontal cortex”
- “Conduct disordered subjects showed activity in amygdala and ventral striatum which is associated with pleasure and reward”
- “Bullies do not respond to people being hurt with negative emotions, but with pleasure”

(The Journal of Biological Psychology, 2008) (David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Neurotransmitters & Agression: Serotonin”**

- “Serotonin levels decline temporarily in most adolescents”
- “Lower serotonin levels are associated with impulsive behavior”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Neurotransmitters: Dopamine”**

- “Dopamine is part of the REWARD/FEEL GOOD brain circuitry”
- “Nearly all of the addictive drugs (cocaine, heroin, amphetamines, alcohol) INCREASE DOPAMINE LEVELS in the brain”
- “Dopamine levels decreases throughout the brain during adolescence”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“What Does This Mean in Terms of Behavior”**

- “Impulsiveness”
- “Mood changes”
- “Inadequate emotional control”
- “Seeks out risks”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Addiction”**

- “Drugs and alcohol activate a pleasure-producing chemistry of the brain.”

- Over-stimulation of pleasure pathways causes them to neuroadapt, interfering with the normal experience of pleasure.”
- “Addiction is a disease of the pleasure-producing chemistry of the brain; neuroadaptation is the mechanism of the disease.”
- “Transition to addiction from substance abuse arises from the development of tolerance and withdrawal.”
- “Once neuroadaptation occurs, cessation of drug use leads to ‘inversion of the high’; sobriety becomes pleasureless.”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Addiction and Brain Functioning”**

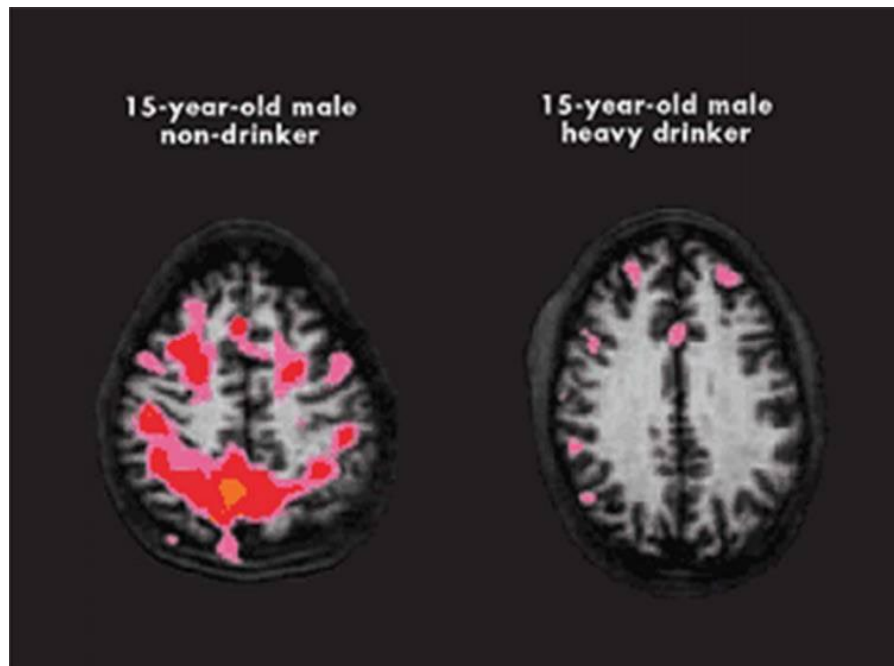
- “Baseline metabolism falls in the prefrontal cortex.”
- “Drop due to decreased excitatory dopamine input.”
- “Impaired decision making results from direct interference in prefrontal cortex.”
- “Problems with reasoning, logic and understanding consequences.”
- “The mind overvalues reward, fails to appreciate risk and fails to warn of impending danger.”
- “The mind misjudges adverse consequences.”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **“Adolescents are affected differently by repeated, heavy drinking”**

- “More likely to black-out than pass out”
- “Higher levels of alcohol-impaired memory”
- “Reduced sensitivity to the sedative effects of alcohol and the effects on motor coordination.”

(David D. Love, MFT, “New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment,” Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)



(Susan Tapert Ph.D., University of CA, San Diego) (David D. Love, MFT, "New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment," Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **"Confrontation and Scared Straight Type Programs"**

- "Nine studies conducted between 1967-1992"
- "Eight different states"
- "Average age of participants was 15 to 17"
- "Interventions increased the odds of offending by 1.6 to 1.7 to 1 compared to non-treatment control groups."

(Petrosino et al., 2003; Sherman et al., 1997) (David D. Love, MFT, "New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment," Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

### **"Comprehensive vs. Abstinence"**

"Programs must:

1. "Provide information"
2. "Encourage Abstinence"
3. "Promote condom use for those who are sexually active"
4. "Encourage fewer sexual partners"
5. "Educate about early identification of treatment of STI's"
6. "Teach sexual communication skills"

(David D. Love, MFT, "New Research on Adolescent Brain Development and its Implication for Prevention, Intervention and Treatment," Accessed May 5, 2015, <http://humanservices.ucdavis.edu/resource/uploadfiles/16--Love.pdf>)

“Once new connections form, teen brains hold tightly to these associations. In fact, research shows that our most powerful and lasting memories arise from adolescence – along with our worst habits.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p87)

### **“Three Components of the Healthy Brain”**

“This Exhibit thus addresses below how the Playboy/Spencer sex and licit and illicit drug addiction lures would alter the sexual, cognitive, and emotional functions of children who see, handle, laugh about and/or purchase such Playboy/Spencer products. Included here are a sample of relevant brain studies that suggest how millions of vulnerable, immature young brains have been and are being violated as they unsuspectingly, trustfully browse in more than 600 of Spencer’s sex and drug international conglomerates now inexplicitly ensconced in our community malls, our new “Main Street” USA.”

(Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“The following brief multi-disciplinary review of research relevant to the undeveloped, emerging, youthful brain needs to be framed by the three components of a healthy brain, defined by pioneering

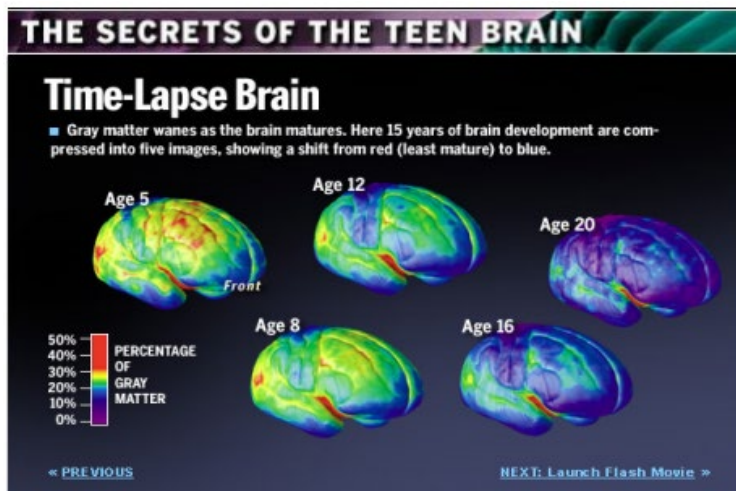
neurologist A.R. Luria: (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

1. “To be alert, awake, aware of reality”
2. “To collect and store environmental data”
3. “To monitor and correct our conduct for health and well-being.”

(A.R. Luria in Daniel Goleman and Richard Davidson, Eds., *Consciousness, Brain, States of Awareness, and Mysticism*. Harper & Row, New York, 1979, at 10.) (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“The realization that the “Teenage brain [is] a work in progress” (Image taken from the National Institute of Mental Health No. 01-4929 at The Brain exhibit at the Smithsonian, December 29, 2001, co-sponsored by the NIMH and the Smithsonian.) (left) underscores how the three tasks of the human brain are compromised by addiction lures for drugs, alcohol, and pornography at every Universal (Studios) Spencer’s Gift store, exploiting ersatz gag items, posters, books, cards, shirts and the like. Moreover, the research finds that each addiction commonly leads to others, to multiple addictions, dramatically damaging the three main tasks of the brain and directly injuring the health and welfare of millions of Spencer/Playboy underage consumers and salespersons.” (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

## “Tween and Teen Brains”



“The Undeveloped, Immature Brain: Scans Age 5 to 20 (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

1. The above brain scans are taken from a study by Dr. Jay Giedd, chief of brain imaging, the child psychiatry branch at the National Institute of Mental Health (NIH). Dr. Giedd tested 1,800 youths via magnetic resonance imaging (MRI), creating an MRI photo every two years of the growing brain. 4 The photograph above demonstrates typical brain maturation from age 5 to age 20. Says Dr. Giedd: (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))
2. “So if a teen is doing music or sports or academics, those are the cells and connections that will be hard-wired. If they're lying on the couch or playing video games or MTV, those are the cells and connections that are going [to] survive....It's sort of unfair to expect [teens] to have adult levels of...decision-making before their brains are finished being built....The frontal lobe is often called the CEO, or the executive of the brain. It's involved in things like planning and strategizing and organizing, initiating attention and stopping and starting and shifting attention. It's a part of the brain that most separates man from beast, if you will....” [Emphasis added]” (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))



“Neurologically speaking, this means as we replace old habits with new habits, new neural pathways are formed.” (Luke Gilkerson, “Hot Bods, the Bible, and the Brain: Understanding Porn Addiction”, Covenant Eyes, February 10, 2015, <http://www.covenanteyes.com/2014/02/10/hot-bods-bible-brain/>)

“...whose life has been hijacked by porn...” (Luke Gilkerson, “Hot Bods, the Bible, and the Brain: Understanding Porn Addiction”, Covenant Eyes, February 10, 2015, <http://www.covenanteyes.com/2014/02/10/hot-bods-bible-brain/>)

“In his book, *The Porn Circuit*, Sam Black explains how porn impacts the human brain. A cocktail of hormones and neurotransmitters are released while watching porn. This gives the brain an unnatural high as surge after surge of dopamine is released. Eventually the brain fatigues, leaving the viewer wanting more but unable to reach a level of satisfaction. **S999** As a result, the viewer starts to become numb to everyday pleasures. He or she begins to seek out novel, more intense porn to get the same high. Repeatedly watching porn also weakens the cingulate cortex, the region of the brain responsible for moral and ethical decision making. It weakens our ability to control sexual thoughts on a day-to-day level.” (Luke Gilkerson, “Hot Bods, the Bible, and the Brain: Understanding Porn Addiction”, Covenant Eyes, February 10, 2015, <http://www.covenanteyes.com/2014/02/10/hot-bods-bible-brain/>)

“Neurology is like the new archaeology of the soul. Just as a new archaeological find in the Holy Land can buttress our faith and call attention to passages long forgotten, so scientific studies of the human brain can be used by God to awaken us to believe in truths God wrote centuries ago.” (Luke Gilkerson, “Hot Bods, the Bible, and the Brain: Understanding Porn Addiction”, Covenant Eyes, February 10, 2015, <http://www.covenanteyes.com/2014/02/10/hot-bods-bible-brain/>)

### **“Your Brain Is Like a Garden”**

“Imagine your brain is a garden, except instead of growing flowers, fruits, and vegetables, you grow synaptic connections between neurons...Glial cells are the gardeners of your brain...other glial cells are the waste removers, pulling up weeds, killing pests, raking up dead leaves...the synaptic connections that get used less get marked by a protein, C1a (as well as others). When the microglial cells detect that mark, they bond to the protein and destroy – or prune – the synapse. In other words, your glial cells wash your brain, removing thoughts that are not being accessed. It’s like your brain’s recycling bin. It certainly gives the verse in Ephesians 5:26, ‘the washing with water through the word’ a whole new significance. Two

thousand years ago Paul was telling us that Scripture had the power to wash our brains – literally.” (Conquer Series.com, “How to Delete Porn from Your Brain”, sight accessed 9.15.17, <https://conquerseries.com/how-to-delete-porn-from-your-brain/>)

### “Nightly Brain Cleanse”

“According to Pollack and Cabane: ‘Your brain cleans itself out when you sleep – your brain cells shrink by up to 60% to create space for your glial gardeners to remove the waste and prune the synapses.’” (Conquer Series.com, “How to Delete Porn from Your Brain”, sight accessed 9.15.17, <https://conquerseries.com/how-to-delete-porn-from-your-brain/>)

“What’s fascinating is 10% of your brain works when you’re awake, and 90% works when you’re not. That’s why sleep matters. Have you ever woken up thinking sharper than the night before? Your glial cells have been at work – clearing out all the trash. That’s when we get most of our ‘aha’ moments.” (Conquer Series.com, “How to Delete Porn from Your Brain”, sight accessed 9.15.17, <https://conquerseries.com/how-to-delete-porn-from-your-brain/>)

### “Renewing of the Mind”

“To prepare for the battle each night is: meditate on Scripture before bed. Why? Because God’s word has the power to physically restructure our brain.” (Conquer Series.com, “How to Delete Porn from Your Brain”, sight accessed 9.15.17, <https://conquerseries.com/how-to-delete-porn-from-your-brain/>)

“It empowers us to take every thought into captivity to Christ. And this new study proves this because you actually have some control over what your brain decides to delete while you sleep. According to Pollack and Cabane: ‘It’s the synaptic connections you don’t use that get marked for recycling. The ones you do use are the ones that get watered and oxygenated. So be mindful of what you’re thinking about.’” (Conquer Series.com, “How to Delete Porn from Your Brain”, sight accessed 9.15.17, <https://conquerseries.com/how-to-delete-porn-from-your-brain/>)

“That is, independent science now confirms that the brain’s cognitive and moral decision making skills do not architecturally mature until an individual is twenty-two to twenty-five years of age. Therefore, exposing minors to pornographic images and devices subconsciously restructures millions of immature brains-minds and memories and nullifies their ability to give

informed moral and cognitive consent.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“Says Dr. Winters, the nucleus accumbens directs motivated behavior with the youthful, developing nucleus accumbens apparently preferring “high excitement.” Winters cites to “real-world observations” in that youngsters are drawn to risky behaviors, such as video games and substance use as high excitement with low investment. However, this applies as well to youthful use of pornography.”<sup>7</sup> (7 Ken C. Winters, Professor, Department of Psychiatry, University of Minnesota in a special report to the Treatment Research Institute, Science Addiction, on Adolescent Brain Development and Drug Abuse November 2004, [http://www.factsontap.org/docs/2004Nov\\_AdolescentBrain.pdf](http://www.factsontap.org/docs/2004Nov_AdolescentBrain.pdf), June 30, 2008.) (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“The brain matures back to front. The prefrontal cortex, just behind the forehead (called “the seat of sober second thought”) is the last part of the brain to be fully up and running. This brain area handles complex information, says Winters, “from making judgments, to controlling impulses, foreseeing consequences, and setting goals and plans. An immature prefrontal cortex is thought to be the neurobiological explanation for why teenagers show poor judgment and too often act before they think.”<sup>9</sup> (9 Adolescent Brain Development and Drug Abuse: New findings indicate that brain development still in progress during adolescence; immature brain structures may place teenagers at elevated risk of substance abuse and arrested brain development. Ken C. Winters, Department of Psychiatry, University of Minnesota, A Special Report Commissioned by the Treatment Research Institute, Philadelphia, PA, November 2004, [http://www.factsontap.org/docs/2004Nov\\_AdolescentBrain.pdf](http://www.factsontap.org/docs/2004Nov_AdolescentBrain.pdf), June 30, 2008.) (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“Youths’ architectural brain change as almost immediate.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“Dr. Giddens suggests that just as sexual images restructure the brain, sexual images also restructure the body.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“Over 1000 studies from the Surgeon General, NIMH, key medical and public health figures are in agreement.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“The Developing Nucleus Accumbens Septi: Susceptibility to Alcohol’s Effects [with focus on adolescence] Rex Montgomery Philpot, Dissertation, 3/2—4, U S. Florida, ‘[M]esolimbic dopamine (DA) activity increases in the nucleus accumbens septi (NAcZ) with exposure to natural reinforcers.’ The study finds that the developmental immaturity of adolescents ‘renders them susceptible to addiction. That children are and have been early exposed to pornography and that pornography is a natural dopaminergic, testosterone, etc., releasing factor. Sexual stimuli should find its influenced on the nucleus accumbens septi, a common marker for addiction – hence a marker for pornography addiction in adolescents.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

## #5 PREFRONTAL CORTEX

“The neocortex is the portion of the human brain that is responsible for language and consciousness. It makes up approximately 76% of the human brain...” (“10 Interesting Facts About the Human Brain”, EPYK, Accessed December 17, 2015, <http://www.epyk.com/37/10-interesting-facts-about-the-human-brain/>)

“Compromised prefrontal cortex function is among the major neurobiological modifications discussed in the research on substance abuse disorders common in humans and animals.” (Hyman SE, Malenka RC, Nestler EJ. Neural mechanisms of addiction: the role of reward-related learning and memory. *Annu Rev Neurosci*. 2006; 29:565-598.) (Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, *JAMA Psychiatry*, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Brain development and functioning” (Simon Kuhn & Jurgen Gallinat, Brain Structure and Functional Connectivity Associated With Pornography Consumption: The Brain on Porn 71 *JAMA PSYCHIATRY* 827 (2014); Valerie Voon, Thomas B. Mole, Paula Banca, Laura Porter, Laurel Morris, Simon Mitchell, Tatyana R. Lapa, Judy Karr, Neil A. Harrison, Marc N. Potenza & Michael Irvine, Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviors, 9 *PLOS ONE*, July, 2014; Kyle Pitchers, Vincent Vialou, Eric Nestler, Steven Laviolette, Michael Lehman, & Lique Coolen, Natural and Drug Rewards Act on Common Neural Plasticity Mechanisms with FosB as a Key Mediator 33 *THE JOURNAL OF NEUROSCIENCE* 3434 (2013); Donald L. Hilton, Pornography Addiction – A Supranormal Stimulus Considered in the Context of Neuroplasticity 3 *SOCIOEFFECTIVE NEUROSCIENCE & PSYCHOLOGY* 20767 (2013) (“S.C.R. 009 Resolution on the Public Health Crisis, Sponsored by Senator Todd Weiler, written by the National Center on Sexual Exploitation, February 2016, <http://utahcoalition.org/wp-content/uploads/2016/02/Utah-Resolution-Updated-and-Revised-1-5-2016.pdf>)

“The prefrontal cortex has mostly been implicated in cognitive control 51 as well as in response inhibition, behavioral flexibility, attention, and future planning.” (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“...prefrontal cortex that houses the internal representation of goals and the means to achieve them.” (Miller EK, Cohen JD. An integrative theory of prefrontal cortex function. *Annu Rev Neurosci*. 2001;24(1):167-202. Fuster JM. The prefrontal cortex—an update: time is of the essence. *Neuron*. 2001;30(2):319-333) (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

## #6 PATHWAYS

### “Change is Gradual, But It Will Come”

#### Neuroplasticity

“As neuropsychologist Dr. Tim Jennings (In the Conquer Series) explains, ‘Any type of repetitive behavior will create trails in our brain that are going to fire on an automatic sequence.’ By repeatedly watching porn - or repeating any activity, really - you are programming your thought life and actions, so that they become second nature.” (Luke Gibbons, “6 things the porn industry doesn’t want you to find out”, Premier Christianity, September 13, 2017, <https://www.premierchristianity.com/Blog/6-things-the-porn-industry-doesn-t-want-you-to-find-out>)

The human mind is a fascinating thing, and far more flexible than we assume. The mind can transform over time, learning to cope with everything from daily challenges such as stress to even catastrophic injury. This flexibility has a name: neuroplasticity. (Chris Myers, “How To Rewire Your Brain To Better Handle Stress”, Forbes, August 4, 2016, <http://www.forbes.com/sites/chrismyers/2016/08/04/how-to-rewire-your-brain-to-better-handle-stress/#1fbe0f9c69ef>)

Put simply; your brain has the amazing ability to reorganize itself, create new neural pathways, and expand neural networks. One simple way to create these pathways is to change your recurring thought pattern. (Chris Myers, “How To Rewire Your Brain To Better Handle Stress”, Forbes, August 4, 2016, <http://www.forbes.com/sites/chrismyers/2016/08/04/how-to-rewire-your-brain-to-better-handle-stress/#1fbe0f9c69ef>)

“The ‘Wanting’ system is a much larger area in the reward center, and it causes the brain to rewire itself in response to intense pleasure. [15] With the help of a protein called DeltaFosB, the ‘Wanting’ system builds new brain connections so you can remember the experience and repeat it later. [16] (See How Porn Changes the Brain)” [15] Berridge, K. C., & Robinson, T. E. (2016).

Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. *American Psychologist*, 71(8), 670-679. Doi:10.1037/Amp0000059; [16] Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology*, 3, 20767. Doi:10.3402/Snp.V3i0.20767; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067 (Fight the New Drug, August 23, 2017, “Why Consuming Porn Is an Escalating Behavior”, site accessed 11.1.17, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

“See, the brain is made up of about 100 billion special nerves called neurons, [5] that carry electrical signals back and forth between parts of the brain and out to the rest of the body. Imagine you’re learning to play an E chord on the guitar: your brain sends a signal to your hand telling it what to do. As that signal zips along from neuron to neuron, those activated nerve cells start to form connections because ‘neurons that fire together, wire together.’ Those newly-connected neurons form what’s called a ‘neuronal pathway.’ [6]”

“Think of a neuronal pathway like a trail in the woods. Every time someone uses the trail, it gets a little wider and more permanent. Similarly, every time a message travels down a neuronal pathway, the pathway gets stronger. [7] With enough repetitions, your neuronal pathway will get so strong you’ll be strumming that E chord without even thinking about it. That process of building better, faster neuronal pathways is how we learn any new skill, whether it’s memorizing math formulas or driving a car. Practice makes perfect.”

“But there’s a catch. Your brain is a very hungry organ. It may only weigh 2% of your body weight, but it eats up 20% of your energy and oxygen, [8] so resources are scarce up there in your head. There’s some pretty fierce competition between brain pathways, and those that don’t get used enough will likely be replaced. [9] Use it or lose it, as they say. Only the strong survive.”

“The ideal conditions for forming strong neuronal pathways are when you’re in what scientists call ‘flow.’ Flow is ‘a deeply satisfying state of focused attention.’ [12] When you’re in flow, you get so deep into what you’re doing that nothing else seems to matter. [13] You’ve probably experienced it before, playing a game or having a conversation with friends or reading a great book. You were so focused on what you were doing that you lost track of time, and everything around you disappeared. You wanted it to keep going forever. That’s flow.”



When you're in flow, it's like you have superhuman abilities. Athletes call it being 'in the zone,' when you seem to do everything right. Your focus is intense. Your memory is phenomenal. Years later, you'll still recall exact words of the conversation or details of what you read."

"The good news is, neuroplasticity works both ways. If porn pathways aren't reinforced, they'll eventually disappear, so the same brain mechanisms that lay down pathways for porn can replace them with something else. [23] If the time has come for you or someone you love to begin that healing process, learn more about how to get help." [5] Doidge, N. (2007). *The Brain That Changes Itself*. (50) New York: Penguin Books. [6] Doidge, N. (2007). *The Brain That Changes Itself*. (9) New York: Penguin Books. [7] Doidge, N. (2007). *The Brain That Changes Itself*. (242-243) New York: Penguin Books. [8] Du, F., Et Al. (2008). Tightly Coupled Brain Activity And Cerebral ATP Metabolic Rate. *Proceedings Of The National Academy Of Sciences Of The United States Of America*, 105(17) 6409-6414. Doi:10.1073/Pnas.0710766105, See Also Spence, C., Okajima, K., Cheok, A. D., Petit, O., & Michel, C. (2016). Eating With Our Eyes: From Visual Hunger To Digital Satiation, *Brain And Cognition*, 110, 53-63. Doi:10.1016/J.Bandc.2015.08.006 (Asserting That The Brain Consumes "Somewhere In The Region Of 25% Of Blood Flow, Or Rather, 25% Of The Available Consumed Energy.") [9] Pace, S. (2014). Acquiring Tastes Through Online Activity: Neuroplasticity And The Flow Experiences Of Web Users. *M/C Journal*, 17(1). Retrieved From [Http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773](http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773); Doidge, N. (2007). *The Brain That Changes Itself*. (59-60) New York: Penguin Books. [12] Pace, S. (2014). Acquiring Tastes Through Online Activity: Neuroplasticity And The Flow Experiences Of Web Users. *M/C Journal*, 17(1). Retrieved From [Http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773](http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773) [13] Pace, S. (2014). Acquiring Tastes Through Online Activity: Neuroplasticity And The Flow Experiences Of Web Users. *M/C Journal*, 17(1). Retrieved From [Http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773](http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773); Csikszentmihalyi, M. (1990). *Flow: The Psychology Of Optimal Experience*. New York, HarperPerennial. [23] Doidge, N. (2007). *The Brain That Changes Itself*. (208-212) New York: Penguin Books. (Fight the New Drug, August 23, 2017, "How Porn Changes the Brain", site accessed 11.1.17, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

Dr. Struthers observed,

"The male brain seems to be built in such a way that visual cues that have sexual relevance (e.g., the naked female form, solicitous facial expressions) have a hypnotic effect on him. When these cues are detected, they trigger a cascade of neurological, chemical, and hormonal events. In some ways they are like the "hit" of a drug—there is a rush of sexual arousal and energy that accompanies it. How a man learns to deal with this energy and to form an appropriate response to it is part of becoming a mature adult. The psychological, behavioral, and emotional habits that form our sexual character will be based on the decisions we make. Whenever the sequence of

arousal and response is activated, it forms a neurological memory that will influence future processing and response to sexual cues. As this pathway becomes activated and traveled, it becomes a preferred route—a mental journey—that is regularly trod. The consequences of this are far-reaching.” (Struthers, W. M. (2009). *Wired for Intimacy: How pornography hijacks the male brain*. Wheaton, IL: InterVarsity Press.) (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“As men fall deeper into the mental habit of fixating on these images, the exposure to them creates neural pathways. Like a path is created in the woods with each successive hiker, so do the neural paths set the course for the next time an erotic image is viewed. Over time these neural paths become wider as they are repeatedly traveled with each exposure to pornography. They become the automatic pathway through which interactions with women are routed. The neural circuitry anchors this process solidly in the brain. With each lingering stare, pornography deepens the Grand Canyon-like gorge in the brain through which images of women are destined to flow.” (Luke Gilkerson, “Your Brain on Porn”, Covenant Eyes, Accessed July 29, 2016, <http://www.covenanteyes.com/brain-ebook/>)

Those chemicals do more than make you feel great. While you’re enjoying that good feeling, your brain is also building new nerve pathways to connect the pleasure you’re feeling to the activity you’re doing. [5] It’s the brain’s way of making sure that whatever you’re doing, you’ll come back to it again. The association between the activity and the “reward” happens automatically, even if you don’t intend it, because “neurons that fire together, wire together.” [6] (See How Porn is Like a Drug.)

(Site accessed 8.2.17; Article updated May 4, 2017, <http://fightthenewdrug.org/how-porn-affects-your-sexual-tastes/>) [5] Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767. Doi:10.3402/Snp.V3i0.20767; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013; Hedges, V. L., Chakravarty, S., Nestler, E. J., And Meisel, R. L. (2009). DeltaFosB Overexpression In The Nucleus Accumbens Enhances Sexual Reward In Female Syrian Hamsters. *Genes Brain And Behavior* 8, 4: 442–449. Doi:10.1111/J.1601-183X.2009.00491.X.; Hilton, D.L., & Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective, *Surgical Neurology International* 2, 19. Doi:10.4103/2152-7806.76977; Miner, M. H., Raymond, N., Mueller, B. A., Lloyd, M., Lim, K. O. (2009). Preliminary Investigation Of The Impulsive And Neuroanatomical Characteristics Of Compulsive Sexual

Behavior. *Psychiatry Research* 174: 146–51. Doi:10.1016/J.Psychresns.2009.04.008; Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books (107).

[6] Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books (63).

“Summarizing these above two points, Sam Black writes in *The Porn Circuit*: Whatever rewarding activity is pursued, it needs to be an activity that is reoccurring. Building new rewarding neural pathways requires time and ongoing repetition...” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

1. “Neurons that fire together wire together. Repeating a pleasurable activity instead of the compulsive activity, such as porn use, forms a new circuit that is gradually reinforced instead of the compulsion.”

(Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

2. When a person refuses to act on a compulsion, like porn and masturbation, it weakens the link between the activity and the idea that it will provide relief.”

(Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

## **“YOUR SEXY PLASTIC BRAIN: PORN ADDICTION CAN’T BE BLAMED ON BIOLOGY”**

“By ‘plasticity’ he means that our brains and our sexuality are molded by our experiences, interactions, and other means of learning, which is why people vary in what they say is attractive or what turns them on. The brain actually creates neural pathways that label a specific type of person or activity as arousing.” (Sam Black, “Your Sexy Plastic Brain: Porn addiction can’t be blamed on biology”, Covenant Eyes, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

“In Elizabethan times lovers were so enamored of each other’s body odors that it was common for a woman to keep a peeled apple in her armpit until it had absorbed her sweat and smell. She would give this ‘love apple’ to her lover to sniff in her absence. We, on the other hand, use synthetic aromas of fruits and flowers to mask our body odor from our lovers. Which of these two approaches is acquired and which is natural is not so easy to determine. A substance as ‘naturally’ repugnant to us as the urine of cows is used by the Masai tribe of East Africa as lotion for their hair — a direct consequence of

the cow's importance in their culture. Many tastes we think 'natural' are acquired through learning and become 'second nature' to us. We are unable to distinguish our 'second nature' from our 'original nature' because our neuroplastic brains, once wired, develop a new nature, every bit as biological as our original.'" (Sam Black, "Your Sexy Plastic Brain: Porn addiction can't be blamed on biology", Covenant Eyes, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

"This will come as sad news to many. The attraction, compulsion, and even addiction to porn are learned behaviors, which means people play a huge role in their own habituation. Don't blame it on biology or evolution."

(Sam Black, "Your Sexy Plastic Brain: Porn addiction can't be blamed on biology", Covenant Eyes, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

"When you have the same thoughts or emotions automatically triggered by a certain event, this emotion or thought comes from a neural network that was wired when you experienced that event for the first time. Every time you experience a similar event, the same network is triggered and you can't even remember where it comes from and why you feel that way." ("Amazing Facts About Human Brain", The Unusual Facts, September 21, 2015, <http://www.theunusalfacts.com/2012/09/amazing-facts-about-human-brain.html>)

"This is like the fact that you never forget how to ride a bike, but it doesn't just apply to motor skills, it also applies to memory and recall." (Dr. Jeremy Dean, "Memory and Recall: 10 Amazing Facts You Should Know", PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

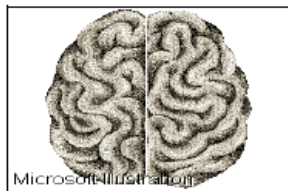
"Gary Wilson has conducted a series of studies about pornography and the brain. Wilson is the author of the book *Your Brain on Porn*<sup>i</sup> and the website of the same name. His research supports the conclusion that pornography retrains the brain. He found that the very maps that nerve cells travel through the brain become re-routed as people use more and more pornography. A main point to remember is 'nerve cells that fire together, wire together' (Wilson, 2014, p. 68)." (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"When people's memories are tested, the more work they have done to construct, or re-construct, the target memory, the stronger the memory eventually becomes. This is why proper learning techniques always involve

testing, because just staring at the information isn't good enough: learning needs effortful recall." (Dr. Jeremy Dean, "Memory and Recall: 10 Amazing Facts You Should Know", PsyBlog, October 31, 2012, <http://www.spring.org.uk/2012/10/how-memory-works-10-things-most-people-get-wrong.php>)

"How is a pornographic image processed by the brain? The diagram and the explanation of emotional processing from Dr. Daniel Goleman's groundbreaking book, *Emotional Intelligence*, would largely identify the route taken by pornographic images within the human brain." (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York, 1997, f 5 at.19. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

***"What we're saying here is that an event which lasts half a second within five to ten minutes has produced a structural change that is in some ways as profound as the structural changes one sees in [brain] damage."***



***Neuroscientist, Dr. Gary Lynch, University of California at Irvine, discussing the brain's processing of sensory communication. In, the award winning program series The Brain: Learning and Memory, The Annenberg/CPB Collection, WNET, 1984.)***

(Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"A visual signal first goes from the retina to the thalamus, before it is translated into the language of the brain. Most of the message then goes to the visual cortex, where it is analyzed and assessed for meaning and appropriate response; ***if that response is emotional***, a signal goes to the amygdala to activate the emotional centers." (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"For, 'The child looks and recognizes before it can speak...seeing comes before words' (John Berger (1977). *Ways of Seeing*. The British Broadcasting Corporation, London: Pelican, at 8). says famed British art historian John Berger. As noted earlier, reading anything (left hemisphere 'speech') requires literacy and some understanding of the words and concepts read in order to stimulate 'feeling' in readers. Despite some local idiosyncratic subtleties, both children and illiterates instantly decode, 'feel' and experience *images* like; ice cream, steaks, beer, women, men, children, cats, dogs, people eating, drinking and (depending upon ones' experience) images of people or animals engaging in sexual acts. No matter what the exotic foreign language is, these largely right hemisphere visual stimuli are decoded, entered into long term conscious or unconscious memory and relived later by young and old alike." (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"In competition for attention, only the most 'essential, the unusual...dangerous' messages 'get through to the brain regions above the brainstem' that arrive every second from the '100 million messages' carrying 'information from the body's senses.' (Jack Fincher, *The Brain: Mystery of Matter and Mind*, Torstar Books, New York, 1984, at 122) Neurologist David Galin wonders which hemisphere will...gain control of the shared functions and dominate overt behavior?" (Roy Pinchot, Ed., (1984) *The Human Body: The Brain*. Torstar Books, New York, at 122-123. On point, before brainimaging technology was common, marketing researcher Jerry Mandler identifies television's "law of strength," in his pioneering 1977 work, *Four Arguments for the Elimination of Television*. Here, said Mandler, images move too fast to be cognitively processed and overwhelm cognition, likened to pornography's neurochemical effects. "When you are watching TV, you are experiencing mental images...[T]hese mental images are not yours. They are someone else's. Because the rest of your capacities have been subdued, and the rest of the world dimmed, these images are likely to have an extraordinary degree of influence. Am I saying this *is* brainwashing or hypnosis or mind-zapping or something like it? Well, there is no question but that someone is speaking into your mind and wants you to do something. First, keep watching. Second, carry the images around in your head. Third, buy something. Fourth, tune in tomorrow." (at 169).)

Neuropsychologist A.R. Luria provides the answer that reappears later as it serves as the thesis of this paper:" (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"[P]rocesses of excitation taking place in the waking cortex obey a *law of strength*, according to which every strong (*or biologically significant*) stimulus evokes a strong response, while every weak stimulus evokes a weak response:" (Daniel Goleman and Richard Davidson, Ed, (1979). *Consciousness: Brain, States of Awareness, and Mysticism*. New York, Harper and Row, See Galin at 22, A.R. Luria at 10. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"The study of learning and memory revealed that: [H]umans acquire new ideas from experience and retain these ideas over time in memory...Conversion of short-term to long-term memory storage requires spaced repetition--practice makes perfect." (*Science*, Vol. 294, November 2, 2001, at 1031. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"Vanderbilt University psychiatrist Peter Martin's research on 'normal subjects' serves the arguments presented in this paper quite well. For Martin reports the brain activity experienced in sexual arousal of his normal subjects 'looks like that accompanying drug consumption.'" (*Science*, Vol. 294, November 2, 2001, at 981.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"[LeDoux] was the first to work out neural pathways for feelings that bypass the neocortex. Those feelings that take the direct route through the amygdala include our most primitive and potent; this circuit does much to explain the power of emotion to overwhelm rationality...[LeDoux discovered]...something like a neural back alley— [that] allows the amygdala to receive some direct inputs from the senses and start a response *before* they are fully registered by the neocortex...The amygdala can have us spring to action while the slightly slower...neocortex unfolds its more refined plan for reaction...LeDoux overturned the prevailing wisdom about the pathways traveled by emotions through his research on fear." (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 18. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)



“Long term potentiation (LTP) is the basis of learning and memory. It can be summarized as ‘nerve cells that fire together, wire together.’ Memories arise in two steps. First, your reward circuitry signals that an experience is important by sending dopamine to your prefrontal cortex (PFC). The more dopamine the more importance your brain attaches to an experience.” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

“Second, the PFC responds to your ‘This is important!’ signal by (1) knitting together everything associated with the reward, and (2) forming a neural feedback loop heading back to the reward circuitry. Thereafter, any thought, memory, or cue associated with a particular reward activates the pathway, and sets your reward circuitry a buzzin’. It could be smells associated with your favorite burger joint. For a tomcat it could be the hole in the fence that led to a female in heat. For a bird it might be seeing the guy who fills the birdfeeder. It’s evolutionary purpose is to help you remember the who, what, where, when and how of sex, food and rock ‘n’ roll.” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

“Sensitization: creation of a super-memory” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

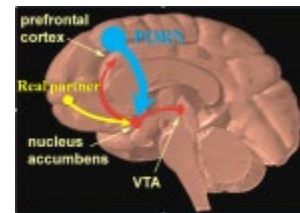
“So far, the process is business as usual. Sensitization, however, transforms this normal PFC → glutamate feedback pathway to the reward circuitry into a super-memory in three steps:” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

1. “With sensitization, explicit memories (such as facts and events) transform into habits, which are known as *implicit* memories. Example: knowing how to ride a bike without thinking. Addiction-related implicit memories are like Pavlovian conditioning on steroids—very hard to ignore. When a recently sober alcoholic walks by a bar, all the sounds of laughter and smell of stale beer can whip this sensitized circuit into a frenzy, setting off strong cravings...and possibly eliminating all resolve.” (Gary Wilson, “Why Do I Find Porn More Exciting than a

Partner?", Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

2. "LTP strengthens the feedback pathway such that a little squirt of glutamate is all you need to fire up the nerve cells that signal, 'Gotta have *this* now!' Sensitized pathways are a non-dopamine mechanism for activating reward-circuitry neurons—come hell or high water. This sneaky feature seems to be at the core of all additions. Traffic jam on the main dopamine highway keeping you from feeling pleasure from real sex? No problem. You have another way to get home, but it's only allowing one type of vehicle (stimulation): PORN." (Gary Wilson, "Why Do I Find Porn More Exciting than a Partner?", Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

3. "Continued use of your addiction activates a *third* mechanism in the sensitization process: long term depression (LTD). The reward circuitry's innate braking system (GABA) weakens, further amplifying the 'Go for it!' glutamate signals. Instead of normal brain operation, which is more like city driving where you check for oncoming traffic at every intersection, your sensitized porn pathway is the *autobahn*. There are no traffic lights and porn is the only BMW M-5 on the road." (Gary Wilson, "Why Do I Find Porn More Exciting than a Partner?", Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)



*"The autopilot thing is definitely familiar to me. It's like being possessed by a porn-crazed demon, and then once you're finished, your real self returns and wonders what the hell just happened and why you just wasted all this time looking at disgusting videos."* (Gary Wilson, "Why Do I Find Porn More Exciting than a Partner?", Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

### **"Sensitized pathways and withdrawal...ugh"**

"Let's say you decide to make the ultimate sacrifice and stop using porn. You'll probably feel rotten for a while. Remember, your brain initially perceived your heavy porn use as a genetic bonanza. It thought you were making babies with each ejaculation. It laid down the super-memories so you *wouldn't* abandon your 'valuable' bevy of

beauties (or whatever you were climaxing to).” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

*“I’m finding that just random pictures in ads and stuff are setting off cravings. Even when the models are fully clothed, I really want to give in.”* (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

“During recovery, it’s easy to mistake an activated sensitized pathway for true libido. This is particularly true if you experience the typical radical drop in libido at some point in your recovery. During this ‘flatline’ phase, a porn cue may still fire you up, and even trigger an impressive erection. This can fool you into thinking that porn is the *cure* for your sluggish libido. The real cure is to patiently wait for structures in your brain to catch up with your new direction. Meanwhile, all other stimuli, including your partner, are less arousing.” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

*“Two months into my recovery I saw a simple frame of bare ass on an adult movie channel. Honest to god, it felt like I got injected with some kind of drug. I had the biggest urge in my penis and my mind, to put it back on. I literally ran upstairs and brushed my teeth. Had I stayed downstairs, I would have relapsed 100%. I could feel a part of me going, ‘WHAT THE HELL MAN? GO BACK DOWNSTAIRS!!!!!!!!!!’. I was shaking and panting. After 8 min of brushing my teeth non-stop, I was back to normal.”* (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

“The exciting system, fueled by dopamine and anticipation, is all about *appetite*, such as imagining your favorite meal or a sexual episode.” (Sam Black, “Porn Can’t Give No Satisfaction”, Covenant Eyes, April 26, 2013, <http://www.covenanteyes.com/2013/04/26/porn-no-satisfaction/>)

“The satisfying system involves actually having the meal or having sex, which provides a calming, fulfilling *pleasure*. This system releases opiate-like endorphins that provide feelings of peace and euphoria.” (Sam Black, “Porn Can’t Give No Satisfaction”, Covenant Eyes, April 26, 2013, <http://www.covenanteyes.com/2013/04/26/porn-no-satisfaction/>)

“Pornography? It's a new synaptic pathway. You wake up in the morning, open a thumbnail page, and it leads to a Pandora's box of visuals. There have probably been days when I saw 300 vaginas before I got out of bed.—*John Mayer, musician*” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“The extreme stimulation of today's enticements can hijack our brains. There's no way John Mayer would view the *same* vagina 300 times before rising if, say, he only had a porn magazine, or even a woman. Constant novelty-plus-erotica is riveting. His brain releases more dopamine with each new image, even as it shuts down key nerve cell receptors (to drive him to binge). He is tricked into valuing his pussy panorama even above 3-D stimuli.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“... ‘After just five days of practice, the exact same neural circuitry in the front part of the brain became active in the internet-naïve subjects. Five hours on the internet, and the naïve subjects had already rewired their brains.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 19, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Baroness Kidron’s 2013 documentary film *InRealLife*, in which she interviews several teenage porn users, offers a chilling insight into the entrenched depth of their engagement with porn and what it’s doing to their views of relationships, women and the world. The film suggests that their brains are actually being rewired through pornography use.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“As a result, the boys in the film echo the claims of youth specialists, who say that pornographic behaviours are being normalised in the way many teenagers now conduct their relationships. Jason Royce, director of Christian youth project Romance Academy, says the sexual expectations among young men and women are often defined by what they see on screen.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“‘The psychological, behavioral, and emotional habits that form our sexual character will be based on the decisions we make,’ says Struthers. ‘Whenever the sequence of arousal and response is activated, it forms a

neurological memory that will influence future processing and response to sexual cues. As this pathway becomes activated and traveled, it becomes a preferred route—a mental journey—that is regularly trod. The consequences of this are far-reaching.” (Joe Carter, “9 Things You Should Know about Pornography and the Brain”, The Gospel Coalition, May 8, 2013, <http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

### **“THE EFFECTS OF PORN ON THE MALE BRAIN”**

“... discussion has focused on the neurobiological aspects of its allure, addictive properties, and long-lasting effects. ...What if pornography merely hijacks a part of our nature that is intended for something better? What if our sexual drive and our neurological nature are wired for intimacy and not just sensuality?”

“In a 2010 interview with Playboy Magazine, Grammy Award-winning musician John Mayer ...”

“Pornography? It’s a new synaptic pathway. You wake up in the morning, open a thumbnail page, and it leads to a Pandora’s Box of visuals. There have probably been days when I saw 300 [women] before I got out of bed....Internet pornography has absolutely changed my generation’s expectations....You’re looking for the one photo out of 100 you swear is going to be the one you finish to, and you still don’t finish. Twenty seconds ago you thought that photo was the hottest thing you ever saw, but you throw it back...How does that not affect the psychology of having a relationship with somebody? It’s got to.” (Rob Tannenbaum, “Interview with John Mayer,” Playboy Magazine (March 2010) (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The on-demand availability of robust sexual stimuli presents a unique problem for developing and maintaining a healthy sexuality. The ease of access, variety of images, and the vigorous sensory constitution of this media go beyond the strength of mental imagery and fantasy. People can see whatever they want, whenever they want, however they want. In doing so they can generate, serve, and satisfy their sensual nature. Pornography creates a world today where the consumer (usually men) has the ability to bring up at their whim graphic (and sometimes interactive) depictions of nudity and sexual encounters. Women are perpetually available for their pleasure with minimal immediate consequences. People become

disposable.” (Read Mercer Schuchardt, “Hugh Hefner’s Hollow Victory: How the Playboy Magnate Won the Culture War, Lost His Soul, and Left Us with a Mess to Clean Up,” Christianity Today, December 2003, 50–54)(William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...the brain’s involvement in how we live and have our being is undeniable. The brain is constantly changing in response to what it is being given to process. The things that we see, smell, hear, taste, touch, and experience throughout our day affect it and modify it.”

(William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The brain integrates what it is being fed into memories, making sense of the world, and developing our sense of self. If the brain is being fed Scripture, it should come as no surprise that it sees the world through the lens of Scripture.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The human body consumes and digests food. In a similar way, we can think about the brain as a consumer of stimuli and information. When we eat, food is broken down by the digestive system and used to supply the body with the energy it needs to survive and thrive. Once it has been fully digested, whatever that is unusable (waste) is excreted. This helps to ensure the healthy functioning of the organism. If we take this analogy and extend it to the brain, the brain’s job is to consume and digest information. This information is taken in through the eyes and other senses and digested and stored with meaning and memories. Anything that might have strong emotional content or is highlighted as being important information is stored and used later. The brain doesn’t always get to decide what it wants to keep and what it doesn’t. Sexual images are inherently powerful and have emotional content. As such, pornography forces itself on the brain. Whether one consents or not, pornography becomes a part of the fabric of the mind.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...the human brain is the biological anchor of our psychological experience.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The male brain seems to be built in such a way that visual cues that have sexual relevance (e.g., the naked female form, solicitous facial expressions) have a hypnotic effect on him. When these cues are detected, they trigger a cascade of neurological, chemical, and hormonal events.”<sup>5</sup> (Harold Mouras et al., ‘Brain Processing of Visual Sexual Stimuli in Healthy Men: A Functional Magnetic Resonance Imaging Study,’ *Neuroimage* 20, 2 (October 2003): 855–69) (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“In some ways they are like the ‘hit’ of a drug—there is a rush of sexual arousal and energy that accompanies it. How a man learns to deal with this energy and to form an appropriate response to it is part of becoming a mature adult. The psychological, behavioral, and emotional habits that form our sexual character will be based on the decisions we make. Whenever the sequence of arousal and response is activated, it forms a neurological memory that will influence future processing and response to sexual cues. As this pathway becomes activated and traveled, it becomes a preferred route—a mental journey—that is regularly trod. The consequences of this are far-reaching.” (William M. Struthers, *Wired for Intimacy: How Pornography Hijacks the Male Brain* (Downers Grove, IL: InterVarsity Press, 2009) (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Another relevant finding by those who are conducting brain research is in the area of what are being called mirror neurons. These neurons make up a circuit located in the frontal and parietal lobes (the region near the top of your head). These neurons are involved with the process for how to mimic a behavior. They contain a motor system that correlates to the planning out of a behavior. Consider this example: if you see someone grab a hammer and pound it, the same part of your brain that you would use to actually pound a hammer would also be activated. Other brain regions may hold that behavior in check, but you now have primed a neural circuit to hammer a nail. These neurons were originally called ‘monkey see, monkey do’ neurons (they were first discovered in monkeys), and constitute the way we neurologically learn by observing others. Whenever we see a behavior, there is a silent echo; a neurological mirror of ourselves doing that behavior resides in the brain. This is a wonderful thing as we can learn by watching



others, but it can also have negative effects, especially with respect to pornography.” (Justin H. G. Williams et al., ‘Imitation, Mirror Neurons and Autism,’ *Neuroscience and Biobehavioral Reviews* 25, 4 (June 2001): 287; Sarah Archibald, ‘Mirror Image,’ *Nature Reviews Neuroscience* 7, 4 (January 2006) (William M. Struthers, “The Effects of Porn on the Male Brain”, *Christian Research Journal*, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“These mirror neurons are involved when someone views pornography because what they view, they vicariously experience and learn from. As men watch the sexually charged scene onscreen, they vicariously ‘mirror’ this, which triggers sexual arousal.” (Harold Mouras et al., ‘Activation of Mirror-Neuron System by Erotic Video Clips Predicts Degree of Induced Erection: An fMRI Study,’ *Neuroimage* 42, 3 (September 2008): 1142–50) (William M. Struthers, “The Effects of Porn on the Male Brain”, *Christian Research Journal*, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“This mirror neuron system triggers the arousal, which leads to sexual tension and a need for an outlet. The unfortunate reality is that when he acts out (often by masturbating), this leads to hormonal and neurological consequences, which are designed to bind him to the object he is focusing on. In God’s plan, this would be his wife, but for many men it is an image on a screen. Pornography thus enslaves the viewer to an image, hijacking the biological response intended to bond a man to his wife and therefore inevitably loosening that bond.” (William M. Struthers, “The Effects of Porn on the Male Brain”, *Christian Research Journal*, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“These chemicals include the neurotransmitters that brain cells use to communicate with each other, as well as the hormones the body and the brain produce in response to sexual arousal and sexual activity.” (William M. Struthers, “The Effects of Porn on the Male Brain”, *Christian Research Journal*, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...the brain move thoroughly wires together all associated cues, making repetition of the experience in the future more automatic.” (Gary Wilson, “Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, *Your Brain on Porn*, November 30, 2010, <http://www.yourbrainonporn.com/book/export/html/37>)

“The human body consumes and digests food. In a similar way, we can think about the brain as a consumer of stimuli and information. When we eat, food is broken down by the digestive system and used to supply the body with the energy it needs to survive and thrive. Once it has been fully digested, whatever that is unusable (waste) is excreted. This helps to ensure the healthy functioning of the organism. If we take this analogy and extend it to the brain, the brain’s job is to consume and digest information.

This information is taken in through the eyes and other senses and digested and stored with meaning and memories. Anything that might have strong emotional content or is highlighted as being important information is stored and used later. The brain doesn't always get to decide what it wants to keep and what it doesn't. Sexual images are inherently powerful and have emotional content. As such, pornography forces itself on the brain. Whether one consents or not, pornography becomes a part of the fabric of the mind." (William M. Struthers, Ph.D., "The Effects of Porn on the Male Brain," Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

"...the brain's involvement in how we live...The brain is constantly changing in response to what it is being given to process. The things that we see, smell, hear, taste, touch, and experience throughout our day affect it and modify it." (William M. Struthers, Ph.D., "The Effects of Porn on the Male Brain," Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

### **"Ulysess's Will Power"**

"Ulysses and his crew were on a long and dangerous journey. On the way, they sail by an island where Sirens lived. Sirens are beautiful-bodied, sweet-voiced temptresses who lure passers by with their songs. The sailors are lulled to the island and they crash their boats ashore. When they do, the Sirens destroy them." (Jimmy Needham, "Our Odyssey Against Sexual Temptation", Desiring God, June 17, 2015, <http://www.desiringgod.org/articles/our-odyssey-against-sexual-temptation>)

"Ulysses knows this temptation, so he has the others bind him to the mast. As they sail by, he loves the Sirens' songs and desperately wants to go in closer. But he's restrained. He can't follow his urge — the overwhelming appetite. In his battle against temptation, he had won, but he wasn't free." (Jimmy Needham, "Our Odyssey Against Sexual Temptation", Desiring God, June 17, 2015, <http://www.desiringgod.org/articles/our-odyssey-against-sexual-temptation>)

### **"From Pleasure to Pleasure"**

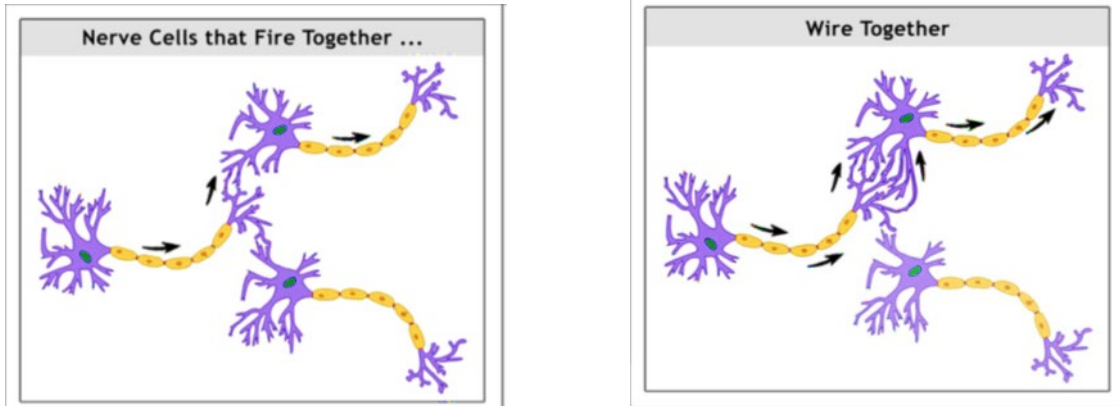
"There are two ways to say no to sin: compulsion and repulsion. By compulsion, I mean the ability we possess to grit our teeth and

overcome the allure of sin with sheer will. It's possible to white-knuckle your way through the hour of temptation, at least for a time. I did for years. But God is after more than subduing our hands; he wants our hearts. That is where the second way of conquering sin comes in: repulsion." (Jimmy Needham, "Our Odyssey Against Sexual Temptation", Desiring God, June 17, 2015, <http://www.desiringgod.org/articles/our-odyssey-against-sexual-temptation>)

"Look at the second part of 2 Timothy 2:22, " . . . but *pursue righteousness, faith, love and peace* along with others who call on the Lord out of a pure heart." Many Christians, myself included, keep the first part of the verse, "flee youthful lusts," but forget that Paul never had in mind for us *merely* to flee from sin." (Jimmy Needham, "Our Odyssey Against Sexual Temptation", Desiring God, June 17, 2015, <http://www.desiringgod.org/articles/our-odyssey-against-sexual-temptation>)

"There is no fleeing *from* one pleasure without also fleeing *to* a greater pleasure. When we find ourselves before something more desirable than whatever we're currently chasing, we'll let go of our former love, finding it repulsive by comparison. We'd be insane not to trade crumbs for a banquet." (Jimmy Needham, "Our Odyssey Against Sexual Temptation", Desiring God, June 17, 2015, <http://www.desiringgod.org/articles/our-odyssey-against-sexual-temptation>)

"This research paper therefore focuses only on pornography's place in the field of brain communication study that identifies the laws of mental life (psychonomics), dubbed by neurobiologist Candace Pert a 'psychosomatic communications network.'" (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)



“If you’re wondering what a neuron is and why it’s on fire, here’s what that means. A neuron is a brain cell, and when brain cells get activated at the same time by something you see or hear or smell or whatever, they release chemicals that help strengthen the connection between those neurons.”

(Brown, T. M. and Fee, E. (2003). Alfred C. Kinsey: A Pioneer of Sex Research. *American Journal of Public Health* 93, 6: 896-897) (“Porn’s Harm is Changing Fast”, *Fight the New Drug*, August 4, 2014, <http://fightthenewdrug.org/porns-harm-is-changing-fast/#sthash.XvAu4Fq3.dpbs>)

“Think of the brain as a forest where trails are worn down by hikers who walk along the same path over and over again, day after day. The exposure to pornographic images creates similar neural pathways that, over time, become more and more “well-paved” as they are repeatedly traveled with each exposure to pornography. Those neurological pathways eventually become *the* trail in the brain’s forest by which sexual interactions are routed. Thus, a pornography user has “unknowingly created a neurological circuit” that makes his or her default perspective toward sexual matters ruled by the norms and expectations of pornography.” (Morgan Bennett, “The New Narcotic”, *Public Discourse*, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“These “brain trails” are able to be initiated and “paved” because of the *plasticity* of brain tissue. Norman Doidge, MD—a psychiatrist, psychoanalyst, and author of the *New York Times* and international bestseller, [\*The Brain That Changes Itself\*](#)—explores the impact of neuroplasticity on sexual attraction in an essay in [\*The Social Costs of Pornography\*](#). Dr. Doidge notes that brain tissue involved with sexual preferences (i.e., what “turns us on”) is especially malleable. Thus, outside stimuli—like pornographic images—that link previously unrelated things

(e.g., physical torture and sexual arousal) can cause previously unrelated neurons within the brain to learn to “fire” in tandem so that the next time around, physical torture actually *does* trigger sexual arousal in the brain. This in-tandem firing of neurons creates “links” or associations that result in powerful new brain pathways that remain even after the instigating outside stimuli are taken away.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“Dr. Hilton [argues](#) that sexual images are “unique among natural rewards” because sexual rewards, unlike food or other natural rewards, cause “persistent change in synaptic plasticity.” In other words, internet pornography does *more* than just spike the level of dopamine in the brain for a pleasure sensation. It literally *changes the physical matter* within the brain so that new neurological pathways *require* pornographic material in order to trigger the desired reward sensation.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

Think of the brain as a forest where trails are worn down by hikers who walk along the same path over and over again, day after day. The exposure to pornographic images creates similar neural pathways that, over time, become more and more “well-paved” as they are repeatedly traveled with each exposure to pornography. Those neurological pathways eventually become *the* trail in the brain’s forest by which sexual interactions are routed. Thus, a pornography user has “unknowingly created a neurological circuit” that makes his or her default perspective toward sexual matters ruled by the norms and expectations of pornography. (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

Not only do these addictive pathways cause us to filter all sexual stimulation through the pornographic filter; they awaken craving for “more *novel*/pornographic content like more taboo sexual acts, child pornography, or sadomasochistic pornography.” (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

“Each of these cues, or triggers, can now light up your reward circuit with the promise of sex ... that isn't sex. Nevertheless, nerve cells may solidify these associations with sexual arousal by sprouting new branches to strengthen connections. The more you use porn the stronger the nerve connections can become, with the result that you may ultimately need to be a voyeur, need to click to new material, need to climax to porn to get to sleep, or need to search for the perfect ending just to get the job done.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p86)

“So when someone is looking at porn, while they think they're just being entertained, their brain is busy at work building pathways between whatever's happening on their screen and feelings of arousal.” (Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, 109.) (“Porn Affects Your Behavior”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-affects-your-behavior/#sthash.8intUAKv.dpbs>)

“Adolescents wire together experiences and arousal much faster and more easily than young adults will just a few years later. The brain actually shrinks after age 12 as billions of nerve connections are pruned and reorganized. The use-it-or-lose-it principle governs which nerve connections survive.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p86)

“Once our neurochemical pathways are established they are difficult or impossible to delete. Erotic images also commonly trigger the viewer's ‘fight or flight’ sex hormones producing intense arousal states that appear to fuse the conscious state of libidinous arousal with unconscious emotions of fear, shame, anger and hostility.”

(Richard Restak, (1988). The Mind, Bantam Books, New York. "Inhibition rather than excitation is the hallmark of the healthy brain. If all of the neurons in the brain were excitatory we would be unable to do something as simple as reaching out for a glass of water, " p. 283) (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

“It often feels as if all this frantic activity creates a constant state of twitchy anxiety, as any addiction usually does. Moreover, having read a freshly published and hotly controversial book about the effect of digital media on the human mind, I may have very good reason to feel scared. Its thesis is simple enough: not only that the modern



world's relentless informational overload is killing our capacity for reflection, contemplation, and patience – but that our online habits are also altering the very structure of our brains.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“The Shallows is a 250-page book by American writer Nicholas Carr, just published in the US, about to appear in the UK, and already the focus of a noisy debate. Two years ago, Carr wrote an essay for the Atlantic magazine entitled ‘Is Google making us stupid?’ This is the full-length version: an elegantly written cry of anguish about what one admirer calls ‘the uneducating of Homo sapiens’, and a rewiring of neural pathways and networks that may yet deprive the human race of the talents that – ironically enough – drove our journey from caves to PC terminals.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“But here is the really important thing. Carr claims that our burgeoning understanding of how experience rewires our brain's circuits throughout our lives – a matter of what's known as ‘neuro-plasticity’ – seems to point in one very worrying direction. Among the most hair-raising passages in the book is this one: ‘If, knowing what we know today about the brain's plasticity, you were to set out to invent a medium that would rewire our mental circuits as quickly and thoroughly as possible, you would probably end up designing something that looks and works a lot like the internet.’”

### **“Rewiring for Intimacy:”**

“What I found was that it was not enough for me to just quit porn, cold-turkey. I had to be strategic about cultivating new behaviors to take it's place in my life – to fill the void – and I needed to practice healthier ways of meeting the very real needs that I thought porn was satisfying. To do this has meant re-discovering basic skills of breath, presence, and intimacy.”

(Dan Mahle, “Courage to Quit: How I’m Outgrowing Pornography and Waking Up to my True Self”, The Good Men Project, March 31, 2015, <http://goodmenproject.com/featured-content/courage-quit-im-outgrowing-pornography-re-awakening-sexuality-hesaid/>)

“Rewiring as I’ve come to understand it, is the process of re-creating neural pathways in the brain, associated with actual human connection, sensation, love, and intimacy.” (Dan Mahle, “Courage to Quit: How I’m Outgrowing Pornography and Waking



Up to my True Self", The Good Men Project, March 31, 2015, <http://goodmenproject.com/featured-content/courage-quit-im-outgrowing-pornography-re-awakening-sexuality-hesaid/>)

"For me, the biggest new learning has been moving out of my head and into my body. After so much time in the 'neck-up' world of pixelated pornographic fantasy, I'm now beginning to learn how to drop into my heart, my belly, my breath." (Dan Mahle, "Courage to Quit: How I'm Outgrowing Pornography and Waking Up to my True Self", The Good Men Project, March 31, 2015, <http://goodmenproject.com/featured-content/courage-quit-im-outgrowing-pornography-re-awakening-sexuality-hesaid/>)

"Not that there's anything wrong with fantasy – fantasy can be an exciting part of authentic sexual expression. But when I realized that my fantasies were no longer connected to my body, I knew something was out of balance." (Dan Mahle, "Courage to Quit: How I'm Outgrowing Pornography and Waking Up to my True Self", The Good Men Project, March 31, 2015, <http://goodmenproject.com/featured-content/courage-quit-im-outgrowing-pornography-re-awakening-sexuality-hesaid/>)

"YBOP contends that watching too much onanistic material in adolescence affects the brain in multiple ways. "Porn trains your brain to need everything associated with porn to get aroused," Wilson says. That includes not only the content but also the delivery method. Because porn videos are limitless, free and fast, users can click to a whole new scene or genre as soon as their arousal ebbs and thereby, says Wilson, "condition their arousal patterns to ongoing, ever changing novelty." [a spouse becomes boring...J.D.M]

(Belinda Luscombe, March 31, 2016, Time, "Porn and the Threat to Virility", <http://time.com/4277510/porn-and-the-threat-to-virility/>)

"Internet Pornography is the new crack cocaine, leading to addiction, misogyny, pedophilia, boob jobs and erectile dysfunction, according to clinicians and researchers testifying before a Senate committee Thursday."

"Witnesses before the Senate Commerce Committee's Science, Technology and Space Subcommittee spared no superlative in their description of the negative effects of pornography."

"Mary Anne Layden, co-director of the Sexual Trauma and Psychopathology Program at the University of Pennsylvania's Center for

Cognitive Therapy, called porn the ‘most concerning thing to psychological health that I know of existing today.’”

“The internet is a perfect drug delivery system because you are anonymous, aroused and have role models for these behaviors,’ Layden said. ‘To have drug pumped into your house 24/7, free/and children know how to use it better than grown-ups know how to use it – it’s a perfect delivery system if we want to have a whole generation of young addicts who will never have the drug out of their mind.’”

“Pornography addicts have a more difficult time recovering from their addiction than cocaine addicts, since coke users can get the drug out of their system, but pornographic images stay in the brain forever, Layden said.”

“Jeffrey Satinover, a psychiatrist and advisor to the National Association for Research and Therapy of Homosexuality echoed Layden’s concern about the internet and the somatic effects of pornography.”

“Pornography really does, unlike other addictions, biologically cause direct release of the most perfect addictive substance, Satinover said. That is, it causes masturbation, which causes release of the naturally occurring opioids. It does what heroin can’t do, in effect.”

“The internet is dangerous because it removes the inefficiency in the delivery of pornography, making porn much more ubiquitous than in the days when guys in trench coats would sell nudie postcards, Satinover said.”

“Sen. Sam Brownback (R-Kansas), the subcommittee’s chairman, called the hearing the most disturbing one he’d ever seen in the Senate. Brownback said porn was ubiquitous now, compared to when he was growing up and some guy would sneak a magazine in somewhere and show some of us, but you had to find him at the right time.”

“The hearing came just days after a controversy over a sexually suggestive Monday Night Football ad that has many foreseeing a crackdown on indecency by the Federal Communications Commission.”

“It is unclear what the consequences of Thursday’s hearing will be since it was not connected to any pending or proposed legislation.”

“Brownback, a conservative Christian, is also scheduled to be rotated off the sub-committee in the next session.”

“When Brownback asked the panelists for suggestions about what should be done, the responses were mild, considering their earlier indictment of pornography. Several suggested that federal money be allocated to fund brain-mapping studies into the physical effects of pornography.”

“Judith Reisman of the California Protective Parents Association suggested that more study of ‘erototoxins’ could show how pornography is not speech-protected under the First Amendment.”

“The panelists all agreed that the government should fund health campaigns to educate the public about the dangers of pornography. The campaign should combat the messages of pornography by putting signs on buses saying sex with children is not OK, said Layden.”

“However, as the panelists themselves acknowledged, there is no consensus among mental health professionals about the dangers of porn or the use of the term ‘pornography addiction.’”

“Many psychologists and most sexologists find the concepts of sex and pornography addiction problematic, said Carol Queen, staff sexologist for the San Francisco-based, woman-owned Good Vibrations.”

“Queen questioned the validity of the panel for not including anyone who thinks ‘pornography is not particularly problematic in most people’s lives.’”

“Queen acknowledges she can name people who have compulsive and destructive behavior centered on pornography, but argues that can happen with other activities, such as gambling and shopping.”

“Queen also criticized the methodology behind research showing that pornography stimulates the brain like drugs do, saying the research needs to take into account how sex itself stimulates the brain.”

“There’s no doubt the brain lights up when sexually aroused, Queen said.”

“Queen too would like to see more money devoted to research on sex, but thinks it is unlikely that researchers on either side of the divide are likely to receive large grants any time soon.”

“Studies intended to show the harmful effects of pornography must contend with ethical rules prohibiting harm to human subjects, while sex

researchers have a hard time getting any funding, unless their study is specifically HIV-related, according to Queen.”

(Wired Staff, Science, November 19, 2004, “Internet Porn: Worse Than Crack,” site accessed November 29, 2017, <https://www.wired.com/2004/11/internet-porn-worse-than-crack/>)

“The ideal conditions for forming strong neuronal pathways are when you’re in what scientists call ‘flow.’ Flow is ‘a deeply satisfying state of focused attention.’ (Pace, S. (2014). Acquiring Tastes Through Online Activity: Neuroplasticity And The Flow Experiences Of Web Users. M/C Journal, 17(1). Retrieved From [Http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773](http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773)) When you’re in flow, you get so deep into what you’re doing that nothing else seems to matter. (Pace, S. (2014). Acquiring Tastes Through Online Activity: Neuroplasticity And The Flow Experiences Of Web Users. M/C Journal, 17(1). Retrieved From [Http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773](http://Journal.Media-Culture.Org.Au/Index.Php/Mcjournal/Article/View/773); Csikszentmihalyi, M. (1990). Flow: The Psychology Of Optimal Experience. New York, HarperPerennial.) You’ve probably experienced it before, playing a game or having a conversation with friends or reading a great book. You were so focused on what you were doing that you lost track of time, and everything around you disappeared. You wanted it to keep going forever. That’s flow.” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“When you’re in flow, it’s like you have superhuman abilities. Athletes call it being ‘in the zone,’ when you seem to do everything right. Your focus is intense. Your memory is phenomenal. Years later, you’ll still recall exact words of the conversation or details of what you read.” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“Now imagine someone sitting in front of the computer at 3:00 in the morning, looking at porn. That person is so absorbed in his or her porn trance that nothing else can compete for the consumer’s attention, not even sleep. This person is in the ideal condition for forming neuronal pathways, and that’s what they are doing. Clicking from page to page in search of the perfect image, not realizing that every image seen is reinforcing the pathways the consumer is forging in his or her brain. By now, those images are burned so deeply into their mind that they will remember them for a long time to come, maybe the entirety of their life.” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“Remember when we said that building neuronal pathways is like making a trail in the woods? Well, DeltaFosB is like a troop of mountaineers out there with picks and shovels, working like beavers to groom the trail. With DeltaFosB floating around, the brain is primed to make strong mental connections between the porn being consumed by individuals and the pleasure they feel while consuming. (Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013; Hilton, D. L. (2013) Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective* Doi:10.1111/J.1601-183X.2009.00479.X; Angres, D. H. & Bettinardi-Angres, K. (2008). The Disease Of Addiction: Origins, Treatment, And Recovery. *Disease-A-Month* 54: 696–721.) Basically, the DeltaFosB is saying, ‘This feels good. Let’s be sure to remember it so we can do it again.’” (“How Porn Affects the Brain”, *Fight the New Drug*, August, 2017, <https://fightthenewdrug.org/>)

“DeltaFosB is important for learning any kind of new skills, but it can also lead to addictive/compulsive behaviors, (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). *Neuroscience Of Internet Pornography Addiction: A Review And Update*, *Behavioral Sciences*, 5(3), 388-433. Doi: 10.3390/Bs5030388; Hilton, D.L. & Watts, C. (2011). *Pornography Addiction: A Neuroscience Perspective*, *Surgical Neurology International* 2, 19. Doi:10.4103/2152-7806.76977; Nestler, E. J., (2008) *Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB*, *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067) especially in adolescents. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). *Neurobiological Advances From The Brain Disease Model Of Addiction*. *New England Journal Of Medicine*, 374, 363-371. Doi:10.1056/NEJMra1511480; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunction? A Review With Clinical Reports, *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). *Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting*. *The Journal Of Sex Research*, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123; Brom, M., Both, S., Laan, E., Everaerd, W., & Spinhoven, P. (2014). *The Role Of Conditioning, Learning, And Dopamine In Sexual Behavior: A Narrative Review Of Animal And Human Studies*. *Neuroscience & Biobehavioral Reviews*, 38(1). Doi: 10.1016/J.Neubiorev.2013.10.014; Bridges, A. J., & Anton, C. (2013). *Pornography And Violence Against Women*. In Sigal, J. A. & Denmark, F. L. (Eds.), *Violence Against Girls And Women: International Perspectives* (Pp 183-206.). Santa Barbara, California: Preager.) (“How Porn Affects the Brain”, *Fight the New Drug*, August, 2017, <https://fightthenewdrug.org/>)

DeltaFosB is referred to as ‘the molecular switch for addiction,’ (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). *Neuroscience Of Internet Pornography Addiction: A Review And Update*, *Behavioral Sciences*, 5(3), 388-433. Doi: 10.3390/Bs5030388) because if it builds up enough in the brain, it switches on genes that create long-term

cravings, driving the user back for more. (Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. *Cell*, 162 (8), 713. Doi:10.1016/J.Cell.2015.07.046; Nestler, E. J. (2012). Transcriptional Mechanisms Of Drug Addiction. *Clinical Psychopharmacology And Neuroscience* 10(3) 136-143. Doi:1-.9758/Cpn.2012.10.3.136; Hyman, S. E. (2005). Addiction: A Disease Of Learning And Memory. *American Journal Of Psychiatry*, 162(8), 1414-1422.) And once it has been released, DeltaFosB sticks around in the brain for weeks or months, which is why porn consumers may feel strong cravings for porn long after they've stopped the habit. (Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting. *The Journal Of Sex Research*, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123; Hilton, D. L., & Watts, C. (2011). Commentary On: Neuroscience Research Fails To Support Claims That Excessive Pornography Consumption Causes Brain Damage, *Surgical Neurological International*, 2, 64. Doi:10.4103/2152-7806.81427; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067)" ("How Porn Affects the Brain", *Fight the New Drug*, August, 2017, <https://fightthenewdrug.org/>)

"The good news is, neuroplasticity works both ways. If porn pathways aren't reinforced, they'll eventually disappear, so the same brain mechanisms that lay down pathways for porn can replace them with something else. (Doidge, N. (2007). *The Brain That Changes Itself*. (Xiiv-Xiv) New York: Penguin Books; Kolb, B., Gibb, R., & Robinson, T.E. (2003). *Brain Plasticity And Behavior*, *Current Directions In Psychological Science*, 12(1) 1-5.) If the time has come for you or someone you love to begin that healing process, learn more about how to get help." ("How Porn Affects the Brain", *Fight the New Drug*, August, 2017, <https://fightthenewdrug.org/>)

"The 'Wanting' system is a much larger area in the reward center, and it causes the brain to rewire itself in response to intense pleasure. (Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. *American Psychologist*, 71(8), 670-679. Doi:10.1037/Amp0000059;) With the help of a protein called DeltaFosB, the 'Wanting' system builds new brain connections so you can remember the experience and repeat it later. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology*, 3, 20767. Doi:10.3402/Snp.V3i0.20767; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 363(1507)

3245-3255. Doi:10.1098/Rstb.2008.0067)” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“It’s called the ‘Wanting’ system because those new nerve connections make you crave the pleasurable experience. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, Philosophical Transactions Of The Royal Society B: Biological Sciences, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067) The more often the experience is repeated, the stronger those nerve connections become, and the stronger the cravings grow. (Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, Philosophical Transactions Of The Royal Society B: Biological Sciences, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067) DeltaFosB is sometimes called ‘the molecular switch for addiction’ because it reinforces cravings and, if it builds up enough in the brain, it can switch on genes that leave the consumer more vulnerable to addiction. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. Socioaffective Neuroscience & Psychology, 3, 20767. Doi:10.3402/Snp.V3i0.20767; Nestler, E. J. (2008). Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB. Philosophical Transactions Of The Royal Society B: Biological Sciences 363: 3245–56. Retrieved From [Www.Ncbi.Nlm.Nih.Gov/Pmc/Articles/PMC2607320/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2607320/); Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, (107).)” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“For a smoker, a cue may be the smell of cigarette smoke. An alcoholic may develop pathways triggered by the sight of a bottle or the voice of a drinking buddy. Cues can be anything the brain associates with the experience. For a porn consumer, it may be the memory of a porn scene or a place or time of day he or she can be alone with the internet. For an addict, the whole world starts to seem like a collection of cues and triggers leading them back to their addiction. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMr1511480; See Also Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, (104). (Describing How, For Porn Addicts, Their Fantasies Overshadow Their Actual Sexual Lives, Leaving Them “Increasingly Dominated By The Scenarios That They Had, So To Speak, Downloaded Into Their Brains.”) Gradually, the porn pathways become *sensitized*, meaning they are easily triggered by the cues that are all around. (Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-



Sensitization Theory Of Addiction. American Psychologist, 71(8), 670-679. Doi:10.1037/Amp0000059; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, Philosophical Transactions Of The Royal Society B: Biological Sciences, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067.)” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

“...the user **wants** it more and more, even while he or she **likes** it less and less. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMra1511480; Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. American Psychologist, 71(8), 670-679. Doi:10.1037/Amp0000059; Gola, M., Wordecha, M., Marchewka, A., & Sescousse, G. (2016). Visual Sexual Stimuli—Cue Or Reward? A Perspective For Interpreting Brain Imaging Findings On Human Sexual Behaviors. Frontiers In Human Neuroscience, 10: 402. Doi:10.3389/Fnhum.2016.00402; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17.)” (“How Porn Affects the Brain”, Fight the New Drug, August, 2017, <https://fightthenewdrug.org/>)

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## “How Porn Damages Consumers’ Sex Lives”

“When you have a sexual experience that feels good, your brain starts creating new pathways to connect what you’re doing to the pleasure you’re feeling.<sup>A</sup> Essentially, your brain is redrawing the sexual part of your map so you’ll be able to come back later and repeat the experience.”<sup>B</sup>

“But here’s the catch: brain maps operate on a “use it or lose it” principle.<sup>C</sup> Just like a hiking trail will start to grow over if it’s not getting walked on, brain pathways that don’t get traffic become weaker and can even be completely replaced by stronger pathways that get more use.”

“As you might expect, consuming porn is a very powerful experience that leaves a strong and lasting impression in the brain. (See How Porn Changes The Brain.) Every time someone consumes porn—especially if they heighten the experience by masturbating—the part of the brain map that connects arousal to porn is being strengthened.<sup>D</sup> Meanwhile, the pathways connecting arousal to things like seeing, touching, or cuddling

with a partner aren't getting used. Pretty soon, natural turn-ons aren't enough, and many porn consumers find they can't get aroused by anything but porn."<sup>E</sup>

"Young people imitate what they see in porn, and when teens learn about sexuality from porn, they are in danger of adopting the misleading, harmful biases embedded there.<sup>F</sup> Many teens never have the chance to learn what a healthy relationship is like before porn starts teaching them its version—which is typically filled with domination, infidelity, abuse, and violence.<sup>G</sup> Since most people aren't too excited about entering a relationship with someone who has attitudes like that, teens who get their sex ed from porn often find that they struggle to connect with real romantic partners."<sup>H</sup>

"Fortunately, the brain is a resilient organ. The sexual dysfunction caused by porn can be reversed,<sup>I</sup> and a brain map can be rewired to work well again once porn is out of the picture."<sup>J</sup>

("How Porn Damages Consumers' Sex Lives", Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-damages-consumers-sex-lives/>)

- J. (Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. *American Psychologist*, 71(8), 670-679. Doi:10.1037/Amp0000059; Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. *Neuron*, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767. Doi:10.3402/Snp.V3i0.20767; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013; Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books.)
- K. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, *Behavioral Sciences*, 5(3), 388-433. Doi:10.3390/Bs5030388; Hilton, D.L., & Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective, *Surgical Neurology International* 2, 19. Doi:10.4103/2152-7806.76977; Miner, M. H., Raymond, N., Mueller, B. A., Lloyd, M., Lim, K. O. (2009). Preliminary Investigation Of The Impulsive And Neuroanatomical Characteristics Of Compulsive Sexual Behavior. *Psychiatry Research* 174: 146–51. Doi:10.1016/J.Psychresns.2009.04.008; Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books; Paul, P. (2007). *Pornified: How Pornography Is Transforming Our Lives, Our Relationships, And Our Families*. (75) New York: Henry Hold And Co.)

- L. (Doidge, N. (2007). *The Brain That Changes Itself*. (Xiiv-Xiv) New York: Penguin Books; Kolb, B., Gibb, R., & Robinson, T.E. (2003). *Brain Plasticity And Behavior*, *Current Directions In Psychological Science*, 12(1) 1-5.)
- M. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013; Hilton, D. L. (2013) Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience And Technology* 3. 20767. Doi:10.3402/Snp.V3i0.20767; Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books.)
- N. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. *New England Journal Of Medicine*, 374, 363-371. Doi:10.1056/NEJMra1511480; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, *Behavioral Sciences*, 5(3), 388-433. Doi: 10.3390/Bs5030388; Wang, Y., Ghezzi, A., Yin, J. C. P., & Atkinson, N. S. (2009). CREB Regulation Of BK Channel Gene Expression Underlies Rapid Drug Tolerance. *Gene Brains Behavior*, 8(4) 369-376. Doi:10.1111/J.1601-183X.2009.00479.X; Angres, D. H. & Bettinardi-Angres, K. (2008). The Disease Of Addiction: Origins, Treatment, And Recovery. *Disease-A-Month* 54: 696–721; Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books.)”
- O. (Rothman, E. F., Kaczmarsky, C., Burke, N., Jansen, E., & Baughman, A. (2015). “Without Porn...I Wouldn’t Know Half The Things I Know Now”: A Qualitative Study Of Pornography Use Among A Sample Of Urban, Low-Income, Black And Hispanic Youth. *Journal Of Sex Research*, 52(7), 736-746. Doi:10.1080/00224499.2014.960908; Pfaus, J. G., Et Al. (2012). Who, What, Where, When (And Maybe Even Why)? How The Experience Of Sexual Reward Connects Sexual Desire, Preference, And Performance. *Archives Of Sexual Behavior*, 41(1), 31-62. Doi:10.1007/S10508-012-9935-5)
- P. (Bridges, A. J., Wosnitzer, R., Scharrer, E., Sun, C., & Liberman, R. (2010). Aggression And Sexual Behavior In Best Selling Pornography Videos: A Content Analysis Update. *Violence Against Women* 16(10), 1065–1085. Doi:10.1177/1077801210382866; Paul, P. (2010). From Pornography To Porno To Porn: How Porn Became The Norm. In J. Stoner & D. Hughes (Eds.) *The Social Costs Of Pornography: A Collection Of Papers* (Pp. 3–20). Princeton, N.J.: Witherspoon Institute.)
- Q. (Age 23 – I’m A New Human Being (ED) | Your Brain On Porn. (N.D.). Retrieved From <https://Yourbrainonporn.Com/Age-23-Im-New-Human-Being-Ed>)
- R. (Kalman, T. P., (2008). Clinical Encounters With Internet Pornography, *Journal Of The American Academy Of Psychoanalysis And Dynamic Psychiatry*, 36(4), 593-618. Doi:10.1521/Jaap.2008.36.4.593)
- S.** (Doidge, N. (2007). *The Brain That Changes Itself*. (Xiiv-Xiv) New York: Penguin Books; Kolb, B., Gibb, R., & Robinson, T.E. (2003). *Brain Plasticity And Behavior*, *Current Directions In Psychological Science*, 12(1) 1-5.)

## #7 DRUGS AND PORN RESPONSES

“Again, it is argued in the body of this paper that sexual arousal, however it is prompted, elicits an intoxicating cocktail of *endogenously* produced drugs that are merely mimicked by *exogenous* ‘street drugs,’. Moreover, as addressed further on, as such polydrug ‘highs’ are repeatedly practiced in viewing pornographic stimuli (seen in national television advertisements such as Victoria Secret, Calvin Klein, etc.,) millions of vulnerable ‘normal subjects’ of all ages and both genders are covertly programmed into sexual dysfunctions.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Researchers at Harvard Medical School and Massachusetts General Hospital in Boston found that the male response to a pretty woman ‘turns on’ the same reward circuitry deep in the brain, as does cocaine, chocolate or money.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Like the *Neuron* researchers, Childress and others, neuropsychiatrist, Daniel Amen in *Change Your Brain, Change Your Life*, made a similar, independent connection between the arousal state of those experiencing ‘intense love’ and persons consuming cocaine. The data suggest that intense ‘sexual arousal’ provokes more brain chaos than does ‘intense love.’ Writes Amen:” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“[T]he basal ganglia are likely involved in the pleasure control loops of the brain. One brain-imaging study...looked at where cocaine and Ritalin work in the brain. Both were taken up mostly by the basal ganglia....Dr. Volkow’s group postulated that activation of the basal ganglia by cocaine perpetuates the compulsive desire for the drug.” (Daniel G. Amen, *Change Your Brain, Change Your Life*, Times Books, New York, 1998, “*Images Into the Mind*: SPECT is a sophisticated nuclear medicine mechanism that “looks” directly at cerebral blood flow and indirectly at brain activity (or metabolism). “A radioactive isotope is bound to a substance that is readily taken up by the cells in the brain...A supercomputer then reconstructs off line images of brain activity levels. The elegant brain snapshots that result offer us a sophisticated blood flow/metabolism brain map. With these maps, physicians have been able to identify certain patterns of brain activity that correlate with psychiatric and neurological illnesses. SPECT studies belong to a branch of medicine called nuclear medicine. SPECT studies actually show which parts of the brain are activated when we concentrate, laugh, sing, cry, visualize, or perform other functions....The 3-D active brain image compares average brain activity to the hottest 15 percent of activity. These images are helpful for picking up areas of overactivity...[versus] average activity everywhere else. 86.) (Judith A. Reisman, PhD, DRAFT -

"The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"Intense romantic love can also have a cocaine like effect on the brain, robustly releasing dopamine in the basal ganglia. Love has real physical effects...[like] a drug high...To my amazement, [Bill-in-love's] brain looked as if he had just taken a lot of cocaine. The activity in both the right and left basal ganglia was very intense, almost to the point of resembling seizure activity." (Daniel G. Amen, *Change Your Brain, Change Your Life*, Times Books, New York, 1998, "*Images Into the Mind*: SPECT is a sophisticated nuclear medicine mechanism that "looks" directly at cerebral blood flow and indirectly at brain activity (or metabolism). "A radioactive isotope is bound to a substance that is readily taken up by the cells in the brain...A supercomputer then reconstructs off line images of brain activity levels. The elegant brain snapshots that result offer us a sophisticated blood flow/metabolism brain map. With these maps, physicians have been able to identify certain patterns of brain activity that correlate with psychiatric and neurological illnesses. SPECT studies belong to a branch of medicine called nuclear medicine. SPECT studies actually show which parts of the brain are activated when we concentrate, laugh, sing, cry, visualize, or perform other functions....The 3-D active brain image compares average brain activity to the hottest 15 percent of activity. These images are helpful for picking up areas of overactivity...[versus] average activity everywhere else. 14-18.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"Amen's conclusion is that 'Love has real effects on the brain, **as** powerful as addictive drugs.' If so, then what effects would ersatz love (anxiety provoking pornographically induced sexual lust) have upon the brain, mind and memory? Adds Amen, as in love:" (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"Experience has taught most people what *Science* magazine recently reported, 'too much neuronal activity can be as bad as too little.' (*Science*, "Getting. the Brain's Attention," Volume 278, Number 5335, Issue of 3 Oct 1997, at 35-37.) Again, significant for the role of pornography as an endogenous polydrug, Nestler writes, 'both learning and drug exposure resculpt synapses, initiate cascades of molecular signals that turn on genes, and *change behavior in persistent ways.*'" (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"Sensitization, in an environment where one has learned to expect a (pornographically induced) drug "high," "renders brain circuitry hypersensitive to drugs and drug- associated paraphernalia." Says Robinson:" (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

## **“DOES PORN IMPACT THE BRAIN”**

“MRI scans of the brain show similarities between the brains of heavy porn users and drug addicts or alcoholics.” (Matt Fradd, “Does Porn Impact the Brain”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“Cambridge Neuropsychiatrist Valerie Voon says her research demonstrates that the brains of habitual porn users show great similarity to the brains of alcoholics. A brain structure called the ventral striatum plays a significant role in the reward system and pleasure pathways of the brain. This part of the brain ‘lights up’ on a brain scan when an alcoholic sees a picture of a drink. Likewise, those who believe they are addicted to porn show similar brain activity when shown a pornographic image.” (Luke Gilkerson, “Porn Addiction is a Myth: The Debate Continues”, Covenant Eyes, September 26, 2014, <http://www.covenanteyes.com/2014/09/26/porn-addiction-like-drug-addiction/>)

“As the brain is hard-wired to believe in a millisecond what the eyes see, the brain ... the effects of sexually graphic images on public thought and conduct.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“affects the brain chemically and physically in a manner similar to that of illegal chemical substances.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“Cocaine is considered a stimulant that increases dopamine levels in the brain. Dopamine is the primary neurotransmitter that most addictive substances release, as it causes a “high” and a subsequent craving for a repetition of the high, rather than a subsequent feeling of satisfaction by way of endorphins. Heroin, on the other hand, is an opiate, which has a relaxing effect. Both drugs trigger chemical tolerance, which requires higher quantities of the drug to be used each time to achieve the same intensity of effect.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“It is as though we have devised a form of heroin – usable in the privacy of one’s own home and injected directly to the brain through the eyes,” says Dr. Jeffrey Satinover of Princeton University, describing porn’s effect to a U.S. Senate committee.” (“Fighting the New Drug: Pornography”, First Things, Accessed September 26, 2017, <http://firstthings.org/fighting-the-new-drug-pornography/>)

“It probably doesn’t come as much of a shock to people that using drugs can damage the brain. Studies have shown that those addicted to meth or cocaine show volume loss, or shrinkage, in different areas of the brain—in particular, the frontal control regions.” (Matt Fradd, “Does Porn Impact the Brain?”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“What neuroscientists are now finding, however, is that process or ‘natural’ addictions work the same way. MRI scans of the brain show similarities between the brains of heavy porn users and drug addicts or alcoholics. In this video I give a run-down of the hormones and neurotransmitters triggered while watching pornography.” (Matt Fradd, “Does Porn Impact the Brain?”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“Cambridge Neuropsychiatrist Valerie Voon was featured last year in the UK documentary Porn on the Brain. Her research demonstrates that the brains of habitual porn users show great similarity to the brains of alcoholics. A brain structure called the ventral striatum plays a significant role in the reward system of the brain—the pleasure pathways. It is the same part of the brain that ‘lights up’ when an alcoholic sees a picture of a drink.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“A few studies have explored connections between drug and porn addiction, suggesting that the same parts of the brain are involved in both compulsive drug and porn use. A study by the University of Cambridge published last year suggested that a porn addict’s brain looks similar to a drug addict’s brain. It assessed 19 men with ‘compulsive sexual behavior’ and 19 men without, monitoring brain function of both groups while they looked at short videos with either sexually explicit content or sports. The study found that three drug-related regions in the brain were more active in those with a compulsive penchant for porn.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“It is a proven fact that porn affects the brain the exact same way as other addictive drugs. Educate yourself on the matter.” (Sean Russell, “The Top 10 Reason to Stop Watching Porn”, Men Provement, August 29, 2013, <http://www.menprovement.com/the-top-10-reasons-to-stop-watching-porn/>)

“Rothbart talked to a behavioral therapist named Andrea Kuszewski who explained that when people have orgasms, their brains release a potent



mixture of dopamine and oxytocin, the two chemicals responsible for pleasure (and addiction), and emotional bonding, respectively. Studies have shown that the dopamine rush acts like a drug, leading porn users to crave their next fix. But the oxytocin gives them a powerful emotional bond to the source of the increased flow. Normally, that's another human being. But for porn users, Kuszewski told Rothbart, it's the porn itself. 'You're bonding with it,' she said." (Kirsten Anderson, "GQ Magazine tells men: Quit watching porn before it ruins your sex life", Life Site News, December 13, 2013, <https://www.lifesitenews.com/news/gq-magazine-tells-men-quit-watching-porn-before-it-ruins-your-sex-life>)

## "How Porn Affects the Brain Like A Drug"

"Studies have shown that porn stimulates the same areas of the brain as addictive drugs, making the brain release the same chemicals."

"Your brain is hardwired."

"They give the brain a 'false signal.' [5] Since the brain can't tell the difference between the drugs and a real, healthy reward, it goes ahead and activates the reward center. [6]"

"Scientists have long know that sexual interest and performance can be increased simply by introducing something new – like a different sexual position, a toy, or a change of partner. [15] That's because the brain responds to new sexual stimuli by pumping out more and more dopamine, flooding the brain just like a drug would. [16] And 'new' is exactly what internet porn sites provide: an endless stream of fresh erotic images delivered at high speed, in vivid color, 24/7. Before consumers even start to get bored, they can always give themselves another dopamine boost just by clicking on something different, something more stimulating and hardcore than before. [17]"

[5] Stacy, A. W., & Wiers, R. W. (2010). Implicit Cognition And Addiction: A Tool For Explaining Paradoxical Behavior, *Annual Review Of Clinical Psychology*, 6, 551-575.

Doi:10.1146/Annurev.Clinpsy.121208.131444 [6] Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016).

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## #8 PORN POWERFUL INFLUENCES

“Should pornographic psychopharmacology dominate the limbic system’s responses in love, pain, pleasure and memory, such feelings would give the pornographic drug *the emotional centers, immense power to influence the functioning of the rest of the brain—including its centers for thought.*’ Indeed, the ‘[c]onnections between the limbic system and the cerebrum [that] permit an interplay between reason and emotion’ can be ‘easily upset.’” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 11-12.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“The limbic system can become so highly activated that it overwhelms rational thought, making a person speechless with fury or joy. Through conscious [neocortical] control, a person can resist the urge to eat or drink, fight back tears or suppress sexual desire.” (Jack Fincher, *The Brain: Mystery of Matter and Mind*, Torstar Books, New York, 1984, at 92.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

### 4. “Decreased sensitivity to aversion”

“Having spent Friday night playing ‘World of Warcraft’ until 4AM, while washing down eight slices of pizza and a bag of Dorritos with a six-pack of Mountain Dew, our hero is ready to do it all again come Saturday night. Research shows that teens are less deterred by symptoms of excess. Aversion is a reward-circuitry function, and teens can handle more wattage before their circuits overload.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

*“Ever wonder why Slasher + Teens (sex)<sup>2</sup> = Summer Box-Office Hit? It all comes down to the marvels of the brain. No wonder porn images that adults find shocking, ‘eeeew,’ or violent, register as abnormally exciting to teens. Also keep in mind that teens are less able to take other people’s feelings into account (even bad actors).”* (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

**“When I was 14/15 I encountered [transsexual] porn while surfing the Internet. I still remember the graphic nature of the advert. Something just snapped in my pubescent brain. All the straight and lesbian porn I had watched for several years seemed ordinary. My heart started racing. My head was thumping, and the fear of**

**getting caught...not just watching porn, but watching what some could consider not exactly 100% straight porn...made it all the more memorable. I remember crying after I finished. I didn't know what came over me. I was so terrified I wanted to curl up into a ball in my bedroom. But I didn't stop watching it. I was still attracted to girls, but with the [transsexual] porn, I could orgasm quicker.”** (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“Same problem with asking them about porn's effects on mood. Users always ‘feel better’ when using, even if the more they use, the worse they feel overall. So why would porn be seen as the problem? Moreover, when users try to quit, they sometimes face weeks of severe withdrawal symptoms, so controlling use can be mistaken for the problem instead of the solution.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“Fact is, most heavy users who are going to hit a wall from excess, don't do so until their twenties—just about the time their reward circuitry has curtailed its hypersensitivity. For example, by adulthood, dopamine receptors in the reward circuitry gradually decrease by a third or a half. Now, thrills aren't as thrilling, and the consequences of excess are more disconcerting. Once nature's foot is off the reward accelerator, it's time for a hunter-gatherer to settle down and raise some youngins.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“The prefrontal cortex is the region of the brain associated with decision making and willpower. This means that heavy porn users are also more likely to have a compulsive relationship with porn.” (Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“PLAYBOY: You'd rather jerk off to an ex-girlfriend than meet someone new? MAYER: Yeah.... Internet pornography has absolutely changed my generation's expectations. How could you be constantly synthesizing an orgasm based on dozens of shots? You're looking for the one ... out of 100 you swear is going to be the one you finish to, and you still don't finish. Twenty seconds ago you thought that photo was the hottest thing you ever saw, but you throw it back and continue your shot hunt and continue to

make yourself late for work. How does that not affect the psychology of having a relationship with somebody? It's got to." ("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"This is how food and sex, which throughout evolution have generally *contributed* to our well-being and led naturally to warm feelings of satiety, morph into drug-like and addictive superstimuli that don't. When we plunge in, we fall for enticements that are not especially valuable, and sometimes risky. Not only can they steal our attention from soothing connections with real people (and nutritional food), they can actually hook us." ("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Here's the key point: Most people don't abuse substances because they haven't tried them, don't get much of a buzz, or find the effects aversive. But *who doesn't like sweets or sexual arousal?* And who doesn't like an especially tempting treat or hyper-arousing visual—especially if his brain's pleasure response is numb from over-stimulation? Our brains are more vulnerable than we currently believe." ("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

## **"Porn Affects Your Behavior**

"That's why the types of behaviors we link our pleasure response to tend to become habits and stick around." ("Porn Affects Your Behavior", Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-affects-your-behavior/#sthash.8intUAKv.dpbs>)

"So when someone is looking at porn, while they think they're just being entertained, their brain is busy at work building pathways between whatever's happening on their screen and feelings of arousal." (Doidge, N. (2007). *The Brain That Changes Itself*. New York: Penguin Books, 109.) ("Porn Affects Your Behavior", Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-affects-your-behavior/#sthash.8intUAKv.dpbs>)

"One study found that people exposed to significant amounts of porn thought things like sex with animals and violent sex were twice as common as what those not exposed to porn thought." (Zillmann, D., and Bryant, J. (1984). *Effects of Massive Exposure to Pornography*. In N. M. Malamuth and E. Donnerstein (Eds.) *Pornography and Sexual Aggression*. New York: Academic Press.) ("Porn Affects Your Behavior", Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-affects-your-behavior/#sthash.8intUAKv.dpbs>)

**“And when people believe a behavior is normal, they’re more likely to try it.”**

(Layden, M. A. (2004). Committee on Commerce, Science, and Transportation, Subcommittee on Science and Space, U.S. Senate, Hearing on the Brain Science Behind Pornography Addiction, November 18; Cline, V. B. (2001). Pornography’s Effect on Adults and Children. New York: Morality in Media; Zillmann, D., and Bryant, J. (1984). Effects of Massive Exposure to Pornography. In N. M. Malamuth and E. Donnerstein (Eds.) Pornography and Sexual Aggression. New York: Academic Press.) (“Porn Affects Your Behavior”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-affects-your-behavior/#sthash.8intUAKv.dpbs>)

**“There are few things in the world that can grab someone’s attention like the naked human body, and fewer still than naked bodies engaged in an intimate sexual act.”**

(William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“From time to time, brain scientists confirm something that we seem to know intuitively. The question, ‘Do men like looking at porn?’ would seem to be one that common sense and straightforward observation would be sufficient to answer. If, however, one felt the need to actually prove it with brain imaging technology such as a multimillion dollar fMRI machine, then one can rest assured that there is actual scientific data to make this claim. In a small number of studies where people have had their brains imaged while viewing sexually explicit material, the effects on sexual response have been observed, resulting in several interesting findings.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“Viewing pornography does not just activate circuits; it generates feelings intended for sexual longing, desire, love, and romance...the hormones the body and the brain produce in response to sexual arousal and sexual activity.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“It provides a false, or counterfeit, way of feeling the need for intimacy.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“The regular consumer of porn will begin to find that he fantasizes throughout the day about sex. Each woman he sees will be seen through a pornographic lens. People become an object of consumption or a competitor against whom they compare**

themselves.” (Todd G. Morrison et al., ‘Exposure to Sexually Explicit Material and Variations in Body Esteem, Genital Attitudes, and Sexual Esteem among a Sample of Canadian Men,’ The Journal of Men’s Studies 14, 2 (Spring 2006): 209–22) (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...people are pieces of meat for our consuming pleasure and entertainment...the objectification and commoditization of people will seep into other parts of the viewer’s mind. It will affect the way he views people when he is not watching porn...he fantasizes throughout the day about sex. Each woman he sees will be seen through a pornographic lens...they will be evaluated as to their stimulating ability. It should come as no surprise that that these consequences can destroy a marriage, family, ministry, or career. While it offers the promise of intimacy and connection, pornography only delivers isolation, disconnectedness, and depravity.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The human body consumes and digests food. In a similar way, we can think about the brain as a consumer of stimuli and information. When we eat, food is broken down by the digestive system and used to supply the body with the energy it needs to survive and thrive. Once it has been fully digested, whatever that is unusable (waste) is excreted. This helps to ensure the healthy functioning of the organism. If we take this analogy and extend it to the brain, the brain’s job is to consume and digest information. This information is taken in through the eyes and other senses and digested and stored with meaning and memories. Anything that might have strong emotional content or is highlighted as being important information is stored and used later. The brain doesn’t always get to decide what it wants to keep and what it doesn’t. Sexual images are inherently powerful and have emotional content. As such, pornography forces itself on the brain. Whether one consents or not, pornography becomes a part of the fabric of the mind.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Internet porn always offers something unexpected, something kinkier.” (Gary Wilson, “Porn Novelty and the Coolidge Effect”, Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)



**“In partnerships, a decrease in sexual satisfaction and a tendency to adopt pornographic scripts have been associated with frequent Internet pornography consumption”.** (Knudsen SV, Mårtenson LL, Månsson S-A. Generation P? Aarhus, Denmark: Aarhus Universitetsforlag; 2007)

**“...accessing pornography online was predictive of compulsive computer use after 1 year.”** (Meerkerk G-J, Van Den Eijnden RJ, Garretsen HFL. Predicting compulsive Internet use: it's all about sex! Cyberpsychol Behav. 2006;9(1):95-103) (Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, JAMA Psychiatry, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“...pornography has an impact on the behavior and social cognition of its consumers.”** (Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, JAMA Psychiatry, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Individuals with lower striatum volume may need more external stimulation to experience pleasure and might therefore experience pornography consumption as more rewarding, which may in turn lead to higher PHs.”**

(Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, JAMA Psychiatry, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“While pornography is influencing and shaping assumptions about identity, sexuality, the value of women, and the nature of relationships...”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“It should come as no surprise that many men who can't remember what they had for breakfast last week can still remember the image of the first Playboy centerfold that they ever saw. Norepinephrine serves to help store these memories and get these images stuck in the brain because, presumably, they were memories that were important to be stored.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“As Jay Phelan, UCLA biology professor and co-author of Mean Genes: From Sex to Money to Food, Taming Our Primal Instincts observed, the real cause is changed environment:”**

“All excessive stimulations of the reward circuitry of the brain that are not tied to the behaviors for which the circuitry originally evolved are problematic. While this has become appreciated for drug addiction such as cocaine (and for issues relating to food), it is not yet appreciated for porn.”

“We need to understand who we are as a species and why we have self-control problems. Like crack and Krispy Kreme donuts, Internet porn is another manifestation of “mismatch,” the phenomenon of our modern world deviating from the world to which we became adapted over evolutionary time.” (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

“Over a decade ago, Dr. Judith Reisman called porn an ‘erototoxin,’ theorizing that the brain itself might be damaged while watching porn. She speculated that future brain studies would reveal that the surge of neurochemicals and hormones released when someone watches porn has measurably negative effects on the brain.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

## **“HOW PORNOGRAPHY ADDICTION AFFECTS THE TEENAGE BRAIN”**

### **“Visual turnoff”**

### **“Problem or not?”**

“Even though scientists are beginning to tease out the effects of porn on the brain, there’s still a lot they don’t understand, in particular about the long-term effect porn has on young viewers, Plaud said.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

## **“5 WAYS PORN AFFECTS THE BRAIN”**

### **“The incredible shrinking brain”**

### **“The Psychopharmacology Of Pornography: A ‘Clear And Present Danger’”**

“...focuses on how the brain processes images--decodable by children and illiterates alike. New brain imaging and mapping technologies provide photographic neurological evidence that visual pornography exerts a ‘law of strength’ in which the brain commonly processes a stronger over a weaker stimulus. ‘The law of strength’ would explain the significant power of real, pseudo, or virtual pictorial pornography over...” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“As the brain is hard-wired to believe in a millisecond what the eyes see, the brain ... the effects of sexually graphic images on public thought and conduct.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“What we're saying here is that an event which lasts half a second within five to ten minutes has produced a structural change that is in some ways as profound as the structural changes one sees in [brain] damage.”

(Neuroscientist, Dr. Gary Lynch, University of California at Irvine, discussing the brain's processing of sensory communication. In, the award winning program series The Brain: Learning and Memory, The Annenberg/CPB Collection, WNET, 1984) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“This research paper therefore focuses only on pornography's place in the field of brain communication study that identifies the laws of mental life (psychonomics), dubbed by neurobiologist Candace Pert a ‘psychosomatic communications network.’” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Although most of the Mapplethorpe jury felt the selected Museum photographs were obscene, these average citizens ruled the images of urinary, rectal and graphic child sex exposure not ‘obscene.’ For, in numerous media interviews jury members reported they believed the art ‘experts’ claims that the five photographs were harmless, cutting-edge ‘art’ and thereby protected by the First Amendment.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Medicine.Net.com reports that ‘Post Traumatic Stress Disorder’ (PTSD) in teenagers and children reveal that over 40% have endured at least one traumatic event, resulting in the development of PTSD....Up to 100% of children who have....endured sexual assault or abuse tend to develop **PTSD.**’

([http://www.medicinenet.com/posttraumatic\\_stress\\_disorder/article.htm](http://www.medicinenet.com/posttraumatic_stress_disorder/article.htm),

June 26, 2008.) Neuroscientists agree, ‘*memories are stored in the amygdala as rough, wordless blueprints for emotional life.*’ (Goleman, in *Consciousness, Brain, States of Awareness, and Mysticism.* *ibid.*, at 22.) In his schematic (left) child trauma specialist, Bruce Perry, M.D., Ph.D., notes that child sexual abuse sets off alarm mechanisms in children that further compromise a child victim’s already immature cognitive and emotional development. It follows then from the data that a molested child, innocently browsing Spencer’s pornography, penises, picture books of sex positions, whips and handcuffs, etc., would often subconsciously re-experience the toxic ‘alarm’ that relives the original or ongoing ‘traumatic event’” (JAR)

(Image and text taken from the National Institute of Mental Health No. 01-4929 at The Brain exhibit at the Smithsonian, December 29, 2001, co-sponsored by the NIMH and the Smithsonian. Of the millions of Spencer’s child employees and/or customers, roughly 25% of girls and 16% of boys enter and/or work in the store carrying a subconscious or conscious sexual abuse memory. In 1986 the American Medical Association reported one in four girls, and one in eight boys as sexually abused before the age of 18. Two years later, *The Handbook on Sexual Abuse of Children*, reported one in four girls, and one in six boys sexually abused by age 18.<sup>13</sup> The National Institute of Health repeats that children’s brains are not firm. “Viewing emotional images...teens... activated the amygdala, a brain center that mediates fear and other “gut” reactions, more than the frontal lobe [rational, cognitive].”)

## **#9 PORN TRIGGERS**

### **“SEX ADDICTION RECOVERY: AVOIDING SEXUAL TRIGGERS”**

“The Internet is the number one stumbling block for almost all the people struggling with sexual sin. It’s not prostitutes, affairs, or adult bookstores—it’s the Internet.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“Few seem to understand the importance of an Internet filter. However, without it, you constantly open the door to temptation and self-sabotage. You don’t defeat sexual sin by opening up an adult bookstore in your home. Imagine an alcoholic who has a bar in his living room. Do you really think that’s going to work? For many of you, having access to the Internet is the exact equivalent.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

### **“How Sexual Triggers Work”**

“Unfiltered Internet means triggers. One thing you need to understand is every time you kick-start a biochemical response by looking at porn or staring at a woman, you’ve just flooded your body and mind with arousal chemicals (like turning on a lamp floods a house with light).” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“In other words, you’ve just kick-started your addict brain. You’re now fighting chemical cravings, neural ruts in your brain, and your basic sinful nature. This is classic self-sabotage. You have put yourself in a no-win situation where the only likely outcome is sin.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“You stop the addictive cycle by learning how to avoid kicking your addict brain (your flesh) into overdrive. You avoid addict brain overdrive by avoiding triggers.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

### **“Pavlov’s Porn: Finding Your Triggers”**

“A trigger stimulates you to act, feel, and/or think a certain way. Remember Pavlov’s dogs? Scientists rang a bell when they gave dogs food; they soon figured out that just ringing the bell, even without food present, made the dogs salivate (the technical term is ‘conditioning’). The dogs had been conditioned to associate the noise of the bell with the pleasure of eating food.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“We have ‘conditioned’ ourselves to associate pornography with pleasure. The good news is that such conditioning is entirely reversible. It takes time and energy (just like it took to form the conditioning), but anyone can do it.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“Triggers, then, are whatever makes you salivate. For those dealing with sexual addiction, this means porn. These pictures create a physical arousal, a chemical reaction in the brain, and a longing in the spirit. This stimulus will often lead to masturbation; the orgasm is the reward for the stimulus.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

“External triggers are the stimuli around you: pictures, billboards, bars, clubs, commercials, computers, Internet, other people, movies, and so on. Internal triggers are the stimuli inside of you: normally your own thoughts and emotions. Fantasy, loneliness, boredom, anger, fear, memories, hunger, past trauma, and so on, can all trigger a person towards certain behavior. You must learn what triggers you specifically and go through a methodical process of dealing with each trigger.” (Tim Davis, “Sex Addiction Recovery: Avoiding Sexual Triggers”, Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

### **“What Is Most Important To You?”**

“The good news is that there are a variety of options for dealing with the Internet. Filters have improved dramatically. You can even have a list of all the websites you visit e-mailed to someone (I recommend putting your mother on the list; that will kill your Internet wandering quickly!). You can also allow only the websites you need to access.”

(Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"Here's the bottom line: it will take you some deliberate work to use the Internet and stay pure. If you cannot figure out how to stay pure with the Internet, then guess what? The Internet will have to go, plain and simple." (Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"If your right eye causes you to sin, gouge it out and throw it away. It is better for you to lose one part of your body than for your whole body to be thrown into hell. And if your right hand causes you to sin, cut it off and throw it away. It is better for you to lose one part of your body than for your whole body to go into hell' (Matthew 5:29-30)." (Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"Internet access is a luxury. If it causes you to sin, either get a foolproof plan or get rid of it entirely!" (Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"During the initial stages of recovery, the primary reason men I personally counsel do not achieve consistent purity is failure to remove access to porn through the Internet. Ignorance of what your triggers are will result in living life going from relapse to relapse. However, once you start to pay attention to your triggers and shut down access to them, you will find it much easier to avoid relapse." (Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"Obviously this is only one factor to achieving consistent purity, but it is vital! The men and women who are willing to pay the price to shut down access to their triggers are the ones who achieve consistent purity. Which is more important, unfiltered Internet access or freedom from sexual sin?" (Tim Davis, "Sex Addiction Recovery: Avoiding Sexual Triggers", Covenant Eyes, September 27, 2013, <http://www.covenanteyes.com/2013/09/27/tim-davis-post/>)

"*Science* provides additional support for pornographic autoerotism as a brain change agent that activates endogenous drug production at the cellular level via *normal and abnormal environmental sexual cues*. Such cues would include but not be limited to a sexy night gown, an "oral sex" cue in a food advert, a "Raggedy Anne doll" associated with a pornographic



pseudo-child sex cue or just a child riding a bicycle, a girl eating an ice cream cone, etc. The following supportive findings come from many memory researchers, including Steven Hyman, director of the National Institute of Mental Health in Bethesda, Maryland.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“These cues ‘can goad an individual to drug seeking in the absence of conscious awareness,’ says Robinson. While briefly addressing ‘sexual addictions,’ both *Science* and the brain research barely touch on our glut of daily sexual trigger sights and their associated sadosexual memories. Such triggers would document media’s role in pandemic child sexual abuse and sexual crimes in general. The proliferation of pornographic cues in adverts, films, books, magazines, television shows, Internet sites and such overwhelm any social costs from the drug, alcohol, gambling, eating or shopping addictions researchers report on in *Science*. The human and economic costs of the mass media as environmentally breeding sadosexual predators should have long elicited governmental attention and investment. As one of the few formerly state-funded pornography researchers, this author can state that the contrary has been the case.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“The frequency of pornography consumption has been shown to predict various negative outcome measures in humans.” (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

*“When I’m with a girl, I’ll wish I was watching pornography, because I’ll never get rejected,”* he explained. The brains of young men are actually becoming *‘digitally rewired’* by these new pastimes.” (“Porn and video game addicts risk ‘masculinity crisis’, says Stanford Professor”, RT Question More, May 10, 2015, <https://www.rt.com/news/257269-porn-gaming-study-youth/>)

## **#10 SOLUTIONS TO CHANGE THE BRAIN**

### **“RESTRUCTURING THE IMMATURE BRAIN”**

#### **HIJACKING BACK YOUR BRAIN FROM PORN**

**Hijacking Back Your Brain from Porn** (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Last week I wrote about the physiological dimension of addiction to pornography. New brain research suggests it is as strong as addiction to cocaine and heroin because of its unique combination of stimulant and opiate. Pornography lays down real physiological paths in the brain. All sexual experience tends to migrate to these paths. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

I concluded that none of this brain research takes God by surprise.

He designed the interplay between the brain and the soul.

Discoveries of the connections between physical and spiritual reality do not nullify either. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

#### **Don’t Be Part of Abolishing Man**

So don’t let this new brain research make you think of yourself as mere flesh and chemicals. This is the great myth of the modern world — what C.S. Lewis called the abolition of man. This is the theory that human thought is nothing but movement in the brain. It is a theory developed to destroy itself. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Lewis saw the tentacles of materialism reaching into every sphere:

(John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

There will always be evidence, and every month fresh evidence, to show that religion is only psychological, justice only self-protection, politics only economics, love only lust, and thought itself only cerebral biochemistry. (“Transposition,” in *The Weight of Glory*, 114–115) (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

But Lewis saw that nobody really acts as though they believe this. They are playing a language game. He illustrates this with the relationship between thought and brains: (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

We are certain that, in this life at any rate, thought is intimately connected with the brain. The theory that thought therefore is merely a movement in the brain is, in my opinion, nonsense; for if so, that theory itself would be merely a movement, an event among atoms, which may have speed and direction but of which it would be meaningless to use the words “true” or “false.” (“Transposition,” 103) (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Lewis is not playing counter-games here. He is blood-earnest that the abolishers of man are refusing to see that they claim to make meaningful statements while destroying meaning. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

## **Take the Mind-Body Connection by the Horns**

Meaning is rooted in supra-material truth. You are not mere matter and energy. You are an embodied soul who will live forever in heaven or in hell, created in the image of God, unlike mere animals, and, as a Christian, bought with the blood of the Son of God, and indwelt by the very Spirit of God himself. These are stupendous realities — greater realities than endorphins and dopamine. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

God wove together physical nerves and supra-physical spiritual affections — desire, fear, joy, anger, pity, admiration, trust, cherishing, love. Instead of letting this connection discourage you, take it by the horns and make it serve your holiness. This is what the Bible calls you to do. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Don’t think the Bible is silent on this all-important question of mind and body — thinking and brains, affections and chemicals. God made these connections between physical and supra-physical, and God has wisdom for living in them.

Consider these four hope-filled observations.

## **1. Deep Renewal, Including Your Brain**

Brain research is an infant science, publishing its first baby steps. They have scarcely begun to even name the mysteries of how truth and beauty is mediated through language, and then enters the mind as thought, and then is transposed into corresponding chemical processes.

Therefore, we should take hold of this amazing connection and claim what the Bible claims: Beholding the glory of the Lord, we are being changed (2 Corinthians 3:18). Of course seeing nudes changes the brain. But why should we think that seeing the glory of Christ exerts a weaker change? If brain paths pervert our affections and our behavior, do not make the wild mistake of assuming sanctification can only make weaker paths.

Paul calls you to “be renewed in the spirit of your minds, 24 and to put on the new self, created after the likeness of God in true righteousness and holiness” (Ephesians 4:23–24). Watch out, lest you assume that the renewal of the spirit of your mind leaves no trace in the paths of the brain. It does.

Paul says, “Put on the new self, which is being renewed in knowledge after the image of its creator” (Colossians 3:10). If the seeing of internet nakedness creates new paths in the brain, how much more the seeing of Christ — the spiritual sight of “the gospel of the glory of Christ, who is the image of God” (2 Corinthians 4:4). We are not left to create new brains for ourselves: “we are his workmanship, created in Christ Jesus” (Ephesians 2:10). Do not be cowed by brain research. God made the brain and wrote the Book.

## **2. Bloody Christ, Bad Odors, and Bears**

Moreover, we know from experience that we are not slaves of these powerful pornographic changes in our brains. I do not minimize them. Judging by the ongoing effects, even in my sixties, of my teenage tomfoolery, I have tasted the amazing staying power of old sinful patterns. But we are not horses or mules that can only be curbed with bit and bridle (Psalms 32:9). (John Piper, “Hijacking Back Your Brain from Porn”, *Desiring God*, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

You know this. If you were in the grip of great sexual desire for pornography, and Jesus himself stood before you in your room, blood splattered, hands trembling with pain, eyes brimming with love, breathing heavily like a dying man, you know — yes, you *know* — you would have power in that moment to not look at the pornography as Jesus stood there. You are *not* enslaved. The well-beaten neural paths in your brain would not win. They are not God. They do not have the last say. (John Piper, “Hijacking Back Your Brain from Porn”, *Desiring God*, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Or just at the physical level, you know from experience that a mere smell — say of human feces, or rancid garbage, or your own armpit can knock the sexual drive right out of your groin. What does that mean? It means those neural paths are not final. They can be trumped. You are not a mere victim. (John Piper, “Hijacking Back Your Brain

from Porn”, Desiring God, October 15, 2013,  
<http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Or consider this. You are about to commit fornication in a tent in the woods. You never dreamed it would come to this, but now the tidal wave of desire has simply conquered you. Or has it? What if, in the moment of hottest passion, before entry, you heard the sound of a grizzly bear, and saw silhouetted on the tent his mammoth size, would you be the slave of lust? Or would not fear utterly triumph over those chemicals? (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Beware of thinking you are a victim of the euphoric effect of dopamine and endorphins. You are not. God has ways of revealing his bloody Christ, and staggering you with odors and bears to rescue you for himself. He will stoop to this for love’s sake. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

### **3. Satan, Sex, and Chemicals**

Supra-chemical emotions — spiritual affections — are transposed into corresponding physical responses in the brain. That means you *can* fight physical fire with spiritual fire. And it works the other way as well. God ordains that we fight for spiritual fruit by wielding physiological weapons with spiritual hands. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Have you ever considered the stunning implications of Paul’s Satan-defeating sexual counsel in 1 Corinthians 7:5? Be careful, single people. You are likely to jump to the conclusion that this is either irrelevant for you, or bad news. It’s not. Paul says to husbands and **wives**, (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Do not deprive one another [of sexual relations], except perhaps by agreement for a limited time, that you may devote yourselves to prayer; but then come together again, so that Satan may not tempt you because of your lack of self-control. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

This implies that Paul intends for Christian couples to fight against the supernatural power of Satan by having sufficiently frequent sexual relations. To put the point physiologically: There are brain chemicals that increase desire for sex as the length of abstinence increases. The power of those chemicals decreases after orgasm. Therefore, Paul says, make use of that physiological reality in marriage to reduce your vulnerability to Satan’s temptation to adultery and pornography.

Of course, this is not the only or the main weapon in our arsenal. But it is one. And it illustrates the validity of using physiological weapons against physiological foes. Single people may rightly say, *I don’t have that particular marriage weapon in my arsenal*. That’s right. And I admire you for saying it. But embrace the principle as it applies to you. There are physiological realities that you know affect your vulnerability to temptation. Use them to make war. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

#### **4. The Holy Spirit, Sleep, and Self-Control**

But is that spiritual? Isn’t self-control a “fruit of the Holy Spirit,” rather than a fruit of frequent sexual relations? (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

It *is* a fruit of the Spirit (Galatians 5:23), but not “rather than” a fruit of other forces. The Spirit’s way of producing his fruit often includes very natural means. For example, another fruit of the Spirit is patience (Galatians 5:22). But who of us would deny that our patience rises



and falls with how much sleep we get? Love, Paul says, is “patient” and “not irritable” (1 Corinthians 13:4–5). But we are more easily irritated, and less patient, when we have not gotten the rest we need. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

What I infer from this is that one of the many weapons in the arsenal of the Holy Spirit is sleep. He humbles us to realize we are not God and that we need to be as helpless as a baby seven or eight hours a day, in order to be the loving, patient people he calls us to be. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Similarly with sexual self-control. The Holy Spirit teaches us from Scripture, and from experience, and from each other, how our bodies work. He means for us to lean on his power as we use the physiological counter-weapons he gives us. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

## **Finding True Ecstasy**

Brain research is right: Our brains are deeply shaped by what we see. And the more we see, the more well-beaten and controlling those paths become. But we are not their victims. These physiological powers are not ultimate. God is ultimate. And he has given us spiritual weapons just as physiologically powerful as pornography. He too means to be seen — often and deeply (2 Corinthians 3:18; 4:4). (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

Moreover, the spiritual powers of his word and Spirit have the right to conscript physiological forces into their service. And in the end, God can hijack back the very paths of pornography and transpose the scintillations of those very paths into the ecstasies of knowing Christ. (John Piper, “Hijacking Back Your Brain from Porn”, Desiring God, October 15, 2013, <http://www.desiringgod.org/articles/hijacking-back-your-brain-from-porn>)

“NIDA director Nora Volkow also felt that her institute's name should encompass addictions such as pornography, gambling, and food, says NIDA adviser Glen Hanson. (Science, July 6, 2007, Vol. 317. no. 5834, p. 23),” (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

“As set forward in this Exhibit A, recent technical advancements in the brain sciences provides evidence that fits historic, literary, legal and common sense observation, as well, arguably, as proprietary psychographic marketing analyses owned by Spencer’s and Playboy. That is, independent science now confirms that the brain’s cognitive and moral decision making skills do not architecturally mature until an individual is twenty-two to twenty-five years of age. Therefore, exposing minors to pornographic images and devices subconsciously restructures millions of immature brains-minds and memories and nullifies their ability to give informed moral and cognitive consent.” (Judith Reisman, PhD, “Restructuring the Immature Brain”, Dr. Judith Reisman Archives, 2008, [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

**To read complete article please click here: [Restructuring the Immature Brain](#)**

“Neuropsychiatrist, Richard Restak agrees. Writing in *The Brain Has A Mind of Its Own*, Restak is enthusiastic about scientific confirmation that ‘we can change how our brain operates.’ But, if, as Restak, Volkow, Amen, Nestler, Robinson and other researchers have shown, ‘we can literally change our brain for the better as a result of new interests and the development of new talents,’ then drug consumption and/or the regular use of pornographic or violent media stimuli will ‘literally change our brain for the worse.’ And, if such psychopharmacological stimuli, restricted in the past to the affluent and aberrant elite, are now widely accessed by young and old alike, such pornographic psychopharmacological stimuli will ‘literally change,’ worsen and brutalize the national brain.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“If a teen is doing music or sports or academics, those are the cells and connections that will be hardwired. If they're lying on the couch or playing video games or MTV [or Internet porn], those are the cells and connections that are going to survive.” (Gary Wilson and Marnia Robinson, “Why Shouldn't Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

“The good news is that the brain is a plastic organ—that is, it changes over time. How can a man or woman strengthen these shrunken and malformed regions of the brain? Through the development of good, healthy habits.”

(Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“In *The Porn Circuit*, Sam Black writes that our new habits that replace porn should be naturally rewarding: an entertaining and engaging hobby, physical exercise, meditation. Yes, one still needs to rid his or her life of the potentially tempting sources of porn, but ultimately this old habit must be replaced with new ones.” (Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“In short, it's not the neurochemical blast of orgasm that hooks Internet porn addicts, although orgasm also reinforces porn use. The more potent hook is the ever-available novelty of Internet porn. Not surprisingly, when a guy attempts to ‘reboot’ his brain, this experience is common:”

*“Even though I have had some strong urges for porn during this reboot, I have never had a strong desire to masturbate.*

*Perhaps that is the most concerning thing, that my brain misses the porn more than it misses the masturbation/orgasm.”* (Gary

Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

## **“HE RESTORETH MY SOUL”**

“...understanding the difficulty of treating pornography and sexual addiction adequately from a spiritual perspective alone.” (Donald L. Hilton, Jr., MD, “He Restoreth My Soul,” Forward Press Publishing, LLC, © 2009)

“It is necessary to describe the problem frankly because there are those who doubt they even need to change.” (Donald L. Hilton, Jr., MD, “He Restoreth My Soul,” Forward Press Publishing, LLC, © 2009)

“...advocate a simple treatment plan that is based upon willpower or moral character.” (Donald L. Hilton, Jr., MD, “He Restoreth My Soul,” Forward Press Publishing, LLC, © 2009)

“The pornographers aren’t having it all their own way, however. New government legislation proposed within its Audiovisual Media Services regulation (2014) has outlawed the filming and distribution of various ‘hard-core’ sexual practices, most notably those involving physical restraint. In December, the British porn industry led a suitably crass demonstration outside Parliament to protest against the new rules, which have become law.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Meanwhile, lobby groups on the other side of the argument are firmly pushing for more. Christian group Safer Media, working with Premier and others, has successfully campaigned for more responsible Internet filtering from Internet service providers (although this doesn’t apply to most mobile media, the platform through which the majority of pornography is accessed), while Christian Tory MP Claire Perry has led the charge within Parliament to address underage exposure to adult material.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Pornography is a difficult issue for the politically nuanced to get right. On the one hand, its regulation could be deemed to limit freedoms and can smack of *Daily Mail*-style moral panic. On the other, an increasing body of evidence suggests that porn is having a dangerous and as yet unquantified effect on the brains of those who use it.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

### **“The Impact: Dulling and Erosion”**

“If that last claim sounds wild, let me introduce Dr William Struthers, a neuroscientist-slash-theologian specialising in the scientific impact of adult material on the human brain, and a professor at Wheaton College, Chicago.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the

shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“His book, *Wired for Intimacy: How Pornography Hijacks the Male Brain* (IVP) was one of the first academically backed works to suggest that pornography could have a damaging effect on consumers. I asked him to explain in simple terms (not always easy for a scientist) what that actually looks like.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“He says: ‘Repeated exposure to sexualised material, and not just graphic porn, will change our standards of what is acceptable sexually and morally. This is known as the “exposure effect” in psychology.’” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“‘[As a result]...the generation that has been raised on porn is becoming less able to enjoy sexual intimacy, connectedness and the empowerment that comes in healthy sexual relationships, especially in the context of marriage.’” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Struthers believes our brains are being dulled by pornography, and that our relational abilities are being damaged and eroded as a result. So porn is potentially doing us neurological damage. Even if you want to lay to one side the very valid concerns about the porn industry’s links with human trafficking, or the connections between hard-core pornography use and sexual violence, there’s a strong argument that this is, in fact, a public health issue.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

## **“A Shift in Christian Engagement”**

“Not only does the Church need to get its own house in order, it also needs to find ways to speak with grace and compassion about porn,

sex and relationships. Sexual violence isn't compatible with the kingdom of God, and media-induced neurological damage probably doesn't have a place in it either. I'd like to suggest a few steps we could meaningfully take in the right direction:" (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

## 1. "Recognise the nature of the issue"

"Firstly, a reality check – if one is still needed – for anyone who thinks the Church doesn't have an issue with porn. My December 2014 survey (something of a straw poll, but sufficiently quantitative to hold some weight) suggested that around 55% of Christian men view Internet porn more than once a month, with a further 20% admitting that they succumb to temptation every so often. That's 75% of Christian men engaging with pornography on, let's say, a monthly basis. Among women the figure was much, much lower. Just 15% said they viewed porn online more than once a month, with a further 20% visiting porn sites occasionally." (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

"However, within those stats there are some interesting details. Only 5% of men said they looked at Internet porn on a daily basis, but a disproportionate 42% said they would describe their behaviour as 'compulsive or an addiction'. If these men are truly suffering from an addiction, shouldn't these two percentages be closer together? Is it possible that Christian men who have heard warnings from the Church about porn addiction and feel ashamed of their own occasional use mistakenly believe they are suffering from an addiction they can't control? By calling them addicts, we have given them a mental excuse to concede defeat. Is that right in the majority of cases? Or can we actually call them higher, to train themselves to steer clear of porn? Of course, there are true addicts, but correctly labelling the issue for the majority could be a simple but key step in changing those statistics." (Martin Saunders, "Grey Matter: 50 Shades, pornography and the shaping of our brains", Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

## 2. “Rethink accountability”

“My 2009 research highlighted that, after prayer, the main strategy for tackling porn was ‘accountability’, either in the form of face-to-face meetings or via computer software, which monitored Internet use and sent reports of any indiscreet online behaviour to a trusted friend. Struthers thinks this approach is deeply flawed. In many cases, he says, accountability groups ‘become an exercise in either shaming or ‘sin reminiscing’.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“He says: ‘As a result of the extended period of time that can elapse between meetings, and the nature of confessing something that is embarrassing, these kinds of groups often dissolve because of a lack of efficacy. In contrast, some groups easily fall into a permissive, locker room atmosphere. It becomes more about telling stories about how the week went [reminiscing] and an attitude that lacks the calling to a higher standard.’” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Struthers is not entirely cynical about their worth, but he says that ‘accountability groups that are lazily structured and have no purpose other than confession without instruction are useless’. So, if the approach is accountability it needs to be oriented around building groups of men and women with integrity, not a continual focus on a uniting ‘sin’.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Alongside this, and bearing in mind that we may be mislabelling casual porn use as ‘addiction’, it is perhaps time to re-embrace the most countercultural gift: self-discipline. This might seem a deeply unremarkable idea, but it’s a firmly biblical one; the fruit of the Spirit that is best suited to helping us conquer temptation (Galatians 5:23). A commitment to prayer and personal discipline is the strongest weapon available to anyone wanting to fight the



temptation to use pornography.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

### 3. “Interrupt the porn conversation”

“Even if we want to flee from the evils of porn, we have a problem. We’re called to be part of a world that is saturated with sexualised materials, and to meet and love the people who live in it. It’s not our job to judge people who think pornography is healthy, but there are ways that a compassionate Christian voice can and should be expressed to the contrary.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“The Church has already been heavily involved in campaigning to ensure children and young people have a better chance at avoiding repeated pornography exposure. We can also play a key role in modelling healthy relationships that don’t use pornography as a guidebook. There is also a part for the Church to play in reaching out to the UK’s adult industries, just as XXXchurch does in the US.” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“Encouragingly, Struthers believes the future isn’t quite as dark as we might imagine. ‘I see the culture waking up to the reality that pornography has saturated it with a litany of broken promises,’ he declares. ‘The false presentation of ecstasy, intimacy and power presented in porn are finally being seen as hollow.’” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

“He might be right, but at this moment porn is everywhere. This month, the release of the *Fifty Shades of Grey* movie is another leap forward for pornography in the mainstream. Could the Church respond with self-awareness, intelligence and compassion?” (Martin Saunders, “Grey Matter: 50 Shades, pornography and the shaping of our brains”, Premier Christianity, 2014, <https://www.premierchristianity.com/Past-Issues/2015/February-2015/Grey-Matter-50-Shades-pornography-and-the-shaping-of-our-brains>)

**“It is important to remember that the guidelines we are given in Scripture about how to conduct ourselves sexually are fairly straightforward.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“When we follow these guidelines, we will be more likely to develop minds that focus on those things that are good and noble, right, and pure. When we choose not to follow these guidelines and act in a way that is sexually immoral, we are affected—our thoughts and bodies become polluted. The same can be said for watching immorality, that is to say, viewing pornography.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“This is not only a spiritual reality, but also a neurological one. When a husband and wife restrict themselves to each other, directing their sexual energies toward one another, they will find that they occupy each other’s thoughts. They will find that they will be more closely bound to each other. This is God’s plan for a husband and wife—that they will image God’s exclusive love for His people as they exclusively set this part of themselves (their reproductive nature) aside for one another. For the single person, realizing that needs for intimacy can be met in ways beyond sexual gratification is an important process. When someone is deceived into thinking that sexual intimacy (i.e., sexual intercourse) is a necessary part of living a life worth living, it comes as no surprise that pornography, masturbation, or promiscuity become a cycle of unmet needs and unfulfilled promises of intimacy, love, and connectedness.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“God uses our embodied nature and the laws that govern it to our benefit and His glory. We can begin to move beyond objectification and false intimacy to real relationships, which honor the dignity of each person.”** (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

**“Sexual intimacy is a complex neurochemical, hormonal, and spiritual event. It is one of the most powerful God-given means by which**

human being form attachments.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

## #11 PORN AND RATIONAL THOUGHTS

### “NEUROSCIENCE SPEAKS: HOW USING PORN DESTROYS YOUR WILLPOWER”

“When we give into our cravings we give up on our reasoning.”

“Neuroscience now knows that willpower is a function of the prefrontal lobes of the brain. Scientific studies have also confirmed that using porn over and over actually *reshapes* these areas of the brain, literally eroding our willpower and our moral compass.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“Another study of the brain that has just been released, according to Dr. Donald Hilton, is research showing that the more people watch pornography each week, the more their brains shrink. Related research has also shown that viewing pornography slows down the working memory of people who view it, in other words, your short-term memory. (Laier, C., Schulte, F. P., & Brand, M. (2013). Pornographic picture processing interferes with working memory performance. *Journal of Sex Research*, 50(7), 642-652. doi:10.1080/00224499.2012.716873) So yes, if you thought that porn makes you less intelligent, there is now evidence from neurologists to support that conclusion. Consistent with this line of research is another study that found decreased grey matter in the brain in the areas responsible for motivation and decision-making. This study, not on porn addicts but simply on male users of pornography, was among the first to find brain changes in those not addicted but who are using pornography.” (Kuhn, S. & Gallinat, J. (2014). Brain Structure and Functional Connectivity Associated With Pornography Consumption The Brain on Porn. *JAMA Psychiatry*, doi:10.1001/jamapsychiatry.2014.93.) (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“Neuroscientists call it hypofrontality. Hypofrontality is a state in which there is decreased blood flow to the prefrontal lobes of the brain. Hypofrontality is observed in schizophrenia patients and is also observed in all manner of addictions.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

## **“What is Hypofrontality?”**

“In his book, *The Porn Circuit*, Sam Black explains what hypofrontality is for the porn viewer.”

“‘Compulsiveness is a good descriptor of hypofrontality. Many porn users feel focused on getting to porn and masturbating even when a big part of them is saying, ‘Don’t do this.’ Even when negative consequences seem imminent, impulse control is too weak to battle the cravings.’” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“The porn-addicted brain has trouble thinking logically. When impulses and desires come from the midbrain, instead of being moderated, the brain feels these desires as compelling needs. The prefrontal region is supposed to be able to weigh consequences and situations and judiciously shut down cravings, but hypofrontality means the addict’s ability to do this is impaired.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“To the addict, when the craving for porn surfaces, their whole body gears up for action. As unhindered hormones are released and neurotransmitters fire, the craving consumes them. The heart begins to race, blood pressure rises, and the addict is consumed by a single thought: ‘Just one more time.’” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

## **“What Causes Hypofrontality?”**

“Compared to other creatures on earth, human beings have a very well developed prefrontal region. When our prefrontal lobes are working properly, then we have ‘executive control’ of the processes going on in our brains. It is where we do our abstract thinking, make goals, solve problems, regulate behavior, and where we suppress emotions, impulses, and urges.

But the more one masturbates to porn, the more dopamine is released in the brain. Eventually dopamine receptors and signals in the brain fatigue, leaving the viewer wanting more but unable to reach a level of satisfaction. The viewer becomes numb to things once

considered pleasurable. ‘To escape this desensitization, people, and men especially, expand their pornographic tastes to more novel stimuli,’ Black writes. This leads, again, to more fatigue.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“Desensitization impacts the prefrontal cortex. As dopamine receptors decline in the brain, so do the amount of neural cells in the prefrontal lobes.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“Dr. Struthers has explained elsewhere that viewing pornography and masturbating [weakens the region of our brain known as the cingulate](#) cortex, the region that is responsible for moral and ethical decision making. In other words, repeatedly watching porn dulls one’s conscience and critical thinking skills.” (Luke Gilkerson, “2 Big Ways Porn Affects Those Who Watch It”, Covenant Eyes, April 16, 2013, <http://www.covenanteyes.com/2013/04/16/how-does-porn-affect-people/>)

“As director of the National Institute on Drug Abuse, Alan Leshner observes the power of an addiction over rational thought, saying, ‘it isn’t the case that the crack-addicted mother does not love her children. She just loves drugs more.’ One may say similarly; it isn’t the case that the pornographically addicted father does not love his children. He just loves pornography more.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“[T]he amygdala can take control over what we do even as the thinking brain, the neocortex is still coming to a decision...*when impulsive feeling overrides the rational...Fear sends urgent messages to every major part of the brain:* it triggers the secretion of the body’s fight-or-flight hormones [e.g.: endogenous drugs]...centers for movement...the cardiovascular system, muscles and the gut.” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 15-16. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“The amygdala signals the brainstem to ‘fix the face in a fearful expression’ speeding heart rate, raising blood pressure and slowing breathing. Any memory needed to further expand experience takes ‘precedence over other strands of thought.’ LeDoux has shown that

sensory signals from **eye or ear**, say, pornographic images or its music, will reach the amygdala for response long before the neocortex is alerted. Goleman explains how meaningful LeDoux's findings are for understanding our current emotional environment.”

(Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 17) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Goleman’s explanation of the amygdala’s role would seem critical to any discussion of ‘free speech’ laws applicable to pictorial pornography. Again, pornographic stimuli is immediately processed by those who cannot read--children or illiterates--due to its ability to bypass the neocortex and reach the emotion/motor phase of arousal. I therefore quote extensively from LeDoux and his discoveries. Those who feel that this bypass action is clear may wish to skip over the following page and a half. Says Goleman:” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“‘Anatomically the emotional system can act independently of the neocortex,’ LeDoux told me. ‘Some emotional reactions and emotional memories can be formed *without any conscious, cognitive participation at all.*’ The amygdala can house memories and response repertoires that *we enact without quite realizing why we do so* because the shortcut from thalamus to amygdala completely bypasses the neocortex. This bypass seems to allow the amygdala to be *a repository for emotional impressions and memories that we have never known about in full awareness.*” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 18-19. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“LeDoux additionally notes the legal issues surrounding children’s exposure to sexual stimuli, both pictorial and abusive sexual stimuli which is commonly a result of pornographic exposure in the child’s home or, of late, in public libraries or on mainstream television.” (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“[M]emories are stored in the amygdala as rough, wordless blueprints for emotional life. Since these earliest emotional memories are established at a time before infants have words for their experience, when these emotional memories are triggered in later life there is no



matching set of articulated thoughts about the response that takes us over.” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 22.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“The amygdala can react in a delirium of rage or fear before the cortex knows what is going on *because such raw emotion is triggered independent of, and prior to, thought*... The connections between the amygdala (and related limbic structures) and the neocortex are the hub of the battles or cooperative treaties struck between head and heart, thought and feeling. This circuitry explains why emotion is so crucial to effective thought, both in making wise decisions and in simply allowing us to think clearly.” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 24. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“But circuits from the limbic brain to the prefrontal lobes mean that the signals of strong emotion--*anxiety, anger, and the like*--can create *neural static, sabotaging the ability of the prefrontal lobe to maintain working memory*. That is why when we are emotionally upset we say we ‘just can’t think straight’...The emotional brain, quite separate from those cortical areas tapped by IQ tests, *controls rage and compassion alike*. These emotional circuits are *sculpted by experience throughout childhood*--and we leave those experiences utterly to chance at our peril.” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 27. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Professor Livingston apparently does not take into account the possible long-term effect of even a millisecond of fear-inducing sexual imagery on the psychopharmacology of some vulnerable child’s short and long-term memory. Neurologist Richard Restak stresses the conflicting, even warring roles of the left and right hemispheres in learning in his book, *The Brain Has a Mind of Its Own*.”

“‘[U]nder conditions of extreme duress *the limbic system is capable of overwhelming the cerebral cortex*...where interpretation, judgment, and restraint are formulated.<sup>115</sup> ...Whenever you interfere with the inhibitory influences of the cerebral hemispheres [as in the child’s processing a pornographically triggered endogenous, mood altering

neurochemical “drug” high] something inevitably surfaces that suggests that there’s a jungle down there.” (Sally Springer, Georg Deutsch, *Left Brain, Right Brain*, W.H. Freeman, San Francisco, 1981, at 132.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“As late as the 1950s, it was assumed that communication between nerve cells in the brain occurred predominantly, if not entirely, by electrical impulses.’ But by the 1960s Carlsson and his colleagues had demonstrated chemical transmission was manifest in the central nervous system.” (Science Magazine, November 18, 2001, pp. 1021.) (Judith A. Reisman, PhD, “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“In recent decades, innocuous natural rewards like food and sex have been joined by some very *unnatural* kin. These imposters trip the same neural triggers as the natural rewards our brains evolved to pursue. *Our limbic brains love them*—and are inclined to overlook their drawbacks.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“... deep thinking becomes increasingly impossible. ...” (John Harris, “How the internet is altering your mind”, The Guardian, August 19, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“On the road to a thoughtless society” –Josh D. McDowell

“It often feels as if all this frantic activity creates a constant state of twitchy anxiety, as any addiction usually does. Moreover, having read a freshly published and hotly controversial book about the effect of digital media on the human mind, I may have very good reason to feel scared. Its thesis is simple enough: not only that the modern world's relentless informational overload is killing our capacity for reflection, contemplation, and patience – but that our online habits are also altering the very structure of our brains.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

**“Abnormal White Matter.** Gray matter is responsible processing information, whereas white matter comprises the communication pathways between different parts of the brain. Abnormalities of pathways between reward circuit structures and the frontal cortex are related to poor impulse control and reduced cognitive abilities. Study 1, study 2, study 3.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Dr. William Struthers, author of *Wired for Intimacy*, sounds a similar alarm, teaching that viewing pornography and masturbating actually weakens the region of our brain known as the cingulate cortex—the region that is responsible for moral and ethical decision making and willpower.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

## **“NEUROSCIENCE SPEAKS: HOW USING PORN DESTROYS YOUR WILLPOWER”**

“When you are engaged in fantasy, you lose your ability to connect between action and reaction. You no longer follow cause and effect. The more you fantasize, the more you become disconnected from what I call common sense. It affects your business judgment and it affects your ability to interact properly with other employees. It affects your ability to be intimate with your wife. The reality is most people don’t realize how pornography reaches out and grabs people.” (“9 Warning Signs of Porn Addiction”, First Things, Accessed September 26, 2017, <http://firstthings.org/warning-signs/>)

“Neuroscience now knows that willpower is a function of the prefrontal lobes of the brain. Scientific studies have also confirmed that using porn over and over actually *reshapes* these areas of the brain, literally eroding our willpower and our moral compass.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” Covenant Eyes, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“Neurosurgeons frequently treat people with frontal lobe damage. In a car crash, for instance, the driver’s brain will often decelerate into the back of his forehead inside his skull, bruising the frontal lobes. Patients with frontal lobe damage exhibit a constellation of behaviors we call frontal lobe syndrome. First, these patients are impulsive, in that they thoughtlessly engage in activities with little regard to the consequences. Second, they are compulsive; they become fixated or focused on certain objects or behaviors, and have to have them, no matter what. Third, they become emotionally labile, and have sudden and unpredictable mood swings. Fourth, they exhibit impaired judgment.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” *Salvo* 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“So cortical hypofrontality, or shrinkage of the frontal lobes, causes these four behaviors, and they can result from a car wreck or from

addiction.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“A study on cocaine addiction published in 2002 shows volume loss, or shrinkage, in several areas of the brain, particularly the frontal control areas. A study from 2004 shows very similar results for methamphetamine. But we expect drugs to damage the brain, so these studies don’t really surprise us.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Consider, though, a natural addiction, such as overeating leading to obesity. You might be surprised to learn that a study published in 2006 showed shrinkage in the frontal lobes in obesity very similar to that found in the cocaine and methamphetamine studies. And a study published in 2007 of persons exhibiting severe sexual addiction produced almost identical results to the cocaine, methamphetamine, and obesity studies. (Encouragingly, two studies, one on drug addiction [methamphetamine] and one on natural addiction [obesity] also show a return to more normal frontal lobe volumes with time in recovery.)” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“So we have four studies, two drug and two natural addiction studies, all done in different academic institutions by different research teams, and published over a five-year period in four different peer-reviewed scientific journals. And all four studies show that addictions physically affect the frontal lobes of the brain.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

## **“BRAIN STRUCTURE AND FUNCTIONAL CONNECTIVITY ASSOCIATED WITH PORNOGRAPHY CONSUMPTION”**

**“Importance.** Since pornography appeared on the Internet, the accessibility, affordability, and anonymity of consuming visual sexual stimuli have increased and attracted millions of users. Based on the assumption that pornography consumption bears resemblance with reward-seeking behavior, novelty-seeking behavior, and addictive behavior, we hypothesized alterations of the frontostriatal network in frequent users.”

(Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” JAMA Psychiatry, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Objective.** To determine whether frequent pornography consumption is associated with the frontostriatal network.” (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” JAMA Psychiatry, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Main Outcomes and Measures.** Gray matter volume of the brain was measured by voxel-based morphometry and resting state functional connectivity was measured on 3-T magnetic resonance imaging scans.” (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” JAMA Psychiatry, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Results.** We found a significant negative association between reported pornography hours per week and gray matter volume in the right caudate ( $P < .001$ , corrected for multiple comparisons) as well as with functional activity during a sexual cue–reactivity paradigm in the left putamen ( $P < .001$ ). Functional connectivity of the right caudate to the left dorsolateral prefrontal cortex was negatively associated with hours of pornography consumption.” (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” JAMA Psychiatry, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Conclusions and Relevance.** The negative association of self-reported pornography consumption with the right striatum (caudate) volume, left striatum (putamen) activation during cue reactivity, and lower functional connectivity of the right caudate to the left dorsolateral prefrontal cortex could reflect change in neural plasticity as a consequence of an intense stimulation of the reward system, together with a lower top-down modulation of prefrontal cortical areas. Alternatively, it could be a precondition that makes pornography consumption more rewarding.” (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” JAMA Psychiatry, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Dr. Struthers has explained elsewhere that viewing pornography and masturbating weakens the region of our brain known as the cingulate cortex, the region that is responsible for moral and ethical decision making. In other words, repeatedly watching porn dulls one’s conscience and critical thinking skills.” (Luke Gilkerson, “2 Big Ways Porn Affects Those

Who Watch It", Covenant Eyes, April 16, 2013, <http://www.covenanteyes.com/2013/04/16/how-does-porn-affect-people/>)

**“Arousal shuts down our capacity to think about consequences.”** (Sam Parker, “Why Thousands of Young Men are Giving up Pornography in 2014”, Esquire - UK, July 31, 2014, <http://www.esquire.co.uk/culture/article/6624/why-young-men-are-quitting-porn-in-2014/>)  
“Alexander Rhodes

**“The headmaster of the all-boys boarding school I attended when I was a teenager was always wary of admitting students to the academy that had been exposed to pornography. Among his reasons for this was that boys who had carnal knowledge—even on the level that pornography affords—very often found it an impediment in the process of their education. Now I am the headmaster of that same boarding school, and I am increasingly convinced of the reasoning behind my old headmaster’s reticence over such applicants. Pornography is a destroyer of innocence, and the innocence proper to certain years of a boy’s life is an important factor in his education—especially if that education is informed by the classical pedagogies of wonder, imagination, and delight.”** (Sean Fitzpatrick, “Boys, Porn and Education”, Crisis Magazine, October 31, 2014, <http://www.crisismagazine.com/2014/boys-porn-education>)

**“If, as brain science research now shows, emotionally threatening/stimulating media bypass the neocortex, overwhelming rational thought, then pornographic lust would psychopharmacologically subvert the first amendment goals of informed consent and free speech – the search for truth.”** (Daniel Goleman, Emotional Intelligence, Bantam Books, New York, 1997, f5 at 17) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

**“In this study, experts at Germany's Max Planck Institute found:”**

1. **“Higher hours per week/more years of porn viewing correlated with a reduction in grey matter in sections of the reward circuitry (striatum) involved in motivation and decision-making. Reduced grey matter in this reward-related region means fewer nerve connections. Fewer nerve connections here translates into sluggish reward activity, or a numbed pleasure response, often called desensitisation (more on that below). The researchers interpreted this as an indication of the effects of longer-term porn exposure.”** (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp92-93)

2. "The nerve connections between the reward circuit and prefrontal cortex worsened with increased porn watching. As the researchers explained, 'Dysfunction of this circuitry has been related to inappropriate behavioural choices, such as drug seeking, regardless of the potential negative outcome.' In short, this is evidence of an association between porn use and impaired impulse control." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp92-93)
3. "The more porn used, the less reward activation when sexual images were flashed on the screen. A possible explanation is that heavy users eventually need more stimulation to fire up their reward circuitry. Said the researchers, 'This is in line with the hypothesis that intense exposure to pornographic stimuli results in a downregulation of the natural neural response to sexual stimuli.' Again, desensitisation is common in all kinds of addicts." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp92-93)

"To sum up: More porn use correlated with less gray matter and reduced reward activity (in the dorsal striatum) when viewing sexual images. More porn use also correlated with weakened connections to the seat of our willpower, the frontal cortex." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp92-93)

"Keep in mind that this study did not examine causation, but rather correlation." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp92-93)

"Here are some brain changes that show up in all addictions, whether substance or behavioural:" (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-98)

"If users and/or victims are organically unable to critique the psychopharmacological changes formed in their brains, minds and memories, the users/victims cannot consent to the unforeseen consequences of their neurochemical 'resculpting' or 'brainwashing.' The argument that pornographic lust/stimuli are 'information' or 'speech' is then scientifically contraindicated since such stimuli, processed by the emotional, not the thinking brain would undermine the goal of rational debate and discourse, the foundation of civil society and the First Amendment protections. And, as noted, it is no small thing that Shakespeare himself defined 'lust' as standing outside cognition, dominated by shame, cruelty, savagery and 'madness'." (Judith A. Reisman, PhD,



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"3 C Theory" – craving, (loss of) control, and (negative) consequences." (Wilson, G. (2014). *Your brain on porn: Internet pornography and the emerging science of addiction*. Commonwealth Publishing, United Kingdom.) (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"In addition, Dr. William Struthers says research shows that masturbating to pornography actually weakens the cingulate cortex of the brain—the region that is responsible for moral and ethical decision making and willpower—a process that is seen in every addiction. This phenomenon is known as *hypofrontality*. In *The Porn Circuit*, Sam Black explains:

'Compulsiveness is a good descriptor of hypofrontality. Many porn users feel focused on getting to porn and masturbating even when a big part of them is saying, 'Don't do this.' Even when negative consequences seem imminent, impulse control is too weak to battle the cravings.'" (Luke Gilkerson, "Porn Addiction is a Myth: The Debate Continues", Covenant Eyes, September 26, 2014, <http://www.covenanteyes.com/2014/09/26/porn-addiction-like-drug-addiction/>)

"...cingulate cortex, the region that is responsible for moral and ethical decision making...repeatedly watching porn dulls one's conscience and critical thinking skills." (Luke Gilkerson, "2 Big Ways Porn Affects Those Who Watch It", Covenant Eyes, April 16, 2013, <http://www.covenanteyes.com/2013/04/16/how-does-porn-affect-people/>)

"While 'frontal lobe' sounds really technical, basically it's the part of the brain that controls logical problem solving and decision making." (Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered in the Context of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767.) ("Porn Changes the Brain", Fight the New Drug, August 8, 2014, <http://fightthenewdrug.org/porn-changes-the-brain/#sthash.f4KEwobK.dpbs>)

This numbs a person's response to other pleasures (desensitization), makes someone hyper-reactive to porn (sensitization), and leads to an erosion of willpower (hypofrontality). (Matt Fradd, "Does Porn Impact the Brain?", Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“Dr. William Struthers, author of *Wired for Intimacy*, sounds a similar alarm, teaching that viewing pornography and masturbating actually weakens the region of our brain known as the cingulate cortex—the region that is responsible for moral and ethical decision making and willpower.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, *Covenant Eyes*, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“...prefrontal cortex that houses the internal representation of goals and the means to achieve them.” (Miller EK, Cohen JD. An integrative theory of prefrontal cortex function. *Annu Rev Neurosci*. 2001;24(1):167-202. Fuster JM. The prefrontal cortex—an update: time is of the essence. *Neuron*. 2001;30(2):319-333) (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Let’s review some of the important components of the reward system of the brain. On the outside is the cerebral cortex, a layer of nerve cells that carry conscious, volitional thought. In the front, over the eyes, are the frontal lobes. These areas are important in judgment, and, if the brain were a car, the frontal lobes would be the brakes. These lobes have important connections to the pleasure pathways, so pleasure can be controlled.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” *Salvo* 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“The prefrontal cortex is one of the things that makes us unique from other creatures on earth. By reclaiming it we are reclaiming more than our willpower. We are reclaiming our humanity.” (Luke Gilkerson, “Neuroscience Speaks: How Using Porn Destroys Your Willpower,” *Covenant Eyes*, February 28, 2014, [www.covenanteyes.com/2014/02/28/hypofrontality/](http://www.covenanteyes.com/2014/02/28/hypofrontality/))

“But a smaller portion of the original signal goes straight from the thalamus to the amygdala in a quicker transmission...[of an] emotional response before the cortical centers have fully understood what is happening.” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York, 1997, f 5 at.19. Emphasis added.) (Judith A. Reisman, PhD, DRAFT - “The Psychopharmacology of Pornography: A Clear & Present Danger”, The Institute for Media Education, January 2000)

“Should pornographic psychopharmacology dominate the limbic system’s responses in love, pain, pleasure and memory, such feelings would give the pornographic drug *the emotional centers, immense power to influence the functioning of the rest of the brain—including its centers for thought.*’ Indeed, the ‘[c]onnections between the limbic system and the cerebrum [that] permit an interplay between reason and emotion’ can be ‘easily upset.’” (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York 1995, at 11-12.) (Judith A.

"The limbic system can become so highly activated that it overwhelms rational thought, making a person speechless with fury or joy. Through conscious [neocortical] control, a person can resist the urge to eat or drink, fight back tears or suppress sexual desire." (Jack Fincher, *The Brain: Mystery of Matter and Mind*, Torstar Books, New York, 1984, at 92.) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

"The prefrontal cortex is the region of the brain associated with decision making and willpower. This means that heavy porn users are also more likely to have a compulsive relationship with porn." (Luke Gilkerson, "Porn Users Have Smaller Brains", Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

"Dr. Struthers has explained elsewhere that viewing pornography and masturbating weakens the region of our brain known as the cingulate cortex, the region that is responsible for moral and ethical decision making. In other words, repeatedly watching porn dulls one's conscience and critical thinking skills." (Luke Gilkerson, "2 Big Ways Porn Affects Those Who Watch It", Covenant Eyes, April 16, 2013, <http://www.covenanteyes.com/2013/04/16/how-does-porn-affect-people/>)

"This applies to so-called 'soft-core' and 'hard-core' pornography, which may, arguably, subvert the First Amendment by overriding the cognitive speech process." (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

"Surprisingly little research has looked into the internet's effects on the brain, but the work that forms Carr's holy grail was carried out in 2008, by a trio of psychiatrists at UCLA led by Dr Gary Small, himself the co-author of a book titled iBrain: surviving the technological alteration of the modern mind. Under their supervision, 12 experienced web users and 12 digital newcomers used Google, while their brains were scanned. The results, published under the title Your Brain On Google, pointed up a key initial difference between the two groups: in an area of the brain called the dorsolateral prefrontal cortex, which deals with short-term memory and decision-making, the rookies showed hardly any activity, whereas the web veterans were

really firing.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Six days later, the novices having been told to spend an hour a day online, the two groups' brains were scanned again – and this time, things got even more interesting: in images of both sets of brains, the pattern of blobs representing mental activity was virtually identical. As Small put it: ‘After just five days of practice, the exact same neural circuitry in the front part of the brain became active in the internet-naive subjects. Five hours on the internet, and the naive subjects had already rewired their brains.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“He goes on: ‘It's a basic principle that the brain is very sensitive to any kind of stimulation, and from moment to moment, there is a very complex cascade of neurochemical electrical consequences to every form of stimulation. If you have repeated stimuli, your neural circuits will be excited. But if you neglect other stimuli, other neural circuits will be weakened.’ This is the nub of Carr's argument: that the online world so taxes the parts of the brain that deal with fleeting and temporary stuff that deep thinking becomes increasingly impossible. As he sees it: ‘Our ability to learn suffers, and our understanding remains shallow.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Dr. Struthers has explained elsewhere that viewing pornography and masturbating weakens the region of our brain known as the cingulate cortex, the region that is responsible for moral and ethical decision making. In other words, repeatedly watching porn dulls one's conscience and critical thinking skills.” (Luke Gilkerson, “2 Big Ways Porn Affects Those Who Watch It”, Covenant Eyes, April 16, 2013, <http://www.covenanteyes.com/2013/04/16/how-does-porn-affect-people/>)

**“Design, Setting, and Participants.** In a study conducted at the Max Planck Institute for Human Development in Berlin, Germany, 64 healthy male adults covering a wide range of pornography consumption reported hours of pornography consumption per week. Pornography consumption was associated with neural structure, task-related activation, and functional resting-state connectivity.” (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and

Functional Connectivity Associated with Pornography Consumption," *JAMA Psychiatry*, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

"We found a significant negative association between reported pornography hours per week and gray matter volume in the right caudate. Functional connectivity of the right caudate to the left dorsolateral prefrontal cortex was negatively associated with hours of pornography consumption." (Simone Kühn, PhD; Jürgen Gallinat, PhD, "Brain Structure and Functional Connectivity Associated with Pornography Consumption," *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

1. **"Hypofrontality**, or reduced brain activity in the prefrontal regions, which weakens willpower in the face of strong subconscious cravings. Alterations in the prefrontal regions' grey matter and white matter correlate with reduced impulse control and the weakened ability to foresee consequences. A recent German review of brain and psychological studies concluded that reduced brain function in internet addicts may be related to their loss of control over their internet use. (Kai Yuan, et al., "Microstructure Abnormalities in Adolescents with Internet Addiction Disorder," *PLoS One*, June 03, 2011, doi: 10.1371/journal.pone.0020708.) ( Y. Zhou, et al., "Grey matter abnormalities in Internet addiction: a voxel-based morphometry study," *Eur J Radiol* 9/1 (2011): 92-95. doi: 10.1016/j.ejrad.2009.10.025) (Fuchun Lin, et al., "Abnormal White Matter Integrity in Adolescents with Internet Addiction Disorder: A Tract-Based Spatial Statistics Study," *PLoS One*, January 11, 2012, doi: 10.1371/journal.pone.0030253) (G. Dong, H. Zhou, X. Zhao, "Impulse inhibition in people with Internet addiction disorder: electrophysiological evidence from a Go/NoGo study," *Neurosci Lett* 485/2 (2010): 138-142, doi: 10.1016/j.neulet.2010.09.002) (G. Dong, H. Zhou, X Zhao, "Male Internet addicts show impaired executive control ability: evidence from a color-word Stroop task," *Neurosci Lett* 499/2 (2011): 114-118, doi: 10.1016/j.neulet.2011.05.047) (Matthias Brand, Kimberly S. Young and Christian Laier, " Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings," *Frontiers in Human Neuroscience* 8/375 (2014), doi: 10.3389/fnhum.2014.00375) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

"I became aware of the power this thing had over me and that I was actually acting against my will" . "(Safety Net – Resources to Protect Your Family from Pornography," Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

"If, as brain science research now shows, emotionally threatening/stimulating media bypass the neocortex, overwhelming rational thought, then pornographic lust would psychopharmacologically subvert the first amendment goals of informed consent and free speech – the search for truth." (Daniel Goleman, *Emotional Intelligence*, Bantam Books, New York, 1997, f5 at 17) (Judith A. Reisman, PhD, DRAFT - "The Psychopharmacology of Pornography: A Clear & Present Danger", The Institute for Media Education, January 2000)

“There is common agreement that the neural substrates of addiction consist of brain areas that are part of the reward network such as midbrain dopamine neurons, the striatum, and the prefrontal cortex.<sup>12,13</sup>

Compromised prefrontal cortex function is among the major neurobiological modifications discussed in the research on substance abuse disorders common in humans and animals.<sup>17”</sup>

12. Volkow N, Li T-K. The neuroscience of addiction. *Nat Neurosci.* 2005;8(11):1429-1430.[PubMedArticle](#)

13. Kalivas PW, Volkow ND. The neural basis of addiction: a pathology of motivation and choice. *Am J Psychiatry.* 2005;162(8):1403-1413.[PubMedArticle](#)

17. Hyman SE, Malenka RC, Nestler EJ. Neural mechanisms of addiction: the role of reward-related learning and memory. *Annu Rev Neurosci.* 2006;29:565-598.[PubMedArticle](#)

(Simone Kühn, PhD; Jürgen Gallinat, PhD., May 28, 2014, The JAMA Network, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, [http://jamanetwork.com/journals/jamapsychiatry/fullarticle/1874574?utm\\_source=Silverchair%20Information%20Systems&utm\\_medium=email&utm\\_campaign=JAMAPsychiatry:OnlineFirst05/28/2014#Discussion](http://jamanetwork.com/journals/jamapsychiatry/fullarticle/1874574?utm_source=Silverchair%20Information%20Systems&utm_medium=email&utm_campaign=JAMAPsychiatry:OnlineFirst05/28/2014#Discussion))

“The ubiquity of sex offenders suggests that even adults are susceptible to pornographic ‘impulses’ that elude rational control.” (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))



## #12 DESENSITIZATION

**“Sensitization.** Hyper-reactivity to addiction-related cues. Leads to hard-to-ignore cravings for one's particular addiction. Study 1, study 2

**“Desensitization.** Just as in any chemical dependency, the amount of pornography the addict previously used is not enough to stimulate these brain chemicals. Dopamine loves novelty. When the reward wears off, the dopamine release declines, therefore pleasure declines, the libido declines, and may cause erectile dysfunction in males. Less gratification leads to the desire for greater amounts of hardcore porn. A vicious cycle reigns. Addicts need to intensify reaching the pleasure points in their brains again, only on a more advanced level.” (Susan Knight, “The Five Stages of Pornography Addiction”, News OK, April 6, 2016, <http://newsok.com/article/5407775>)

“Now, as you defy your brain by abstaining, your already low dopamine drops further. Also, libido-squelching brain stress hormones CRF and norepinephrine shoot up. Your desensitization is in overdrive, so a real partner doesn't stand a chance. No wonder most guys experience such intense withdrawal symptoms. They're feeling *less* pleasure than ever in response to normal stimuli, feeling *more* anxious, *and* trying to quit the one thing that can still goose their reward circuitry. There are solid reasons why addictions are so tough to beat.” (Gary Wilson, “Why Do I Find Porn More Exciting than a Partner?”, Your Brain on Porn, January 17, 2012, <http://www.yourbrainonporn.com/why-do-i-find-porn-more-exciting-partner>)

“Study co-author Simone Kühn says, ‘Since the striatum is part of the brain network that is known to respond to sexual cues, one can assume that this reflects a blunting of the reaction to erotic stimuli.’ In other words, heavy porn users are more likely to be desensitized to real-life sex.” (Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“Also, the study showed that the connection between the striatum and prefrontal cortex worsened as more porn was consumed.” (Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

**“Update:** since this article was written, Brain Scan Studies on Porn Users, have found evidence of desensitization, escalations of use, and less arousal to normal sexual stimuli, along with sensitization and changes in the frontal cortex. As we explained, the symptoms heavy porn users



complain of could logically be explained by the same brain changes observed in rats with unrestricted access to super-goodies. (Incidentally, rats and humans are distant relatives, and share the same primitive brain mechanisms for appetite and addiction.)” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

**“Desensitization.** Refers to a general dialing down of one's responsiveness to all pleasure...a baseline change. Leaves the addict less sensitive to pleasure, and ‘hungry’ for dopamine-raising activities/substances of all kinds. Representative Internet addiction studies: Study 1, study 2.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“...high levels of exposure result in a downregulation or habituation of the neural response in the reward network. This is assumed to elicit adaptive processes in which the brain is hijacked, becoming less responsive to pornography.” (Struthers WM. Wired for Intimacy. Downers Grove, IL: InterVarsity Press; 2010.) (Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, JAMA Psychiatry, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

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## #13 ESCALATION

**“Escalation.** The addict desires greater pleasure, expanded novelty, so he or she ups the dose. They pursue pernicious, indecent images from the Internet. Porn has become their drug of choice, and self-medication rises to new levels. Licentious sexual images, urges and fantasies dominate the thoughts. This over-stimulation interferes with the normal balance of the addict's brain chemicals. They now crave extreme novelty. Most viewing is done in secret.” (Susan Knight, “The Five Stages of Pornography Addiction”, News OK, April 6, 2016, <http://newsok.com/article/5407775>)

“In The Porn Circuit, Sam Black describes the various hormones and neurotransmitters involved when someone views porn and how each ingredient in this neuro-cocktail contributes to the problem:”

“This system works the way it is supposed to work when you’re having sex with your spouse. Together you can experience a high, an alertness of sexual pleasure, and the deep calm afterwards (norepinephrine, endorphins, and serotonin). With each sexual embrace you are emotionally bonding to this person (oxytocin and vasopressin). Over time a craving for sex is transformed into a desire for one another (dopamine).

But porn short-circuits the system.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

### **“How Porn Hijacks the Brain”**

“Social scientists, clinical psychologists, and biologists have begun to clarify some of the social and psychological effects, and neurologists are beginning to delineate the biological mechanisms through which pornography produces its powerful negative effects.” (Pat Fagan, “The Effects of Pornography on Individuals, Marriage, Family and Community,” Family Research Council, March 2011, IF11C04, <http://www.frc.org/issuebrief/the-effects-of-pornography-on-individuals-marriage-family-and-community>)

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### **“Why Consuming Porn is an Escalating Behavior”**

*“Porn consumers can reach a point where they enjoy porn less and less, but want it more and more.”*

“Have you ever wondered how pornographers who charge for their material stay in business when there’s so much porn available for free? As Wendy Seltzer—an attorney and fellow at Yale Law School—explained, the answer is actually pretty simple: once porn consumers get hooked, they’ll want more and more. “Seeing [free porn] just whets their appetite for more,” Seltzer said. “Once they get through what’s available for free, they’ll move into the paid services.”<sup>A</sup>

## Wanting

“The “Wanting” system is a much larger area in the reward center, and it causes the brain to rewire itself in response to intense pleasure.<sup>B</sup> With the help of a protein called DeltaFosB, the “Wanting” system builds new brain connections so you can remember the experience and repeat it later”<sup>C</sup>

“It’s called the “Wanting” system because those new nerve connections make you crave the pleasurable experience.<sup>D</sup> The more often the experience is repeated, the stronger those nerve connections become, and the stronger the cravings grow.<sup>E</sup> DeltaFosB is sometimes called “the molecular switch for addiction” because it reinforces cravings and, if it builds up enough in the brain, it can switch on genes that leave the consumer more vulnerable to addiction.”<sup>F</sup>

“An alcoholic may develop pathways triggered by the sight of a bottle or the voice of a drinking buddy. Cues can be anything the brain associates with the experience. For a porn consumer, it may be the memory of a porn scene or a place or time of day he or she can be alone with the internet. For an addict, the whole world starts to seem like a collection of cues and triggers leading them back to their addiction.<sup>G</sup> Gradually, the porn pathways become *sensitized*, meaning they are easily triggered by the cues that are all around.”<sup>H</sup>

“... the user **wants** it more and more, even while he or she **likes** it less and less.”<sup>I</sup>

("Why Consuming Porn is an Escalating Behavior", Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

- T. (Schwartz, J. P. (2004). The Pornography Industry Vs. Digital Pirates. New York Times, February 8.)
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## #14 NOVELTY

“...the amygdala, not hammering the reward circuitry directly (as porn does). In social bonds, it appears that oxytocin triggers the release of dopamine to make them rewarding via a slightly different brain pathway. Some assume that porn users ‘bond’ to porn in lieu of women, perhaps due to the spurt of oxytocin often released at climax. This seems doubtful. Porn hijacks our drive to mate, which is probably the most powerful, most dug-like, neurochemical response we humans experience. Porn can certainly lead to subsequent dissatisfaction and a desire for more. But porn users don’t desire more of the same. Instead they desire the more intense stimulation of novelty. So they generally aren’t ‘bonding’ to specific porn; most are simply becoming dependent on the neurochemicals of intense arousal.” (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

“Educating young people about porn and the brain is challenging, but possible. In fact, learning about the reward circuitry helps kids understand all addictions, including junk food (obesity). To this end, a free audiobook directed to kids and their parents to help both understand the risks of porn addiction in terms of its effects on the brain.” (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

“...the same old images become boring after awhile, so the body seeks new ones to keep its arousal up.” (Banca P., Morris L.S., Mitchell S., Harrison N.A., Potenza M.N., & Voon V, (2015). Novelty, conditioning and attentional bias to sexual rewards, *Journal of Psychiatric Research* doi: 10.1016/j.jpsychires.2015.10.017.)

“Greg is a secondary school teacher in a private school and part-time graduate student who is about to turn 30. He comes across as charismatic, good looking, and thoughtful. Greg is a devout follower of Jesus. He also admits to a lifelong battle, indeed addiction, to pornography. He described some of his initial forays into pornography like this:” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

““At first watching people have sex disturbed me, I didn’t want to see it. But then slowly, it is totally a drug. I developed *tolerance*. So *what shocked me became interesting and what used to interest me*”



*became boring. And it took more variety, more frequency to get the same effect. And the really wicked part about it is it gets more perverted. So I felt that happening and it terrified me. After a while I realized I was addicted and I needed to do anything it takes to get out of this.”* (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“Neurobiologist Peter Milner explains that our brains are wired to be attracted to that which is unfamiliar and novel. This inward drive is what helps us to learn new things and adapt to our environment. But, he explains, it is possible ‘to become addicted to novelty and uncertainty.’ (Judith Reisman, “The impotence pandemic” *WorldNetDaily*. September 27, 2007. [http://www.drjudithreisman.com/archives/2007/10/the\\_impotence\\_p\\_2.html](http://www.drjudithreisman.com/archives/2007/10/the_impotence_p_2.html) (accessed November 18, 2011).). Over time the brain that feeds on erotic media is trained to equate sexual excitement with the novelty and variety of pornography. Eventually the familiar face, body, and sexual performance of a spouse don’t arouse the way it used to.” (Luke Gilkerson, “Your Brain on Porn”, Covenant Eyes, Accessed July 29, 2016, <http://www.covenanteyes.com/brain-ebook/>)

“‘Constant novelty, at the click of a mouse, can cause addiction,’ said Gary Wilson of TEDx, in ‘The Great Porn Experiment.’ Dopamine rewards you for seeking the visual pleasures porn presents. It makes you feel good. The brain chemicals motivate some to repeat this behavior. You keep coming back. You can’t stop. You’re hooked. Because of this chemical release — and the consequences of behavior — pornography addiction is considered to be a form of chemical brain damage. People become dependent on pornography for physical and emotional satisfaction.” (Susan Knight, “The Five Stages of Pornography Addiction”, NewsOK, March 31, 2015, <http://newsok.com/the-five-stages-of-pornography-addiction/article/5407775/?page=2>)

“Pornography? It’s a new synaptic pathway. You wake up in the morning, open a thumbnail page, and it leads to a Pandora’s box of visuals. There have probably been days when I saw 300 vaginas before I got out of bed.—*John Mayer, musician*” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“As we’ve seen, junk food fits this model. So does free Internet porn. Yet porn poses unique risks. Food sets limits on consumption: stomach capacity and the natural aversion that kicks when we can’t face one more bite of something. But there are *no* physical limits on Internet porn

consumption, other than the need for sleep and bathroom breaks. One can 'edge' to porn for hours without climaxing and without satiety or aversion kicking in...hours of supranormal neurochemical stimulation of the appetite mechanisms of the brain. Each click to a novel video 'violates our expectations' with something new and exciting, releasing more and more dopamine into the brain." ("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Pornography? It's a new synaptic pathway. You wake up in the morning, open a thumbnail page, and it leads to a Pandora's Box of visuals. There have probably been days when I saw 300 [women] before I got out of bed....Internet pornography has absolutely changed my generation's expectations....You're looking for the one photo out of 100 you swear is going to be the one you finish to, and you still don't finish. Twenty seconds ago you thought that photo was the hottest thing you ever saw, but you throw it back...How does that not affect the psychology of having a relationship with somebody? It's got to." (Rob Tannenbaum, "Interview with John Mayer," Playboy Magazine (March 2010) (William M. Struthers, "The Effects of Porn on the Male Brain", Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

"The on-demand availability of robust sexual stimuli presents a unique problem for developing and maintaining a healthy sexuality. The ease of access, variety of images, and the vigorous sensory constitution of this media go beyond the strength of mental imagery and fantasy. People can see whatever they want, whenever they want, however they want. In doing so they can generate, serve, and satisfy their sensual nature. Pornography creates a world today where the consumer (usually men) has the ability to bring up at their whim graphic (and sometimes interactive) depictions of nudity and sexual encounters. Women are perpetually available for their pleasure with minimal immediate consequences. People become disposable." (Read Mercer Schuchardt, "Hugh Hefner's Hollow Victory: How the Playboy Magnate Won the Culture War, Lost His Soul, and Left Us with a Mess to Clean Up," Christianity Today, December 2003, 50–54)(William M. Struthers, "The Effects of Porn on the Male Brain", Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

"...experience more novel sex partners every ten minutes than your hunter-gatherer ancestors experienced in a lifetime." (Gary Wilson, "Porn Novelty and the Coolidge Effect", Your Brain on Porn, August 8, 2011, <http://www.yourbrainonporn.com/porn-novelty-and-the-coolidge-effect>)

“...a group of neurologists studied more brain scans of people who use pornography. They used an experimental design in order to demonstrate cause and effect. They found that people who use more pornography become less able to wait for gratification than people who use less pornography. Because Internet pornography supplies a never-ending supply of potential visual rewards and given that sexual rewards are so strongly reinforcing (due to dopamine), the brain becomes retrained to demand more rewards earlier, rather than waiting for better rewards later.”

(Negash, S., Sheppard, N. V. N., Lambert, N. M., & Fincham, F. D. (2015). Trading later rewards for current pleasure: Pornography consumption and delay discounting. *Journal of Sex Research*, 1-12.) (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“One possibility is boredom or habituation meeting the developing adolescent brain. Teens are thrill seeking and easily bored. They love novelty. The stranger the better. Many a young man has described masturbating with one hand while clicking through videos with the other hand. Lesbian porn grows boring, so he tries out transgender porn. Novelty and anxiety ensue – and both increase sexual arousal. Before he knows it he has climaxed and a new association begins imprinting his sexual circuits.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p51)

“Today's internet porn, however, is laced with supernormal stimulation. First, it offers endless novel hotties available at a click. Research confirms that anticipation of reward and novelty amplify one another to increase excitement and rewire the reward circuitry of the brain.” (R.M. Krebs, D. Heipertz, H. Schuetze, E. Duzel, “Novelty increases the mesolimbic functional connectivity of the substantia nigra/ventral tegmental area (SN/VTA) during reward anticipation: Evidence from high-resolution fMRI,” *Neuroimage* 58/2 (2011): 647-55, doi: 10.1016/j.neuroimage.2011.06.038) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p79)

“In a new book, *The Demise of Guys: Why Boys Are Struggling and What We Can Do About It*, psychologists Philip Zimbardo and Nikita Duncan say we may lose an entire generation of men to pornography and video gaming addictions. Their concern isn't about morality, but instead about the nature of these addictions in reshaping the pattern of desires necessary for community.” (Russell Moore, “Fake Love, Fake War”, Desiring God, May 25, 2012, <http://www.desiringgod.org/articles/fake-love-fake-war-why-so-many-men-are-addicted-to-internet-porn-and-video-games>)

“For far too many, once they become “hooked,” their satisfaction with “soft-core” porn diminishes and they require something more enticing and stimulating.” (“Pornography”, Oregon Family Council, Accessed November 13, 2015, <http://www.oregonfamilycouncil.org/issues/pornography/>)

## #15 PORN INDUCED ERECTILE DYSFUNCTION (PIED)

“This is one reason why polls asking teens how Internet porn use is affecting them are unlikely to reveal the extent of porn's effects. Kids who have never masturbated without porn have no idea how it is affecting them. (It's like asking them, ‘How has being male affected you?’) They have nothing to compare with. Keep in mind that older porn users often do not connect their porn-related symptoms with heavy porn use—even when they develop porn-induced sexual dysfunction (PISD). Porn always seems like the ‘cure,’ because even if they can't get it up for sex, they can usually get it up if they watch enough extreme porn. Can we expect teens to figure it out?” (Gary Wilson and Marnia Robinson, “Why Shouldn't Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>) [Josh note: Pornography not a real woman]

“When I was 18, I had sex for the first time. When she said she was ‘down all the way’, I ran to the nearest store to pick up condoms like I had the Reaper chasing me. After the deed, my thoughts were, ‘Hmm...it didn't feel that much different from masturbation, and it required a hell of a lot more work! Meh, I'll stick to porn and not bother with a girlfriend.’” (Gary Wilson and Marnia Robinson, “Why Shouldn't Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>) [Josh note: Pornography not a real woman]

“Another guy responded,”  
“My thoughts EXACTLY. Just back pain, muscle strain, breathlessness, sweatiness and performance anxiety. MUCH less stress to just crack one off, plus you got your own 'Iron Fist' that gets you off better than that real vagina. Not only that, you always get a 'good visual' with a 'porn girlfriend.' You can see all those beautiful body contours in perfect lighting, breasts n' butts n' thighs look glorious, and \*always\* visible. In real life that's rarely the case. The first time I did it, I didn't truly enjoy it (even though we both came a lot). My first time should've felt like a TRIUMPH, given how 'successful' it was, but it felt artificial. It was then I KNEW there was perhaps something a tad wrong. The sex in my \*mind\* always seemed sexy and enjoyable. The \*real\* sex I had was primarily industrial and unexciting. Not good.” (Gary Wilson and Marnia Robinson, “Why Shouldn't Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>) [Josh note: Pornography not a real woman]

“Today's teens sometimes wire their arousal to Internet porn's unnaturally intense, synthetic stimuli for as long as a decade before they try to connect with real partners. The situation is even more precarious if a teen's innocent pursuit of jollies has led to more fundamental brain changes, i.e., addiction. Again, teens are *more* susceptible to addiction than adults, due to their hyperactive reward circuitry and immature executive control.” (Gary Wilson and Marnia Robinson, “Why Shouldn’t Johnny Watch Porn If He Likes”, Good Men Project, October 5, 2011, <http://goodmenproject.com/families/boys/why-shouldnt-johnny-watch-porn-if-he-wants-to/>)

## #16 PORN & BRAIN SIZE

“According to a new German study published in the *Journal of the American Medical Association Psychiatry*, there is a significant correlation between higher consumption of porn and a lower amount of grey matter in your brain.” (Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“It isn’t clear from the study if one phenomenon causes the other. Are those born with smaller brains more drawn to porn? Does porn cause the shrinkage? Are both caused by some yet unknown issue? While neuroscientists are unsure, others are connecting the dots from what they know to be true about the brain: any repetitive activity, especially ones that are highly stimulating, cause brain changes.”

(Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

“Researchers found that the forebrain structure called the striatum was smaller among participants who consumed more. This region of the brain is associated with motivating behavior through rewards.”

(Luke Gilkerson, “Porn Users Have Smaller Brains”, Covenant Eyes, June 23, 2014, <http://www.covenanteyes.com/2014/06/23/porn-users-smaller-brains/>)

### “The incredible shrinking brain”

“Porn may also literally shrink the brain, a 2014 study in the journal JAMA Psychiatry found. Men who regularly consumed porn had smaller brain volume and fewer connections in the striatum, a brain region tied to reward processing, compared with those who didn't view porn.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“However, it's possible this brain region shrinks simply because people become accustomed to viewing pornographic images, and thus find them less rewarding, one researcher previously told Live Science.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“Additionally, the same brain regions are smaller in people who are depressed or suffer from alcoholism, and those people are less likely to be in relationships or have busy lives. So it may simply be that people who are depressed are more likely to view pornography, not



that porn literally shrinks the brain, the researcher speculated.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**Hypofrontality.** Frontal-lobe gray matter and functioning decrease. Reduces impulse control, decision-making, and the ability to foresee consequences. Study 1, study 2, study 3, study 4, study 5, study 6, study 7, study 8” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Virtually every study looking at addiction has shown shrinkage and abnormality in the reward areas and in judgment centers. These include addictions to drugs such as cocaine...” (Franklin, T. E., Acton, P. D., Maldjian, J. A., Gray, J. D., Croft, J. R., Dackis, C. A., et al. (2002) (“Pornography: A Public Health Crisis”, National Center on Sexual Exploitation, July 14, 2015, <http://shop.endsexualexploitation.org/collections/frontpage/products/pornography-a-public-health-crisis-how-porn-fuels-sex-trafficking-child-exploitation-sexual-violence-booklet-and-free-download?variant=8300519939>)

“Voon et al., in a study done at Cambridge University and published in two papers in the journal *PlosOne* last year found that the brains of those addicted to pornography light up just like the cocaine addicts when shown pornography cues as compared to normal controls.” (“Pornography: A Public Health Crisis”, National Center on Sexual Exploitation, July 14, 2015, <http://shop.endsexualexploitation.org/collections/frontpage/products/pornography-a-public-health-crisis-how-porn-fuels-sex-trafficking-child-exploitation-sexual-violence-booklet-and-free-download?variant=8300519939>)

“We found a significant negative association between reported pornography hours per week and gray matter volume in the right caudate ... with hours of pornography consumption.” (Simone Kuhn, Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption”, JAMA Psychiatry, Volume 71, Number 7, July, 2014, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“She also highlighted research which has suggested that watching pornography can effectively shrink the brains of teenagers because they are not fully developed.” (Laura Hughes, “Children May be Too Clever for our Internet Porn Filters, Minister Admits,” The Telegraph, November 5, 2015, <http://www.telegraph.co.uk/news/predictions/technology/11978699/Children-may-be-too-clever-for-our-internet-porn-filters-minister-admits.html>)

“Adolescents wire together experiences and arousal much faster and more easily than young adults will just a few years later. The brain actually shrinks after age 12 as billions of nerve connections are pruned and reorganized. The use-it-or-lose-it principle governs which nerve

connections survive.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p86)

“And, as we'll see later, German researchers recently confirmed that moderate porn use, even by non-addicts, correlates with shrunken grey matter in regions of the brain associated with cognitive function.” (Simone Kühn and Jürgen Gallinat, "Brain Structure and Functional Connectivity Associated With Pornography Consumption: The Brain on Porn," JAMA Psychiatry (2014), doi:10.1001/jamapsychiatry.2014.93) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p67)

“It probably doesn’t come as much of a shock to people that using drugs can damage the brain. Studies have shown that those addicted to meth or cocaine show volume loss, or shrinkage, in different areas of the brain—in particular, the frontal control regions.” (Matt Fradd, “Does Porn Impact the Brain?”, Covenant Eyes, February 17, 2015, <http://www.covenanteyes.com/2015/02/17/porn-impact-brain/>)

“Porn may also literally shrink the brain, a 2014 study in the journal JAMA Psychiatry found. Men who regularly consumed porn had smaller brain volume and fewer connections in the striatum, a brain region tied to reward processing, compared with those who didn't view porn.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Fox News Health, October 14, 2015, <http://www.foxnews.com/health/2015/10/14/5-ways-porn-affects-brain.html>)

Research has ‘shown that the brain is not fully physiologically mature until a person’s mid-twenties’ (Gogtay et al., 2004)<sup>22</sup> confirmed by ‘The Brain’ exhibit co-sponsored by the National Institute of Mental Health and the Smithsonian during 2001. There the focus on the ‘Teenage Brain as a work in progress’ stressed the immaturity of human brain development until roughly age 25.<sup>23</sup> The ‘Brain’ scientific exhibits demonstrated the highly vulnerable nature of the immature brain to sexual, fearful, confusing stimuli.<sup>24</sup> (24 - See also Frontline,

<https://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/work/adolescent.html>, June 26, 2008.) (Judith A Reisman, PhD, The Institute for Media Education & California Protective Parents, Assoc., “Restructuring the Immature Brain”<sup>1</sup> [http://www.drjudithreisman.com/archives/Restructuring\\_the\\_Immature\\_Brain.pdf](http://www.drjudithreisman.com/archives/Restructuring_the_Immature_Brain.pdf))

## #17 ADDICTION

“Dr. Mark Laaser says research shows that the endorphins released in the brain while looking at pornography are 200 times more potent than morphine and more addictive than cocaine. Researchers believe porn addiction may be harder to break than a heroin addiction. Why? It’s because the brain stores images and can recall them at any moment.”

(“Fighting the New Drug: Pornography”, First Things, Accessed September 26, 2017, <http://firstthings.org/fighting-the-new-drug-pornography/>)

“Author Michael Leahy, a recovering sex addict, has been to more than 200 college campuses with his *Porn Nation: The Naked Truth* presentation, and he says the No. 1 question he hears from college students is, ‘Can I look at porn *recreationally* without becoming addicted to it, and is there anything wrong with that?’ ... ‘So,’ Leahy responds, ‘do you think it’s okay if I beat and berate my wife just once a month? I mean, I’m not addicted to it.’”

(Covenant Eyes official website, “Be Aware: Porn Harms - Is Porn Addictive?” Interview with Michael Leahy, Jan Meza, and Noel Bouche on Covenant Eyes Radio, Episode 106, <http://www.covenanteyes.com/2011/07/11/be-aware-porn-harms-is-porn-addictive> (accessed November 18, 2011).) (Luke Gilkerson, “Your Brain on Porn”, Covenant Eyes, Accessed July 29, 2016, <http://www.covenanteyes.com/brain-ebook/>)

### “IS PORN ADDICTIVE? YES. HERE’S HOW”

“Doctors and scientists used to believe that in order to have an addiction to something it has to involve a substance that is physically put into the body; like with cigarettes, alcohol, or drugs. [4] But once scientists started to look inside the brain, it changed our understanding of how addictions work. [5] What’s important, we now know, is not necessarily what gets inside the body or how it got there, but rather what reactions it triggers in the brain. Cigarettes, alcohol, and drugs bring foreign chemicals into the body in a myriad of ways: sniffed, injected, drunk from a glass, or lit on fire and smoked. Porn and other behavioral addictions, like gambling, on the other hand, bring now new chemicals or substances into the body that weren’t already there. But, these behaviors initiate strikingly similar processes inside the brain like substance addictions, and that’s what makes them potentially addictive. They hijack the brain’s reward pathways. [6] (See How Porn Affects the Brain Like a Drug). That’s what every addictive substance

and habit do. [7]” [4] Holden, C. (2001). Behavioral Addictions: Do They Exist? *Science* 294(5544), 980. Doi: 10.1126/Science.294.5544.980 [5] Voon, V., Et Al. (2014). Neural Correlates Of Sexual Cue Reactivity In Individuals With And Without Compulsive Sexual Behaviors, *PLoS ONE*, 9(7), E102419. Doi:10.1371/Journal.Pone.0102419; Olsen, C. M., (2011). Natural Rewards, Neuroplasticity, And Non-Drug Addictions. *Neuropharmacology*, 61, 1109-1122. Doi:10.1016/J.Neuropharm.2011.03.010; Nestler, E. J. (2005). Is There A Common Molecular Pathway For Addiction? *Nature Neuroscience* 9, 11: 1445–1449. Doi:10.1038/Nn1578 [6] ] Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, *Behavioral Sciences*, 5(3), 388-433. Doi:10.3390/Bs5030388; [7] Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. *Neuron*, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology*, 3, 20767. Doi:10.3402/Snp.V3i0.20767 (Fight the New Drug, August 23, 2017, “How Porn Can Become Addictive”, site accessed 11.1.17, <http://fightthenewdrug.org/why-consuming-porn-is-an-escalating-behavior/>)

“The American Society of Addiction Medicine (ASAM) says that addiction is a chronic disease of the brain.” (Matt Fradd, “Is Porn Addictive, Yes, Here’s How”, *Covenant Eyes*, March 6, 2015, <http://www.covenanteyes.com/2015/03/06/porn-addictive-yes-heres/>)

“. One reason why women may report such detrimental effects on their relationships with men who view pornography is the addictive and compulsive use of pornography by some men. Sussman (2007) reports that close to 100% of men who classify as sex addicts start their addiction with pornography. .... Researchers who study brain activity note the highly addictive nature of pornography, comparing its effects to cocaine and methamphetamine and note that its use leads people to stop activities necessary for basic survival (Hilton & Watts, 2011). (John D. Foubert, Matthew W. Brosi and Sean Bannon, “Pornography Viewing among Fraternity Men: Effects on Bystander Intervention, Rape Myth Acceptance and Behavioral Intent to Commit Sexual Assault”, *Sexual Addiction and Compulsivity*, November 28, 2011, [https://media.wix.com/ugd/9e4c55\\_334edae0a4e64f078b8b0479f7c9cb56.pdf](https://media.wix.com/ugd/9e4c55_334edae0a4e64f078b8b0479f7c9cb56.pdf))

“A group led by Dr. Vaughn Steele makes the “pornography is not addictive” argument. Their perspective is that people who are diagnosed with an addiction to pornography actually just have higher sexual desire than most people. (Steele, V. R., Staley, C., Fong, T., & Prause, N. (2013). Sexual desire, not hypersexuality, is related to neurophysiological responses elicited by sexual images. *Socioaffective Neuroscience & Psychology*, 3(20770). doi:10.3402/snp.v3i0.20770) Their study looked at EEG images (brain scans) of about 50 people who believed they were viewing pornography too frequently. Based on the hypothesis that the participants were really experiencing high sexual desire, the

researchers looked to demonstrate this conclusion by examining the brain waves their participants had while looking at pornography versus mundane images. When people's brains responded in a way that made the EEGs look odd, Dr. Steele thought that they must not be addicted to pornography but rather just had high sexual desire. When neurologists looked at the findings, they saw clearly that the brainwaves these people were experiencing were completely consistent with addiction. (Hilton Jr, D. L. (2014). 'High desire', or 'merely' an addiction? A response to Steele et al. . *Socioaffective Neuroscience & Psychology*, 4(23833). doi:<http://dx.doi.org/10.3402/snp.v4.23833>) So when people who specialize in the brain's function look at the brainwaves of the participants who were watching pornography, these neurologists confidently tell us that the participants were, in fact, addicted." (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"...the authors of many studies about the addictive nature of pornography, Dr. Donald Hilton. He told me that his research on addiction has shown that it is 'a continued engagement in a self-destructive behavior despite adverse consequence.' He added that we now know much more about how the brain operates with someone suffering from addiction. He said:" (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"I believe addiction is informed by increased understanding of how the synaptic transmission occurs and how it is modified with learning and particularly with reward learning. So now, addiction is more about neuronal receptor change as it is about behavior alone... ..so in other words we need to consider not only what the behavior is doing but what is the brain doing. And now of course we know that whether it is a behavioral addiction or a substance addiction, very similar changes are occurring in the reward centers. It has been striking how that is then confirmed with numerous behavioral addictions and more pertinent to what we are talking about now, specifically with regard to pornography addiction within the last year."

(John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"Psychiatrists tend to define addiction occurring when three of the following things are present in the past year: 1) the development of tolerance, 2) withdrawal symptoms, 3) loss of control, 4) attempts to cut down, 5) significant time spent thinking about or obtaining that which one is addicted to, and 6) reduced involvement in social, work, or recreation activities.

(American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4<sup>th</sup> Ed.). Washington D.C., APA.)

"Neurosurgeon Dr. Donald Hilton says this idea that porn can't be addictive is hopelessly out of touch with what we now know through modern neuroscience." (Matt Fradd, "Is Porn Addictive, Yes, Here's How", Covenant Eyes, March 6, 2015, <http://www.covenanteyes.com/2015/03/06/porn-addictive-yes-heres/>)

"When addicted men were shown pornography while their brains were being scanned, their dorsal anterior cingulate, ventral striatum and amygdala were activated – showing a strong desire for the material, more so than other, non-addicted men. In short, all men tested liked pornography, addicted men felt like they had to have it.<sup>ii</sup> In an interesting twist, the men who were addicted to pornography had first seen porn much earlier in their lives than did the healthy men." (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"Here's the evidence:"

"Hook someone up to a brain scanner who is verifiably addicted to cocaine or meth: the brain scan will show a loss of volume in their brain, especially in the frontal lobes of the brain. When you have shrinkage in this area of the brain, people experience uncontrollable cravings. When their impulses kick in, this area of the brain that is meant to throw on the breaks and control the impulse is so weak, the person's body begins gearing up and they experience that 'gotta have it' feeling. A few recent studies now show the same phenomenon in the brain when it comes to someone who is a sex or porn addict." (Matt Fradd, "Is Porn Addictive, Yes, Here's How", Covenant Eyes, March 6, 2015, <http://www.covenanteyes.com/2015/03/06/porn-addictive-yes-heres/>)

"Over the last several years there have been dozens of studies showing how overuse of the Internet in particular can lead to



addictive behavior, whether it be centered around gaming or gambling or porn. These are all behavioral addictions where the behavior has become so hardwired in the brain that the person has similar sensations as someone addicted to a drug. Both drugs, like meth or alcohol, and behaviors, like porn, are tapping the same neurocircuits.” (Matt Fradd, “Is Porn Addictive, Yes, Here’s How”, Covenant Eyes, March 6, 2015, <http://www.covenanteyes.com/2015/03/06/porn-addictive-yes-heres/>)

*The new narcotic.* Morgan Bennett just published an article by this title. The thesis: (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

Neurological research has revealed that the effect of internet pornography on the human brain is just as potent — if not more so — than addictive chemical substances such as cocaine or heroin. To make matters worse, there are 1.9 million cocaine users, and 2 million heroin users, in the United States compared to 40 million regular users of online pornography. (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

Here’s why the addictive power of pornography can be worse: (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

*Cocaine* is considered a stimulant that increases dopamine levels in the brain. Dopamine is the primary neurotransmitter that most addictive substances release, as it causes a “high” and a subsequent craving for a repetition of the high, rather than a subsequent feeling of satisfaction by way of endorphins. (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

*Heroin*, on the other hand, is an opiate, which has a relaxing effect. Both drugs trigger chemical tolerance, which requires higher quantities of the drug to be used each time to achieve the same intensity of effect. (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

*Pornography*, by both arousing (the “high” effect via dopamine) and causing an orgasm (the “release” effect via opiates), is a type of polydrug that triggers both types of addictive brain chemicals in one punch, enhancing its addictive propensity. (John Piper, “Pornography the New Narcotic”,



Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

But, Bennett says, “internet pornography does *more* than just spike the level of dopamine in the brain for a pleasure sensation. It literally *changes the physical matter* within the brain so that new neurological pathways *require* pornographic material in order to trigger the desired reward sensation.” (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

And it gets worse:

Another aspect of pornography addiction that surpasses the addictive and harmful characteristics of chemical substance abuse is its *permanence*. While substances can be metabolized out of the body, pornographic images cannot be metabolized out of the brain because pornographic images are stored in the brain’s memory. (John Piper, “Pornography the New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

“In sum,” Bennett writes, “brain research confirms the critical fact that pornography is a drug delivery system that has a distinct and powerful effect upon the human brain and nervous system.”

(John Piper, “Pornography: The New Narcotic”, Desiring God, October 9, 2013, <http://www.desiringgod.org/articles/pornography-the-new-narcotic>)

“Almost monthly, new research confirms that food addiction can cause brain changes that mimic those found in drug addiction. Food and sex are known as ‘natural reinforcers.’ That is, they aren’t drugs, but our brains light up for them so we reach for more without thinking.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Still, the concept that ‘food can cause obesity because it is like a drug’ is perplexing. After all, our rather buff ancestors ate a lot, and quite evidently were enthusiastic about sex. Yet becoming dangerously hooked didn’t seem to be much of a risk. Didn’t *their* brains light up for food and sex? Yes, of course. The difference is that they weren’t surrounded by *superstimulating, synthetic versions of food and sex*. We are, and it is a relatively recent hazard.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Think about it. How many of your ancestors had easy access to tasty munchies that were ready-to-eat, available cheaply in endless variety, and carefully laced with fat, sugar and salt to keep them coming back for more? How many had computers on which they could click to an unending stream of hyper-stimulating erotic videos, featuring real, novel mates, writhing with desire (perceived by a primitive part of the brain as genetic opportunities)—and, when appetite flagged, a cornucopia of ever kinkier videos?” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“This is how food and sex, which throughout evolution have generally *contributed* to our well-being and led naturally to warm feelings of satiety, morph into drug-like and addictive superstimuli that don't. When we plunge in, we fall for enticements that are not especially valuable, and sometimes risky. Not only can they steal our attention from soothing connections with real people (and nutritional food), they can actually hook us.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

### **“Who's at risk for addiction to natural reinforcers?”**

“Most addiction research focuses on substance abuse, not addiction to natural reinforcers. It reveals that only a minority of us (‘novelty-seekers’ and ‘impulsives’) are genetically susceptible to substance abuse, due to low dopamine receptors in different regions of the brain's reward circuitry. (Dopamine is the ‘Gotta get it!’ neurochemical, and the reward circuitry is the brain pathway that drives all appetites and motivation.)” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“So, are the rest of us safe from addiction? When it comes to substance abuse, perhaps yes. Yet when it comes to unrestricted access to superstimulating natural reinforcers, the answer may be no, although certainly not everyone gets hooked. The reason hyper-stimulating versions of food and sex can hook us—even if we're not otherwise susceptible to addiction—is that our reward circuitry *evolved to drive us toward food and sex*, not drugs.”

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Take food. If you binge on hyper-stimulating foods (say, concentrated fat and refined sugar) it can cause changes that resemble the brain changes seen in substance abusers. This happens in rats, too, and not just in the novelty-seeking, impulsive minority. *Nearly all* the animals that were offered unrestricted access to goodies like bacon, sausage, cheesecake, pound cake, Ding Dongs and frosting couldn't stop bingeing and became obese."

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Almost immediately, dopamine receptors dropped in their brains, which drove the rats to binge, and ensured they would later experience less stimulation from normal chow. Other changes, such as a numbed pleasure response, worsened over time. *Two weeks* after scientists returned them to rat chow, the rats' brains still hadn't recovered. In fact, when confronted with a diet of normal chow, they chose to starve for a time rather than eat it."

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"It makes sense for mammals to have a built-in mechanism that can override feelings of satiety. They must 'get it while the getting is good': storing calories when fruit is ripe, gorging before hibernation, swallowing a kill before the competition shows up, and so forth."

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"The regions of the brain that change in response to superstimulating food also govern sexual appetite. So, are today's sexual superstimuli, like today's junk food, causing drug-like changes in the brain's reward circuitry? They certainly constitute a sexual diet not found in nature."

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

"Just as rats binge on exciting food, porn users often binge on porn. Many users report that they are unable to stop or control their viewing, not unlike Sooty the guinea pig, who 'got it while the getting was good' when he broke into a cage full of females."

("Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine", Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Heavy users also sometimes report obsessive-compulsive behaviors, depression, severe stress at the thought of socializing, and concentration problems. And users who try to stop viewing porn report lingering withdrawal symptoms such as shaking, insomnia, mood swings, splitting headaches, anxiety, depression, lethargy, foggy thinking, stomach pains, disturbing dreams, flu-like symptoms, and a strong desire to strangle someone. These symptoms suggest that their brains are indeed struggling with brain changes common to addiction. Porn recovery sites are springing up all over the Web.”

(“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

### **“When does a stimulus put us at risk for slipping into excess?”**

“Danger lurks when something:”

- “registers as an especially ‘valuable’ version of a thing that our ancestors (and we) evolved to find irresistible,”
- “is available conveniently in limitless supply (not found in nature),”
- “comes in lots of varieties (novelty),”
- “we binge without realizing it is triggering brain changes.”

(“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Intense arousal produces a more exciting buzz of neurochemicals than cheesecake—one that is therefore more reinforcing. That is, the brain more thoroughly wires together all associated cues, making repetition of the experience in the future more automatic. Moreover, heavy porn use sometimes discourages the user's pursuit of friendly interaction with others, which would help regulate the brain naturally. Also absent are factors that once protected our ancestors against over-stimulation. There are no jealous mates, wise elders, or social taboos, and often no sexual partners with their own ideas. Porn use seems risk-free because it's private and virtual.”

(“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Alas, not only are most of us unaware that today's hyper-stimulating sexual goodies can put our brains at risk for the changes associated with addiction, we're also up against a powerful meme in today's culture. It proclaims that, ‘Any kind of orgasm-promoting behavior is inherently so healthy that we must vigorously deny the growing evidence of the risks inherent in unlimited access to today's sexual

superstimuli.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

“Is this sound thinking? If our brains have evolved to drive us toward food and sex, shouldn't we be a bit more cautious about inundating ourselves with hyper-stimulating versions of them? Already, ‘about 17% of individuals who view porn on the Internet meet criteria for sexual compulsivity. That translates to a lot of people, given that about 12% of all the Internet traffic is porn and nearly 90% of the young male population (about 30% of the young female population) view pornography,’ says Professor Steven C. Hayes.” (“Intoxicating Behaviors: 300 Vaginas = A Lot of Dopamine”, Your Brain on Porn, Accessed March 9, 2016, <http://www.yourbrainonporn.com/book/export/html/37>)

### **“What are the Common Symptoms of any Addiction?”**

- “Denial - I can't see it – ‘It's not a problem.’”
- “Control - I can't control my actions and functioning - ‘it’ controls me.”
- “Time is irrelevant; I lose a sense of limit, sense of who I am, others, place”
- “Relationships are changed, damaged, neglected, and hurt”
- “Attempts to limit the behavior often fail”
- “Need more to get the same effect - tolerance”
- “Neglect of the normal day to day activities”

(“The Internet and Pornography”, The United States Conference of Catholic Bishops, Accessed March 9, 2016, <http://www.usccb.org/issues-and-action/child-and-youth-protection/resources/upload/InternetPornography-Slattey.pdf>)

*“Sex addiction requires real people; porn addiction requires a screen”* (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Grouping 'Internet porn addiction' and 'sex addiction' under the Sex Addiction Umbrella makes the former less visible because classic sex addiction is so rare. As a consequence, healthcare providers tend to misdiagnose those with porn addiction symptoms, which in turn leads to ineffective treatment. For example, young, otherwise healthy porn addicts with erectile dysfunction are given drugs instead of advice to lay off the porn. Others are treated for depression, procrastination or concentration problems instead of the addiction that may lie at the root of their symptoms.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“The differences between porn addiction and sex addiction are considerable, as reflected in these self-reports:”

1. “Sex addict (age 35): I was feeling tired and low from the previous night's looking for anonymous sex. So I get back online. A woman is looking to hook up anonymously. She tells me to come over, so I grab some condoms. On my way, she texts me and tells me to pick up a pizza. WTF? This is weird, but the prospect of anonymous and novel sex is just too much at this point. However, fearing I might get robbed, I tell her that I would like to meet her first. The door opens up and it's very dark inside except for the light of a computer screen. I can't really see her, but I walk in anyways. She says, ‘Look at what I am wearing. Sexy isn't it?’ But in a deep voice...it's a dude! And She says, ‘This is okay isn't it?’ I'm thinking that I should just buy her a pizza out of kindness and get the fuck out of there. Then I hear someone moving in the back bedroom. I get super scared and bolt home, somewhat happy to not be dealing with any more drama and to have some money left. I just use porn and go to sleep.” (Gary Wilson, “*Porn Addiction is not Sex Addiction – and Why it Matters*”, *Your Brain on Porn*, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
2. “Porn addict: I'm 23. I first tried to have sex when I was 18, but I couldn't get it up. I had been masturbating almost daily for 6 years, generally with tight grip and erotic visuals, often multiple times a day. I've had sex with four partners in my life and I never reached orgasm with any of them. In short, my sex life has been disappointing. Indeed, my last relationship ended because of erection problems. She accused me of being gay. I knew that wasn't true and yet how was she to believe me if my body didn't seem interested in her?” (Gary Wilson, “*Porn Addiction is not Sex Addiction – and Why it Matters*”, *Your Brain on Porn*, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
3. “Porn addict (age 25): Is it possible to be porn addict but not a sex addict? I know I cannot control my porn use, nor masturbation with fantasy. But after sex I'm more satisfied. I sometimes survive a week or so without porn. I also wasn't subject to childhood abuse, so I don't think I'm escaping from past memories. Quite a lot of sex addicts I know from SLAA meeting are also substance abusers. I have never had cravings for alcohol or drugs, even though I drink

too much once in a while. I have no shame about my porn use and never did. Also, Patrick Carnes says that the main belief of sex addicts is 'No one would love me if they knew me as I am'. I know it's not true because my partners and friends know about my addiction and I've never experienced any negative reaction from them because of that. Yes I do have problems around people and I'm not very confident, but I believe it's due to overwanking and too much time in front of computer vs. interaction with real people. Porn for me is just a way of escaping from reality and coping with stress—the most effective and most exciting vehicle to disconnect with reality. I honestly don't think that I'm a 'sex addict.'" (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Here are some ways porn addiction differs from sex addiction:"

1. "Sex addiction involves real people; Internet porn addiction involves a screen. Porn addicts are hooked on pixels/searching/constant visual novelty. In contrast, sex addicts are hooked on novel partners, voyeurism, frottage, flashing, risky sex, and so forth; porn may or may not supplement other behaviors." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
2. "Internet porn addiction is more akin to video-game addiction than sex addiction. It often does not spill over into other sexual activity. In fact, many heavy porn users cannot become aroused by real women—even women they find sexually attractive. Comparing a porn addict to a sex addict is like comparing a *World of Warcraft* enthusiast to a Las Vegas high-roller." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
3. "Internet porn addicts often comment that they would like a steady girlfriend, or, if they have a mate, that they want to respond sexually to *her*. Sex addicts want a variety of partners. They are hooked on novel people rather than novel pixels." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
4. "Sexual performance woes are a common complaint among Internet porn addicts. We typically don't hear about severe sexual



performance problems among sex addicts.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

5. “Porn addiction appears to be increasing as access to high-speed porn during teen years increases, although some older guys also report developing the addiction *after* switching to high-speed Internet.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“In sum, a sex addict's pursuit of living people is over the top, while a porn addict is largely missing out on 3-D action. In effect, porn proves ‘sex negative’ for many users. How could such a bizarre situation arise?” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“For example, presented with endless varieties of cheap, tasty, high-calorie food, 79 percent of adult Americans are overweight, and some thirty percent of us are addicted to these goodies (obesity), despite negative physical, social and psychological consequences. ‘Addicted’ is a medical term here, not a metaphor. It means the consumer's brain has changed in the same fundamental ways a substance addict's does.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Alas, if online forums are any indication, today's porn users are increasingly complaining that (1) they can't *stop* viewing, and (2) it is interfering with their development of normal dating and mating abilities. Just how many of today's online erotica users are becoming addicted no one actually knows, but Internet addiction rates in adolescents are jumping. A Hungarian study recently reported that one in five adolescents are already hooked. (Adolescent brains are showing corresponding addiction-related changes.)” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

*“I realized I could bring myself literally to the brink of orgasm solely with visual stimulation—without using my hand at all. My mind was rewired into relying on the extreme images fed to it by my eyes to*

*produce arousal.—Internet porn user”* (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Will Internet porn addiction rates surpass obesity rates in some population groups now that Internet porn is more pervasive than any other natural reinforcer except junk food? Quite possibly. After all, brains naturally release far more dopamine for sex than they do for food. (Dopamine release during Internet porn use hasn't been measured, for a variety of technical and other reasons.) Moreover, there are limits to food consumption, but none to porn viewing. Also, although no one wants to be fat, porn use is becoming more socially acceptable every day.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Why isn't porn addiction just ‘sex addiction?’” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“‘Sex addiction’ appears to be uncommon. Dr. Carnes has studied it for decades. His work reveals that those who, as children, were neglected, abused, molested, raped, or otherwise exposed to violence and/or sexuality at a young age are at risk for developing sex addiction (that is addiction to reckless sex/flashing/voyeurism). They use sex as a way to self-medicate to escape, to numb their psychological pain from feeling unsafe and insufficiently loved.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Porn users who visit our website often do not fit this profile, even though they self-identify as addicts. In Carnes's model, sex addicts who recover need three to five years, and a lot of support to restore healthy intimacy to their lives. In contrast, the majority of our visitors recover, even from severe symptoms like porn-induced impotence, in a matter of two to four months. Withdrawal symptoms can be acute, but eventually most guys bounce back to their pre-porn personalities and charisma levels.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Sex addicts have to work hard and often risk arrest or disease to act out. Porn users have only to tap their ever-present screens to get a

fix. Not surprisingly, *most* guys below a certain age are using Internet porn, many quite heavily, irrespective of childhood-trauma profile. Perfectly healthy adolescent (and older) brains are naturally attracted to Internet porn's hyper stimulating combination of surprise, novelty, sexiness, and non-stop free availability.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Despite the fact that the typical heavy porn user no longer fits Carnes' classic sex addict description, porn addiction continues to be casually lumped in with sex addiction by experts and the journalists who rely on them. Thinking of Internet porn addiction as a ‘subset’ of sex addiction (quite rare) decreases its visibility. One expert assured us that since sex addiction is rare, the incidence of the subset Internet porn addiction, is ‘vanishingly small.’ Huh?” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“We've also heard experts claim that Internet porn users who don't fit the childhood-development profile of sex addicts *can't* be addicts, even if the users themselves believe they are. These experts insist that porn addiction can only arise as a consequence of some *other* pathology (such as sex addiction, ADHD, depression or social anxiety). It is like trying to cram video-game addiction under board-game addiction, or smoking under drug addiction. This obscures reality and leaves people who are ‘just’ porn addicts out in the cold.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Here's a video of a psychiatrist determined to shoehorn porn addiction into the sex addiction model, insisting the issue for young heavy porn users with mysterious erectile dysfunction isn't dopamine dysregulation from overstimulation of the brain's reward circuitry, but rather problems with intimacy.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“How could ‘intimacy issues’ explain porn addiction among teens with very little relationship experience? Many of these youthful porn users attract sweethearts. They are baffled by the fact that their penises respond only to porn and not to real mates. In short, they don't fit the

'sexual addiction-intimacy issues' model." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Perhaps as a consequence of such imperfect logic, research on the effects of Internet porn use is lagging well behind the exploding reality of the phenomenon itself. Yet already, 'arousal addiction' is common enough to merit a TED talk by Psychologist Philip Zimbardo: 'The Demise of Guys.'" (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Fortunately for humanity's future wellbeing, the American Society of Addiction Medicine recently confirmed that addiction can be a *primary* disease. It's a function of *brain changes*-regardless of childhood development, and whether or not the addict engages in behavior that society finds acceptable/unacceptable." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Bottom line: The etiology of sex addiction is not related to the etiology of most Internet porn addiction (although some sex addicts certainly use porn to excess, and some porn addicts have childhood issues). Porn addicts can develop for the same reasons food addicts develop: (1) over-consumption of abnormally stimulating goodies, (2) brains that naturally perceive supernormal stimuli as irresistible, and/or (3) beginning use during adolescence, when the brain is especially plastic and most bent on seeking thrills and novelty." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Conflating 'masturbation' and 'porn use' obscures porn addiction" (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Both experts and young Internet porn users fail to distinguish 'Internet porn use' from 'masturbation.' The experts (older generations) think of Internet porn as just another aid for normal masturbation. In contrast, the younger generations have no idea that porn-free masturbation is even possible. They're wired to the Web's extreme novelty and often shocking visuals. Many have never

masturbated any other way. Consider this young man's surprising experiment:"

*"Two weeks after quitting porn, I tried something completely different—masturbation to orgasm without porn—something I've never considered (always used Internet porn). Two days later, I added the porn on a whim and relapsed."*

*"The two experiences were vastly different. Just masturbation to orgasm was almost startling at the finale, because I had no buzz, no shift of perception. It turned out to be a sweet, invigorating feeling."*

*"But it may have triggered the full porn/masturbation session, which felt like I was totally on a DRUG. Every picture turned my body into a searing blast of tension, each new one more powerful than the last. I felt that familiar 'dope surge' run from my brain through my body. I could hear and feel EVERYTHING more intensely. At orgasm, it was like a cloud of idiocy swept over me, and everything went numb. That numb last feeling lasted at least two days."*

(Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Conflating masturbation and Internet porn use results in a dangerous communication gap. We hear the following scenario repeatedly on our forum: A young man suffering from an inability to have normal erections consults a urologist. If he even thinks to ask whether his masturbation (subtext 'hours of daily Internet porn use') is causing the problem, the urologist answers, 'Masturbation (subtext 'good old fashioned solo sex') simply cannot cause ED (or your other addiction-like symptoms), so something else is causing your problems. Here are some trial Cialis tablets and a referral to a sex therapist.' The guy leaves, persuaded that his affliction has no cure, and continues to make his problem worse for fear that if he doesn't use it he'll lose it."

(Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"The experts are right in one sense: Masturbation addiction would be rare without Internet porn. Today's porn is more than a masturbation aid. It replaces imagination with multiple tabs, constant searching, fast forwarding to the perfect scene, a voyeur's perspective and so

forth. It's a different, and far more neurochemically seductive, reinforcer than mere solo sex.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Today's porn use extends beyond the reward of orgasm. Guys don't necessarily masturbate to climax when watching at work, sharing clips on their phones, flying in aircraft, or during hours of edging while surfing.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Much of the mainstream confusion about porn appears to arise from flawed logic, which overlooks a key fact. It starts with the correct assumption that orgasm is natural and people don't generally get addicted to it. It proceeds to the further assumption that Internet porn use can't produce anything with more neurochemical punch than an orgasm. It concludes that porn use therefore could not possibly be addictive.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Here's the error: Addictiveness is actually *not* tied to magnitude of dopamine impact. Cigarettes, for example, hook nearly 80% of those who try them, while heroin hooks only a rather small minority of users. Obviously, the dopamine impact of a cigarette is tiny compared with the dopamine impact of shooting heroin. The seductiveness of cigarettes lies in their ability to train the brain with each puff (hit of dopamine). Because of this, their power to rewire the brain for addiction cannot be measured by their relative neurochemical impact. This point is made in David Linden's book *The Compass of Pleasure*.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Sex addiction is likely analogous to a heroin addiction in that there's a limit to how often one can get a fix, and the addict generally needs a ritualized neurochemical build-up. Internet porn, on the other hand, seems more akin to smoking. Each easily obtained, novel image offers a small, rewarding dopamine burst, which trains the brain to repeat the behavior, not unlike each puff.” (Gary Wilson, “Porn Addiction is not

Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Today's porn addict has more in common with an Internet videogame addict, because he (or she) relies on constant mini-dopamine hits from exciting, ever-novel visuals. Like video games, Internet porn is effortless entertainment. No need to seek a real partner. He's also more like a food addict because Internet porn hijacks our most compelling natural urge (to reproduce) using a superstimulating delivery that also taps into our programmed proclivities for novelty and seeking.” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Stranded in a virtual world” (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

“Porn addicts are not hooked on sex; they're hooked on Internet porn. They have not been training for sex, but for virtual stimulation. Here are comments of three:”

- *“I knew I was in trouble when in real life girls standing naked in front of me barely got me erect, but as soon I jumped on a computer and looked up some crazy porn I was excited and rock hard.”* (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
- *“[Weeks after stopping porn] I have felt physically attracted to real women for the first time in a long time. It's strange, but I was basically asexual when I was on pornography.”* (Gary Wilson, “Porn Addiction is not Sex Addiction – and Why it Matters”, Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)
- *“I'm hoping to break 30-year of porn use that has, in part, made me a 40-year old virgin. I started porn use at age 12-13, ejaculated to images of fantasy women only (fit/muscular women and/or big boobs), never ejaculated without porn, and used it frequently. I've had opportunities with several women, but was a complete dud. Earlier this year, I had another failure to perform with a woman I liked quite a bit, and after 30 years I decided to do something about it. Trouble is, I think I never even developed 'proper' brain pathways for what actual intercourse with a real partner is like. There isn't even an old, overgrown path to go back to; it never*



*existed. I'm 33 days porn/masturbation free. But having closed my current road, I feel like I'm surrounded by dense jungle where a foot has never before been set. And me without even a machete, when I feel like I really need a chainsaw and a bulldozer."* (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"For as long as porn addiction remains virtually invisible, users who develop symptoms are in a precarious position. They have to figure things out for themselves, and it's not easy to connect the dots between porn-induced sexual dysfunction problems (or porn-related anxiety, depression or concentration problems) and viewing porn. After all, Internet porn is a powerful aphrodisiac. It also makes the user feel *better* while viewing. Not surprisingly, users eagerly ascribe their symptoms to any other suggested cause, or simply conclude, 'This is who I am.'" (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Right now, experts' protocols and well-meaning journalists are making the journeys of many of those at risk for Internet porn addiction unnecessarily long. Moreover, those who need more substantial help, because they are self-medicating due to childhood issues are also being caught in the 'porn is harmless' net. Furthermore, adolescent porn users are wiring their sexual response to pixels, not humans—and some receive rude awakenings when they can't successfully have, or enjoy, real sex. Do these users have to wait until they become full-fledged addicts to begin rewiring their brains?" (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

*"I've suffered from anxiety and self-confidence issues for years. I had suspected part of it was due to PMO but always felt it was difficult to stop. Several years ago I quit for about 3 months and was happier than I had been all my life. I socialized with people, went on dates with women, and was more confident than ever. However..for whatever reason out boredom...or habit...I relapsed. I went down a spiral of depression and even contemplated suicide. Since then it has been a struggle...until now! I am on day 21 being PMO free and I'm not looking back!"* (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it

Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

*"After I got past the 2 weeks stage I started to see diminished anxiety, more confidence, and even better vocal tonality. I feel like I am becoming normal again—like the person I am supposed to be. Women are noticing me again and I can genuinely have a conversation with them. I feel like I'm connecting with people in general better. I am even performing better athletically. I feel stronger, faster and sharper. It is as though the fog has been lifted! I'm 29 years old and now I feel like I have the energy that I had in my teens. My goal is to be PMO free for the rest of my life. The momentum I feel is stronger than a cheap thrill that PMO brings. I look forward to living and not hiding anymore. Taking back control is the most liberating thing I've felt in a long time."* (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"A 2013 study with an interesting finding: In 'sex addicts' distress was associated with porn use, and was not associated with changing partners. In other words, we have two distinct groups, Internet porn addicts, and guys who have a lot of sex partners." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Hypersexual Behavior in an Online Sample of Males: Associations with Personal Distress and Functional Impairment." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Masturbation and online pornography consumption were significantly more often reported by distressed participants, while sexual contact with changing partners was more often reported by nondistressed participants. Statistics also indicated various associations between types of hypersexual behavior and areas of functional impairment." (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"One of the most significant steps in early recovery from addictive sexual disorders is disclosure by the addict to his or her spouse or significant other of the sexual behaviors in which the addict has been engaging, usually

outside the marriage or primary relationship. In order to learn about couples' experiences with disclosure, the authors prepared an anonymous survey, to be filled out separately by each partner. Surveys were returned by 82 sex addicts and 82 spouses or partners. Addicts had an average of 5.1 + 3.9 years in recovery. Key findings from the surveys included: (1) Disclosure is often a process, not a one-time event, even in the absence of relapse; withholding of information is common. (2) Initial disclosure usually is most conducive to healing the relationship in the long-run when it includes all the major elements of the acting-out behaviors but avoids the 'gory details.' (3) Over half the partners threatened to leave the relationship after disclosure, but only one-quarter of couples actually separated. (4) Half the sex addicts reported one or more major slips or relapses, which necessitated additional decisions about disclosure. (5) Neither disclosure nor threats to leave prevents relapse. (6) With time, 96% of addicts and 93% of partners come to believe that disclosure had been the right thing to do. (7) Partners need more support from professionals and peers during the process of disclosure. (8) Honesty is a crucial healing characteristic. (9) The most helpful tools for coping with the consequences of sexual addiction are counseling and the 12-step programs. Disclosure, threats to leave, and relapses are parts of the challenge of treating, and recovering from, addictive disorders."

(Jennifer P. Schneider, M. Deborah Corley, and Richard R. Irons, *Surviving Disclosure*, November 8, 2007, "Surviving disclosure of infidelity: Results of an international survey of 164 recovering sex addicts and partners", <http://www.tandfonline.com/doi/abs/10.1080/10720169808400162>)

## **"HEARING ON THE BRAIN SCIENCE BEHIND PORNOGRAPHY ADDICTION AND THE EFFECTS OF ADDICTION ON FAMILIES AND COMMUNITIES"**

### **"Statement of Judith A. Reisman...November 18, 2004"**

"Good afternoon. Thank you for the opportunity to speak with you today. I am Judith Reisman, Ph.D., President of The Institute for Media Education, Scientific Advisor to the California Protective Parents Association and the Subcommittee on Junk Science for The American Legislative Exchange Council's April 2004 report." (See vitae for other details

(<http://www.drjudithreisman.org/vitae.htm>) (Hearing on the Brain Science Behind Pornography Addiction

and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“I specialize in the communication effects of images on the brain, mind and memory; fraud in the human sexuality field; and the addictive properties of sexually explicit images, commonly called pornography.”** (I also document the ways pornography commonly involve "estrus" displays, falsely presenting human females as non-human animals in "heaf" and triggering both anger and libido in male, even some female, viewers. The full definition relies upon the four scientific disciplines of Proxemics, Ethology, Neuropsychology and Psychopharmacology, seen ve in Appendix A.) (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“My working, scientific definition of pornography is measurable: ‘intimate private-space behavior in public space forums, provoking psychopharmacological responses in viewers that puts the model and those s/he represents, at risk.’ See Appendix A.** (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“Thanks to the latest advances in neuroscience, we now know that emotionally arousing images imprint and alter the brain, triggering an instant, involuntary, but lasting, biochemical memory trail.”** (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“This applies to so-called ‘soft-core’ and ‘hard-core’ pornography, which may, arguably, subvert the First Amendment by overriding the cognitive speech process.”** (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“These media erotic fantasies become deeply imbedded, commonly coarsening, confusing, motivating and addicting many of those**

**exposed.** (See 'the Violence Pyramid' at <http://www.vbii.org/violence.html>)." (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**"Pornography triggers a myriad of endogenous, internal, natural drugs that mimic the 'high' from a street drug. Addiction to pornography is addiction to what I dub erototoxins – mind altering drugs produced by the viewer's own brain."** (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**"Children and others who cannot read can instantly decode and experience images, hence images are not speech."** (On the undeveloped adolescent brain and its lack of cognitive maturity see Science, "Neuroscience: Crime, Culpability, and the Adolescent Brain," Vol 305, Issue 5684, 596- 599, July 2004. Shall teenagers under 18 get the death sentence--based in part on brain studies, pp. 596-599.) (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**"In fact, erotic (any highly arousing) images commonly subvert left hemisphere cognition."** (See Gary Lynch in Restak (1984). "The Brain, Learning & Memory" The Annenberg/ CPB Collection, in his discussion of the way arousing images alter the structure of the human brain, WNET/NY, full documentation in 8. Exhibits 1 and 2.) (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**"I have spent decades addressing the effects of pornographic 'humor' and photos on children, fathers, husbands and wives and communities, much of which is found..."**

- "...in my book, "Soft' Porn Plays Hardball, 1990
- "...in my U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP) report, Images of Children, Crime and Violence in Playboy, Penthouse and Hustler

- “...in my white paper on "The Psychopharmacology of Pictorial Pornography: Restructuring Brain, Mind & Memory & Subverting Freedom of Speech" (<http://www.dJjudithreisman.com/brain.pdf>).”

(Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“A basic science research team employing a cautiously protective methodology should study erototoxins and the brain/body. As with tobacco, these data could be helpful in public education and in legal change.”**

(Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“Testimony from victims and police commonly finds pornography to be an on-site-sexabuse manual.”**

(John Rabun, now COO for the National Center For Missing & Exploited Children. See Senate Hearings on "Effect of Pornography on Women and Children," 1984. In that Senate hearing, Rabun testified that when arrested, "all, that is 100%" of rapists, pedophiles, etc.,

in their study possessed adult pornography, "such as Playboy, on up." Also see Dr. C. Everet Koop on pornography as a "crushing" health problem, in *American Medical News*, October 10, 1986). (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“An offensive strategy should be planned mandating law enforcement collection of all pornography data, as with guns, drugs, etc, at crime sites.”**

(Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

**“Judges, police, legislators and lawyers should be trained in the hard data of sexology fraud and erototoxins as changing the human brain, mind, memory at unconscious levels and therefore absent informed consent.”**

(Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

“Congress should consider ceasing the funding of educational institutions that train their students via the flawed methodology of Kinseyan ‘academic pornography.’” (Exhibit 3. See JA Reisman, Kinsey, Crimes & Consequences, 2003, pp. 160-180, esp. 170-’80: for the use of the SAR, Sexual Attitude Restructuring, as days, weeks or months of viewing pornography to be “accredited” as a certified sex educator, or to earn a Masters, PhD., etc., in Human Sexuality, AIDS Prevention and the like.) (Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities, Senate Committee on Commerce, Science, and Transportation. Witness List: Dr. Judith Reisman, Dr. Jeffrey Satinover, Dr. Mary Anne Layden, Dr. James B. Weaver, November 18, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

For entire article and Appendix A, see [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf)

## **“HOW THE INTERNET IS ALTERING YOUR MIND”**

“Like nearly all the Guardian's content, what you are about to read was – and this will hardly be a revelation – written using a computer connected to the internet. Obviously, this had no end of benefits, mostly pertaining to the relative ease of my research and the simplicity of contacting the people whose thoughts and opinions you are about to read. Modern communications technology is now so familiar as to seem utterly banal, but set against my clear memories of a time before it arrived, there is still something magical about, say, optimistically sending an email to a scientist in southern California, and then talking to him within an hour.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“But then there is the downside. The tool I use to write not only serves as my word processor and digital postbox, but can also double as – among other things – a radio, TV, news-wire portal and shop. Thus, as I put together the following 2,000-ish words, I was entertained in my more idle moments by no end of distractions. I watched YouTube videos of Manic Street Preachers, Yoko Ono, and the Labour leadership candidates. Via Amazon, I bought a £4.99 teach-yourself-to-spell DVD-Rom for my son, which turned out to be rubbish. And at downright stupid hours of the day – 6am, or almost midnight – I once again checked my email on either my phone or computer. Naturally, my inbox was usually either exactly how I had left it, or newly joined by something that could easily have waited – though for some reason, this never seems to register.” (John Harris, “How



the internet is altering your mind", The Guardian, August 20, 2010,  
<http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"Obviously, I am not alone in this affliction. Yesterday, scores of headlines focused on a new report by the media regulator Ofcom, which found that Britons spend more than seven hours a day watching TV, going online, sending texts and reading newspapers, and that web-capable smartphones are now a fixed part of millions of people's lives. Superficially, all this hardly seemed revelatory – but at the lower end of the age range lurked evidence of the world to come. Among 16-to-24-year-olds, television was not nearly as dominant: half their 'media time' was devoted to mobile phones and computers – and in turn, two-thirds of that time was spent doing two digital things at once. The younger you are, it seems, the more your media consumption finds you multitasking; I'm a relatively ancient 40, but my habits are increasingly similar." (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010,  
<http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"It often feels as if all this frantic activity creates a constant state of twitchy anxiety, as any addiction usually does. Moreover, having read a freshly published and hotly controversial book about the effect of digital media on the human mind, I may have very good reason to feel scared. Its thesis is simple enough: not only that the modern world's relentless informational overload is killing our capacity for reflection, contemplation, and patience – but that our online habits are also altering the very structure of our brains." (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010,  
<http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"In the book, Carr looks back on such human inventions as the map, the clock and the typewriter, and how much they influenced our essential modes of thought (among the people whose writing was changed by the latter were Friedrich Nietzsche and TS Eliot). By the same token, he argues that the internet's 'cacophony of stimuli' and 'crazy quilt' of information have given rise to 'cursory reading, hurried and distracted thinking, and superficial learning' – in contrast to the age of the book, when intelligent humans were encouraged to be contemplative and imaginative." (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010,  
<http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Small is the director of the Memory and Ageing Research Centre at the University of California, Los Angeles, a specialist in the effects on the brain of the ageing process, and the co-inventor of the first brain-scanning technology to detect the physical evidence of Alzheimer's disease. ‘Even an old brain can be quite malleable, and responsive to what's going on with technology,’ he tells me.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Small is only too aware of what too much time spent online can do to other mental processes. Among the young people he calls digital natives (a term first coined by the US writer and educationalist Marc Prensky), he has repeatedly seen a lack of human contact skills – ‘maintaining eye contact, or noticing non-verbal cues in a conversation’. When he can, he does his best somehow to retrain them: ‘When I go to colleges and talk to students, I have them do one of our face-to-face human contact exercises: ‘Turn to someone next to you, preferably someone you don't know, turn off your mobile device.’ One person talks and the other one listens, and maintains eye contact. That's very powerful. One pair of kids started dating after they'd done it.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“He also fears that texting and instant messaging may already be dampening human creativity, because ‘we're not thinking outside the box, by ourselves – we're constantly vetting all our new ideas with our friends.’ He warns that multitasking – surely the internet's essential modus operandi – is ‘not an efficient way to do things: we make far more errors, and there's a tendency to do things faster, but sloppier.’ Of late, he has been working with big US corporations – Boeing is the latest example – on how they might get to grips with the effects of online saturation on their younger employees, and reacquaint them with the offline world.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“When I ask him how I might stop the internet's more malign effects on my own brain, he sounds slightly more optimistic than Carr: we have the capacity to pull ourselves back from the mental brink – though only if we know what's at stake. ‘The brain can right itself if

we're aware of these issues,' he says. 'But we have to make decisions as to what we can do about it. Try to balance online time with offline time,' he tells me. 'What's happening is, we're losing the circadian rhythms we're used to; you go to work, you come home, you spend time talking with your kids.'" (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"What about the idea of calming down when you're online? I'm actually pretty good at offline time, but as soon as I'm back at my desk, it's all YouTube and compulsive email checking, and it's rather doing my head in." (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"It's hard,' he says. 'There's a pull. The internet *lures* us. Our brains become addicted to it. And we have to be aware of that, and not let it control us.'" (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"Among the people with walk-on roles in *The Shallows* is Scott Karp, the editor of a renowned American digital media blog called Publish2, whose reading habits are held up as proof of the fact that plenty of people's brains have long since been rewired by their enthusiastic use of the internet." (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"Despite a degree from New York University in English and Spanish literature, Carr claims that Karp has given up reading books altogether, perhaps because of what a working life spent online seems to have done to his mental makeup. One of Karp's online posts is quoted as follows: 'I was a lit major in college, and used to be a voracious book reader. What happened? What if I do all my reading on the web not so much because the way I read has changed . . . but because the way I THINK has changed?'" (John Harris, "How the internet is altering your mind", The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

"As it turns out, Karp has only stopped reading non-fiction. Contrary to Carr's thesis, he says he still has no problem reading novels, and thinks his long-term memory is in as good shape as ever. What he

attests to, though, is a radical shift in the way he consumes information, which may or may not have caused his mental circuits to change.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“This, he tells me, is all down to his appetite for connecting multiple bits – and, it seems, only bits – of information, rather than digesting big chunks of stuff from single sources, one at a time. ‘I thrive on that connectedness of information,’ he says, ‘so now, I maybe read a given author’s argument in much briefer form than a 10,000 word article or a book – and then jump to another author’s argument, and follow that train of thought. And sometimes I find that I make leaps in thinking by reading things from different perspectives, and going from lily pad to lily pad.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“He assures me he understands any argument’s strengths and weaknesses before flitting to the next one, but I’m not so sure. Aren’t there thousands of books that have to be read in their entirety before we can really get our head round the author’s point of view? The last thumping great book I read was the biography of Barack Obama by David Remnick, the editor of the New Yorker – and the idea of boiling it down to a skimmable extract seems almost offensive. The same applies to, say, any number of books by Marx and Engels, or even (possibly) Ozzy Osbourne’s autobiography.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“‘Absolutely,’ he says, rather guiltily. ‘I completely agree with that. And I’m sure that I have come up shallow, if you use Nicholas Carr’s argument. But I’ve only got a finite amount of time.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Whatever, Karp is not fazed by the idea that heavy internet use might be reshaping his brain. ‘Everything changes our brain,’ he says. ‘*Everything*. That’s what the brain does. It’s constantly changing and adapting to every experience. It’s almost axiomatic to say: ‘The internet has changed our brain, and its processes.’ Yes, we spend less time concentrating on single sources of information. But when it comes to making value judgements, it becomes difficult to say, ‘And

we are worse off because of that.’ As we end our conversation, I have a vision of him frantically pinging from blog to website to pdf, and I’m really not so sure.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“I get a more convincing antidote to the Carr thesis from Professor Andrew Burn of the University of London’s Institute of Education, who has long specialised in the way that children and young people use what far too many people still call ‘new media’, and its effects on their minds. Equating the internet with distraction and shallowness, he tells me, is a fundamental mistake, possibly bound up with Carr’s age (he is 50). ‘He’s restricting what he says to the type of activities that the middle-aged blogosphere-addict typically engages in,’ says Professor Burn. ‘Is there anything in his book about online role-playing games?’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“Not much, I tell him, and he’s off. ‘Carr’s argument privileges activities of the skimming and browsing kind. But if you look at research on kids doing online gaming, or exploring virtual worlds such as Second Life, the argument there is about immersion and engagement – and it’s even about excessive forms of immersion and engagement that get labelled as addiction. The point is, to play successfully in an online role-playing game, you have to pay an incredible amount of attention to what your team-mates are doing, to the mechanics of the game. You can set up a thesis for The Depths, just as much as The Shallows.’” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“And what of all these worries about the transformation of the human brain? ‘Temporary synaptic rewiring happens whenever anybody learns anything,’ he says. ‘I’m learning a musical instrument at the moment, and I can feel my synapses rewiring themselves, but it’s just a biological mechanism. And it seems to me that to say that some neural pathways are good and some are bad – well, how can you possibly say that? It could be a good thing: people are becoming adaptive, and more supple in their search for information.’ Carr, he reckons, is guilty of a ‘slippage into an almost evolutionary argument’, and he’s not having it at all.” (John Harris, “How the internet is altering your mind”,

The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“He’s also not impressed by the way Carr contrasts the allegedly snowballing stupidity of the internet age with the altogether more cerebral phase of human progress when we all read books. ‘What if the book is Mein Kampf? What if it’s Jeffrey Archer? Or Barbara Cartland? Am I not better off playing a well-constructed online game, or reading Aristotle’s poetics online? I really don’t see why books should particularly promote worthwhile thought, unless they’re worthwhile books. And the same applies to what’s on the internet.’”

(John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

“This all sounds both comforting and convincing, until I return to The Shallows, and a particularly sobering sentence on page 222 (contrary to Carr’s darker predictions, I easily made it to the end). ‘We are welcoming the frenziedness into our souls,’ he writes. There’s something chilling about those words, and even 20 stupid minutes on YouTube and an impulse buy from Amazon cannot quite remove them from my brain.” (John Harris, “How the internet is altering your mind”, The Guardian, August 20, 2010, <http://www.theguardian.com/technology/2010/aug/20/internet-altering-your-mind>)

## **“HOW PORNOGRAPHY ADDICTION AFFECTS THE TEENAGE BRAIN”**

“There is a rising problem of pornography addiction in teens. The negative effects of pornography addiction are even greater in teens as their brains are more susceptible to the chemical overload effects that come with continued viewing.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“...is continued engagement in self-destructive behavior despite adverse consequences.” (Constance Holden, “‘Behavioral’ Addictions: Do They Exist?,” Science, 294, November 2, 2001, pp980-982) (Donald L. Hilton, Jr., MD, “He Restoreth My Soul,” Forward Press Publishing, LLC, © 2009)

### **“Porn is Addictive”**

“Porn is basically sexual junk food. ...” (“Porn is Addictive”, Fight the new Drug, August 8, 2014, <http://fightthenewdrug.org/porn-is-addictive/#sthash.XVRyb5Mf.dpbs>)

## **“RECENT INTERNET ADDICTION BRAIN STUDIES INCLUDE PORN”**

**“Brain research on Internet addiction points in only one direction”** (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Since we wrote Ominous News for Porn Users: Internet Addiction Atrophies Brains, which addressed recent online videogame addiction research, a tide of brand new research has been rolling in from around the world, revealing that a surprisingly large percentage of people in some age groups are addicted to Internet use itself.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“The new research comprises two types of studies. One methodology uses brain scans of physical, addiction-related changes in addicts and control groups. The other uses surveys and addiction tests. Brain scientists also use such tests to divide subjects into test groups of addicts and control groups of non-addicts.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“In this post, we will be discussing research from both categories, but we're primarily interested in the hard-science brain scans because they are less easy to manipulate with bias. Here are some FAQs about the new research.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

**“What's the percentage of Internet addicts according to the research?”**

“Although the questionnaire studies use somewhat different terminology (‘addiction’ ‘problematic Internet use’ ‘maladaptive Internet use’), rates range from *8 percent to as high as 21 percent* in young people. Moreover, in a study that reported addiction rates by gender, a *quarter* of the male university students tested were diagnosed as addicts—as compared with less than ten percent of female students.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

**“If there are no brain studies isolating Internet porn users, how can we know Internet porn addiction exists?”**



“Internet addiction researchers measure *all* Internet use, so pornography and social media are lumped together. One of the most recent studies, for example, described the Internet use of Chinese addicts:”

*“Subjects used the internet almost every day, and spend more than 8 hours ... every day in front of the monitor, mostly for chatting with cyber friends, playing online games, and watching online pornographies or adult movies.[Internet porn, by the way, is officially banned in China.]”* (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Internet porn use has not been isolated in any of the new studies we have seen. (Who uses the Internet *only* for Internet porn?) But is it necessary to isolate Facebook addicts from Twitter addicts? Or World of Warcraft addicts from EverQuest addicts to determine that all such applications can become addictive for some users? No. Internet porn is simply one more, very popular, Internet pastime, and therefore potentially addictive.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Don't let the fact that many use the Internet as a masturbation aid confuse you. It is the characteristics that make Internet porn *different* from sex—but very similar to videogaming or slot-machine gambling—which account for its ability to hook some users. This 2013 study noted the similarities:” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“It should be pointed out that, as two of the key uses of the internet for a sizable number of internet users are to gain access to *pornography and gambling and these latter activities are clearly subject to potentially-addictive states*, it may be that any results relating to ‘internet addiction’ are actually manifestations of other forms of addiction (i.e. to pornography or gambling).” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“These characteristics include novelty-at-a-click, effortless access, and constant violation of expectations via startling stimuli. All of these release the neurotransmitter dopamine in the reward circuitry. Overconsumption can therefore dysregulate dopamine response in some brains, thus tampering with mood, confidence and ability to respond to pleasure.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Still convinced Internet erotica is a harmless exception to Internet addiction? Sorry, but it has already been determined to be *more* likely to lead to compulsion than any other Internet activity.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“In any case, the fundamental brain changes for all addictions—both behavioral and chemical—are so similar that addiction specialists now consider *all* addiction to be one disease rather than many different diseases. Whether someone is diagnosed with gambling, videogaming or Internet addiction, it indicates that a specific collection of anatomical and physiological abnormalities has occurred (with minor variations).” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Indeed, the same molecular switch triggers addiction-related brain changes in *all* addicts. The master switch that triggers these changes is the protein DeltaFosB. Both chronic, high level consumption of natural rewards (sex, sugar, high-fat) and chronic administration of virtually any drug of abuse cause DeltaFosB to accumulate in the reward circuit, thus triggering a cascade of further brain changes.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“It would be interesting, but redundant, to isolate particular types of Internet addiction in order to establish the reality of any one of them, including porn addiction.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

### **“What brain changes have researchers observed in Internet addicts?”**

“Thirty years and thousands of studies on animal and human subjects have revealed a specific *constellation* of addiction-related brain

changes. This is why scientists are confident that these brain changes differ from the brain's normal daily activity.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“For example, the Chinese study cited above, researchers concluded that,”

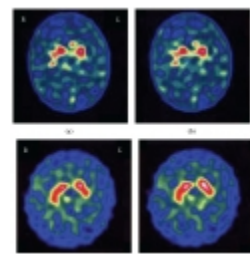
*“IAD [Internet addiction] may cause serious damages to the brain, and the neuroimaging findings further illustrate IAD is associated with dysfunctions in the dopaminergic brain systems. Our findings also support the claim that IAD may share similar neurobiological abnormalities with other addictive disorders [such as substance abuse disorders and pathological gambling.]”* (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Next we'll consider the changes so far observable in human scans, with representative studies in the links next to brain alteration. (Note, this review of Internet Addiction brain studies was published after this article: Internet and Gaming Addiction: A Systematic Literature Review of Neuroimaging Studies)” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“DeltaFosB is known to trigger most, if not all, of these addiction-related changes. They are not beneficial. (More on why in a future post.)” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

### **“Are these the only brain changes?”**

“No. Each of these broad-brush indicators reflect multiple subtler addiction-related cellular and chemical alterations—just as the scan of a cancer tumor wouldn't show associated subtler cellular/chemical changes.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)



“Most of the subtler changes can't be assessed in human models due to the invasiveness of the technologies required. However, they have

been identified in animal models. For example, to track desensitization, scans can measure D2 receptor changes in humans. Yet other key addiction markers, such as higher dynorphin and the accumulation of DeltaFosB, won't show up in scans.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“The point is that where there are macro changes visible in brain scans, there are also subtler, micro changes. The macro changes are the final dominos common to all addictions, so they are also evidence of the micro changes.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

### **“How do we know these brain changes aren't due strictly to pre-existing pathologies?”**

“Many experts have been taught that the only people who develop addiction are those with pre-existing disorders, such as OCD, depression, ADHD and so forth, so addiction is always a *secondary* disease, and presumably somewhat unavoidable. While brains do differ in their vulnerability to addiction (for example, adolescent brains are more vulnerable than adult brains), ASAM's addiction specialists now consider addiction a *primary* disease. That is, it can develop even without the presence of an underlying disorder. And it causes its *own brain changes* apart from any other disorders.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Moreover, one has only to consider the rates of food addiction in the United States (79% of adults overweight and almost half of those obese) to see that one doesn't need to be in a small, congenitally disordered minority to fall into addiction. This is especially true where extreme versions of natural rewards like food and sex are concerned. Junk food and Internet porn are both extreme versions of enticements that all of us evolved to pursue somewhat impulsively.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Moreover, two of the new studies (study 1, study 2) revealed that addiction-related brain changes were reversing themselves in *former* addicts. This wouldn't happen if the brain changes were the product of fixed, pre-existing conditions. Similarly, the longer addicts are hooked, the more severe their addiction-related brain alterations:” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“The gray matter atrophy and white matter FA changes of some brain regions were significantly correlated with the duration of internet addiction.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Indeed, experts recently concluded that they cannot find a solid pathological predictor for Internet addiction disorder. Internet addiction disorder may bring some pathological problems to the addicts [such as depression, anxiety, hostility, interpersonal sensitivity, and psychoticism].” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

### **“On what do you base your information in this post?”**

“In addition to the many recent Internet addiction studies cited here, support for this piece comes from the materials published by the American Society of Addiction Medicine (ASAM), a group of eminent doctors and researchers who are addiction specialists. Here are some excerpts from the ASAM FAQs, which shed light on how experts in the field define addiction.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“Qs: What's different about this new definition? [and] Does ASAM really believe that food and sex are addicting?” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“This new definition makes clear that addiction is not about drugs, it's about brains. It is not the substances a person uses that make them an addict; it is not even the quantity or frequency of use. *Addiction is about what happens in a person's brain when they are exposed to rewarding substances or rewarding behaviors*, and it is more about

reward circuitry in the brain and related brain structures than it is about the external chemicals or behavior that "turn on" that reward circuitry....Food and *sexual behaviors* and gambling behaviors *can be associated with the "pathological pursuit of rewards"* described in this new definition of addiction.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

**“To summarize the current state of addiction neuroscience:”**

“Addiction related behaviors and symptoms = a specific set of measurable brain alterations.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“The brain changes found in all addictions include sensitization, desensitization, hypofrontality, and abnormal white matter. An Internet addiction is no exception, whether a user is viewing Internet porn, Facebook, [www.reddit.com](http://www.reddit.com), or a combination Internet stimuli.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“All addiction-related brain changes (both behavioral and chemical) are triggered by accumulation of DeltaFosB. There's one molecular switch, whether drug, gambling, food, or Internet porn addiction is at work.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“All brain research on Internet addiction done so far (ten studies as of this post) point in only one direction.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“If you are noticing these unpleasant symptoms, you may have Internet addiction, and your Internet porn use could be part of the problem.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain on Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

**“SLAVE MASTER – HOW PORNOGRAPHY DRUGS & CHANGES YOUR BRAIN”**

“While some have avoided using the term ‘addiction’ in the context of natural compulsions such as uncontrolled sexuality, overeating, or

gambling, let us consider current scientific evidence regarding the brain and addiction.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“This article will seek to answer two questions:”

1. “Biologically, is the brain affected by pornography and other sexual addictions? “
2. “If so, and if such addictions are widespread, can they have a societal effect as well?”

(Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

### **“The Story of the Gypsy Moth”**

“Let’s begin with a seeming digression. In 1869 the gypsy moth was brought to America to attempt to jumpstart a silk industry. Rarely have good intentions gone so wrong, as the unforeseen appetite of the moth for deciduous trees such as oaks, maples, and elms has devastated forests for 150 years. Numerous attempts were made to destroy this pest, but a major breakthrough came in the 1960s, when scientists noted that the male gypsy moth finds a female to mate with by following her scent. This scent is called a pheromone, and is extremely attractive to the male.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“In 1971 a paper was published in the journal Nature that described how pheromones were used to prevent the moths from mating. The scientists mass-produced the pheromone and permeated the moths’ environment with it. This unnaturally strong scent overpowered the females’ normal ability to attract the male, and the confused males were unable to find females. A follow-up paper described how population control of the moths was achieved by ‘preventing male gypsy moths from finding mates.’” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“The gypsy moth was the first insect to be controlled by the use of pheromones, which work by two methods. One is called the confusion method. An airplane scatters an environmentally insignificant number of very small plastic pellets imbedded with the scent of the pheromone. Then, as science journalist Anna Salleh describes it, ‘The male either becomes confused and doesn’t know which direction to turn for the



female, or he becomes desensitized to the lower levels of pheromones naturally given out by the female and has no incentive to mate with her.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“The other method is called the trapping method: Pheromone-infused traps are set, from which moths cannot escape; a male moth enters looking for a female, only to find a fatal substitute.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

## **“Two Fallacies”**

“What does this have to do with pornography? Pornography is a visual pheromone, a powerful, \$100 billion per year brain drug that is changing human sexuality by ‘inhibiting orientation’ and ‘disrupting pre-mating communication between the sexes by permeating the atmosphere,’ especially through the internet. I believe we are currently struggling in the war against pornography because many continue to believe two key fallacies:” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

**“Fallacy No. 1: Pornography is not a drug.”**

**“Fallacy No. 2: Pornography is therefore not a real addiction.”**

## **“Adrenaline Grass”**

“First, I would like to share an experience our family had a few years ago on a safari in Africa. While on a game drive along the Zambezi River, our ranger commented on the adrenaline grass growing along the banks. I asked him why he used the word ‘adrenaline,’ and he began to drive slowly through the grass. Abruptly, he stopped the vehicle and said, ‘There! Do you see it?’” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“‘See what?’ I asked. He drove closer, and this also changed the angle of the light.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)



“Then I understood. A lion was hiding in the grass watching the river, just waiting for some ‘fast food’ to come and get a drink.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“We were sitting in an open-air Land Rover with no doors and no windows. I then understood why it was called adrenaline grass, as I felt my heart pound. My cerebral cortex saw and defined the danger, which registered in the autonomic, or automatic, part of my nervous system. The brain, which is a very efficient pharmaceutical lab, produced the chemical adrenaline, causing my heart to pound and race in preparation for survival. I was ready to run if needed (not that it would have done any good with the lion).” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“We were told that if we stayed in our seats and remained still, the lion would look at the Land Rover as a whole and not see us as individuals. Fortunately this was the case for us.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

### **“A Drug Is a Drug”**

“Interestingly, adrenaline, also called epinephrine, is a drug we physicians use in surgery and in emergencies to start a patient’s heart again when it beats too slow, or even stops. So here is the question: Is epinephrine not a drug if the brain makes it (causing the heart to pound and race), yet is a drug if the same epinephrine is given by a physician?” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Dopamine is important in the parts of our brain that allow us to move, and when the dopamine-producing parts of the brain are damaged, Parkinson’s disease results. To treat Parkinson’s, physicians prescribe dopamine as a drug, and it helps the patient move again. So is dopamine a drug only if the pharmaceutical lab makes it, and not if the brain makes the same chemical for the same purpose?” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“...both of these brain drugs are very important in human sexuality—and in pornography and sexual addiction. Dopamine, in addition to its role in

movement, is an integral neurotransmitter, or brain drug, in the pleasure/reward system in the brain.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

### **“Frontal Lobe Damage”**

“As a feedback of sorts, the frontal lobes also atrophy, or shrink. Think of it as a ‘wearing out of the brake pads.’ This physical and functional decline in the judgment center of the brain causes the person to become impaired in his ability to process the consequences of acting out in addiction. Addiction scientists have called this condition hypofrontality, and have noted a similarity in the behavior of addicted persons to the behavior of patients with frontal brain damage.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Neurosurgeons frequently treat people with frontal lobe damage. In a car crash, for instance, the driver’s brain will often decelerate into the back of his forehead inside his skull, bruising the frontal lobes. Patients with frontal lobe damage exhibit a constellation of behaviors we call frontal lobe syndrome. First, these patients are impulsive, in that they thoughtlessly engage in activities with little regard to the consequences. Second, they are compulsive; they become fixated or focused on certain objects or behaviors, and have to have them, no matter what. Third, they become emotionally labile, and have sudden and unpredictable mood swings. Fourth, they exhibit impaired judgment.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“So cortical hypofrontality, or shrinkage of the frontal lobes, causes these four behaviors, and they can result from a car wreck or from addiction.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“A study on cocaine addiction published in 2002 shows volume loss, or shrinkage, in several areas of the brain, particularly the frontal control areas. A study from 2004 shows very similar results for methamphetamine. But we expect drugs to damage the brain, so these studies don’t really surprise us.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Consider, though, a natural addiction, such as overeating leading to obesity. You might be surprised to learn that a study published in 2006 showed shrinkage in the frontal lobes in obesity very similar to that found in the cocaine and methamphetamine studies. And a study published in 2007 of persons exhibiting severe sexual addiction produced almost identical results to the cocaine, methamphetamine, and obesity studies. (Encouragingly, two studies, one on drug addiction [methamphetamine] and one on natural addiction [obesity] also show a return to more normal frontal lobe volumes with time in recovery.)” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“So we have four studies, two drug and two natural addiction studies, all done in different academic institutions by different research teams, and published over a five-year period in four different peer-reviewed scientific journals. And all four studies show that addictions physically affect the frontal lobes of the brain.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

### **“Addiction Is Addiction”**

“As stated in the journal Science, ‘as far as the brain is concerned, a reward’s a reward, regardless of whether it comes from a chemical or an experience.’” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“What about pornography and sexual addiction? Dr. Eric Nestler, head of neuroscience research at Mount Cedar Sinai in New York and one of the most respected addiction scientists in the world, published a paper in the journal Nature Neuroscience in 2005 titled ‘Is there a common pathway for addiction?’ In this paper he said that the dopamine reward systems mediate not only drug addiction, but also ‘natural addictions (that is, compulsive consumption of natural rewards) such as pathological overeating, pathological gambling, and sexual addictions.’” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Like the addicted rats, the men were desperately seeking the next fix, clicking the mouse just as the rats pushed the lever.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Pornography addiction is frantic learning, and perhaps this is why many who have struggled with multiple addictions report that it was the hardest for them to overcome. Drug addictions, while powerful, are more passive in a ‘thinking’ kind of way, whereas pornography viewing, especially on the internet, is a much more active process neurologically. The constant searching for and evaluating of each image or video clip for its potency and effect is an exercise in neuronal learning, limited only by the progressively rewired brain. Curiosities are thus fused into compulsions, and the need for a larger dopamine fix can drive the person from soft-core to hard-core to child pornography—and worse. A paper published in the Journal of Family Violence in 2009 revealed that 85 percent of men arrested for child pornography had also physically abused children.” (Donald L. Hilton, Jr., “Slave Master – How Pornography Drugs & Changes Your Brain,” Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

“Here are some brain changes that show up in all addictions, whether substance or behavioural:” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-98)

2. **“Desensitisation**, or a numbed response to pleasure. Reduced dopamine signaling and other changes leave the addict less sensitive to everyday pleasures and ‘hungry’ for dopamine-raising activities and substances.” (Haifeng Hou, et al., “Reduced Striatal Dopamine Transporters in People with Internet Addiction Disorder,” Journal of Biomedicine and Biotechnology (2012), Article ID 854524, 5 pages, doi:10.1155/2012/854524) (S.H. Kim et al., “Reduced striatal dopamine D2 receptors in people with Internet addiction,” Neuroreport 22/8 (2011): 407-411, doi: 10.1097/WNR.0b013e328346e16e) (Jim Rosack, “Volkow May Have Uncovered Answer to Addiction Riddle,” Psychiatric News, June 4, 2004, <http://psychnews.psychiatryonline.org/newsarticle.aspx?articleid=107597>. (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-98)

“The addict may neglect other interests and activities that were once high priorities.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-98)

“Desensitisation is probably the first addiction-related brain change porn users notice. They need greater and greater stimulation to achieve the same buzz (‘tolerance’). They may spend more time online, prolonging sessions through edging, watching when not masturbating, or searching for the perfect video to end with. But desensitisation can also take the form of escalating to new genres, sometimes harder and stranger, or

even disturbing. Remember: shock, surprise and anxiety can jack up dopamine.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-99)

3. **“Sensitisation**, or an unconscious super-memory of pleasure that, when activated, triggers powerful cravings. Rewired nerve connections cause the reward circuit to buzz in response to addiction-related cues or thoughts – the ‘fire together wire together’ principle. This Pavlovian memory makes the addiction more compelling than other activities in the addict's life.” (G. Dong, J. Huang, A. Du, "Enhanced reward sensitivity and decreased loss sensitivity in Internet addicts: an fMRI study during a guessing task," J Psychiatr Res 45/11 (2011): 1525-1529. doi: 0.1016/j.jpsychires.2011.06.017.) (Adam Withnall, "Pornography addiction leads to same brain activity as alcoholism or drug abuse, study shows," The Independent, September 22, 2013, <http://www.independent.co.uk/life-style/health-and-families/healthnews/pornography-addiction-leads-to-same-brain-activity-as-alcoholism-or-drug-abuse-study-shows-8832708.html>) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-99)

“Cues, such as turning on the computer, seeing a pop-up, or being alone, trigger intense cravings for porn. Are you suddenly much hornier (true libido) when your wife goes shopping? Unlikely. But perhaps you feel as if you are on autopilot, or someone else is controlling your brain. Some describe a sensitised porn response as ‘entering a tunnel that has only one escape: porn’. Maybe you feel a rush, rapid heartbeat, even trembling, and all you can think about is logging onto your favourite tube site. These are examples of sensitised addiction pathways activating your reward circuit, screaming, ‘Do it now!’” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, pp97-99)

4. **“Hypofrontality**, or reduced brain activity in the prefrontal regions, which weakens willpower in the face of strong subconscious cravings. Alterations in the prefrontal regions' grey matter and white matter correlate with reduced impulse control and the weakened ability to foresee consequences. A recent German review of brain and psychological studies concluded that reduced brain function in internet addicts may be related to their loss of control over their internet use. (Kai Yuan, et al., "Microstructure Abnormalities in Adolescents with Internet Addiction Disorder," PLoS One, June 03, 2011, doi: 10.1371/journal.pone.0020708.) ( Y. Zhou, et al., "Grey matter abnormalities in Internet addiction: a voxel-based morphometry study," Eur J Radiol 9/1 (2011): 92-95. doi: 10.1016/j.ejrad.2009.10.025) (Fuchun Lin, et al., "Abnormal White Matter Integrity in Adolescents with Internet Addiction Disorder: A Tract-Based Spatial Statistics Study," PLoS One, January 11, 2012, doi: 10.1371/journal.pone.0030253) (G. Dong, H. Zhou, X. Zhao, "Impulse inhibition in people with Internet addiction disorder: electrophysiological evidence from a Go/NoGo study," Neurosci Lett 485/2 (2010): 138-142, doi: 10.1016/j.neulet.2010.09.002) (G. Dong, H. Zhou, X Zhao, "Male Internet addicts show impaired executive control ability: evidence from a color-word Stroop task," Neurosci Lett 499/2 (2011): 114-118, doi: 10.1016/j.neulet.2011.05.047) (Matthias Brand, Kimberly S. Young

and Christian Laier, " Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings," *Frontiers in Human Neuroscience* 8/375 (2014), doi: 10.3389/fnhum.2014.00375) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

"Hypofrontality shows up as the feeling that two parts of your brain are engaged in a tug-of-war. The sensitised addiction pathways are screaming 'Yes!' while your 'higher brain' is saying, 'No, not again!' While the executive-control portions of your brain are in a weakened condition the addiction pathways usually win." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

5. **"Dysfunctional stress circuits**, which can make even minor stress lead to cravings and relapse because they activate powerful sensitised pathways." (Leigh MacMillan, "Reward-stress link points to new addiction targets," *Reporter*, January 9, 2009, <http://www.mc.vanderbilt.edu/reporter/index.html?ID=6916>) (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

"To sum up, if these neuroplastic changes could speak, desensitisation would be moaning, 'I can't get no satisfaction'. At the same time, sensitisation would be poking you in the ribs saying, 'hey, I've got just what you need', which happens to be the very thing that caused the desensitisation. Hypofrontality would be shrugging and sighing, 'bad idea, but I can't stop you'. Dysfunctional stress circuits would be screaming, 'I NEED something NOW to take the edge off!'" (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

"These phenomena are at the core of all addictions. One recovering porn addict summed them up: 'I will never get enough of what doesn't satisfy me and it never, ever satisfies me'. Recovery reverses these changes. Slowly, the addict relearns how to 'want' normally." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

"Withdrawal Many people believe that addiction always entails both tolerance (a need for more stimulation to get the same effect, caused by desensitisation) and brutal withdrawal symptoms. In fact, neither is a prerequisite for addiction – although today's porn users often report both. What all addiction assessment tests share is, 'continued use despite negative consequences'. That is the most reliable evidence of addiction." (Gary Wilson, "Your Brain on Porn," Commonwealth Publishing, 2014, pp97-99)

“Dr. Donald Hilton calls pornography ‘a powerful, \$100 billion per year brain drug that is changing human sexuality.’ His vivid description is not new; the porn-is-a-brain-drug language has been around a long time. A decade ago, a U.S. Senate subcommittee brought in a panel of experts to have a hearing on ‘the brain science behind pornography addiction’. The panelists made some bold claims, saying that modern science shows us that ‘the underlying nature of an addiction to pornography is chemically nearly identical to a heroin addiction.’” (Luke Gilkerson, “‘Porn Addiction is a Myth’: The Debate Continues,” Covenant Eyes, September 26, 2014, <http://www.covenanteyes.com/2014/09/26/porn-addiction-like-drug-addiction/>)

### **“How Pornography Addiction Affects the Teenage Brain”**

“There is a rising problem of pornography addiction in teens. The negative effects of pornography addiction are even greater in teens as their brains are more susceptible to the chemical overload effects that come with continued viewing.” (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

### **“Exposure to sexually pornographic material is correlated with:”**

“Addiction is a relative term. I would stake my life on the assumption that no one in this room is absolutely addicted to pornography or any sexual sin. What I mean is this: If the stakes are high enough and sure enough, you will have all the self-control you need to resist any sexual temptation.” (John Piper, “You Can Say No to Porn”, Desiring God, February 11, 2015, <http://www.desiringgod.org/articles/you-can-say-no-to-porn>)

“For example, if tonight you are feeling totally in the sway of sexual desire – more blazing, more powerful than you have ever felt it in your life – and you believe that you cannot resist the temptation to look at some nudity online, and suddenly a black-hooded ISIS member drags your best friend or your spouse into the room with a knife at his or her throat, and says, “If you look at that website, I will slit their throat,” you will have the self-control you thought you didn’t have. You won’t click.” (John Piper, “You Can Say No to Porn”, Desiring God, February 11, 2015, <http://www.desiringgod.org/articles/you-can-say-no-to-porn>)

“In a new book, *The Demise of Guys: Why Boys Are Struggling and What We Can Do About It*, psychologists Philip Zimbardo and Nikita Duncan say we may lose an entire generation of men to pornography and video gaming addictions. Their concern isn’t about morality, but instead about



the nature of these addictions in reshaping the pattern of desires necessary for community.” (Russell Moore, “Fake Love, Fake War”, Desiring God, May 25, 2012, <http://www.desiringgod.org/articles/fake-love-fake-war-why-so-many-men-are-addicted-to-internet-porn-and-video-games>)

“If you’re addicted to sugar or tequila or heroin you want more and more of that substance. But porn and video games both are built on novelty, on the quest for newer and different experiences. That’s why you rarely find a man addicted to a single pornographic image. He’s entrapped in an ever-expanding kaleidoscope.” (Russell Moore, “Fake Love, Fake War”, Desiring God, May 25, 2012, <http://www.desiringgod.org/articles/fake-love-fake-war-why-so-many-men-are-addicted-to-internet-porn-and-video-games>)

**“Concentration problems”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Low motivation”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Depression”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Social Anxiety”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Negative self-perceptions in terms of physical appearance and sexual functioning.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Erectile dysfunction”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

“The brain regions found in the present investigation are associated with relatively frequent, but not by definition, addictive pornography consumption. The striatum and DLPFC correspond to brain regions implicated in Internet addiction by past investigations. Previous studies on



Internet addiction have reported decreases in prefrontal cortical thickness; decreases in functional, as well as structural, connectivity of the frontostriatal network; and decreased striatal dopamine transporter levels in the striatum measured with single photon emission–computed

tomography.” (Hong S-B, Kim J-W, Choi E-J, et al. Reduced orbitofrontal cortical thickness in male adolescents with Internet addiction. *Behav Brain Funct.* 2013;9(1):11; Hong S-B, Zalesky A, Cocchi L, et al. Decreased functional brain connectivity in adolescents with Internet addiction. *PLoS One.* 2013;8(2):e57831; Lin F, Zhou Y, Du Y, et al. Abnormal white matter integrity in adolescents with Internet addiction disorder: a tract-based spatial statistics study. *PLoS One.* 2012;7(1):e30253) (Simone Kühn, Ph.D., Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*, July 2014, Vol.71, No.7, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Pornography is a loaded subject. Opponents argue that it can ruin marriages, lead to sexual addiction or other unhealthy behaviors, and encourage sexual aggression.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“Proponents claim that erotica can enhance sex lives, provide a safe recreational outlet and perhaps even reduce the incidence of sexual assault. (After pornography was legalized in Denmark in 1969, for instance, researchers reported a corresponding decline in sexual aggression.)” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“‘Porn is practically ubiquitous,’ says Ana Bridges, PhD, a psychologist at the University of Arkansas. And the Internet has made it easier than ever to get an erotic fix. The late sex researcher Alvin Cooper, PhD, called this the ‘triple-A engine’ effect: The accessibility, affordability and anonymity provided by the Web have put adult content right at our fingertips.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“Many people argue that's a good thing. In a 2002 survey conducted for PBS/Frontline by the Kinsey Institute for Research in Sex, Gender and Reproduction at Indiana University, 86 percent of respondents said porn can educate people, and 72 percent said it provides a harmless outlet for fantasies. Among those who reported using pornography, 80 percent said they felt ‘fine’ about it.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“‘There are a lot of people out there using a lot of porn who have no problems with it whatsoever,’ says Erick Janssen, PhD, a senior scientist at

the Kinsey Institute. ‘So when does it become an addiction?’” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“That, of course, is a key question for researchers trying to understand pornography's dark side.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“Dr Cline’s study reveals the progressive nature of pornography in four stages: Addiction, Escalation, Desensitization, and Acting out Sexually.” (“Pornography”, Oregon Family Council, Accessed November 13, 2015, <http://www.oregonfamilycouncil.org/issues/pornography/>)

“If compulsive pornography use is not a hypersexual disorder, could it be considered an addiction akin to drug or alcohol addiction? That's what Valerie Voon, MD, PhD, a neuropsychiatrist at the University of Cambridge, is exploring. By scanning the brains of compulsive porn users with MRI while they view erotic images, she's testing whether they show brain activity patterns similar to substance abusers viewing beer bottles or drug paraphernalia.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“The habitual consumption of pornography can result in a diminished satisfaction with mild forms of pornography and a correspondingly strong desire for more deviant and violent material.” (See H.J. Eysenck, “Robustness of Experimental Support for the General Theory of Desensitization,” in Neil M. Malamuth and Edward Donnerstein, eds., *Pornography and Sexual Aggression* (Orlando, Florida: Academic Press, 1984), 314. D. Zillmann, “Effects of Prolonged Consumption of Pornography,” in *Pornography: Research Advances and Policy Considerations*, eds. D. Zillman and J. Bryant (Hillsdale, N.J.: Erlbaum, 1989), 129.) (Donna Rice Hughes, “How Pornography Harms Children”, Protect Kids, 2001, <http://www.protectkids.com/effects/harms.htm>)

“One study reveals that among 932 sex addicts, 90 percent of the men and 77 percent of the women reported that pornography was significant to their addiction.” (Patrick Carnes, *Don't Call It Love: Recovery from Sexual Addictions* (New York: Bantam, 1991).) (Donna Rice Hughes, “How Pornography Harms Children”, Protect Kids, 2001, <http://www.protectkids.com/effects/harms.htm>)

“For Kevin, 37, of Joliet, who didn’t want his last name used in this story, the lightbulb in his head went on when he saw Wilson’s ‘The Great Porn Experiment,’ a TEDx Talk (an independently organized event similar to the big Technology, Entertainment and Design convention). He realized that porn ‘caused the problem for myself and for the person that I cared so much about.’” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“Kevin didn’t watch a ton of porn when he was a teenager, but he started using more and more when he found that he wasn’t sexually fulfilled in his marriage. He divorced and met someone else he was happy with, but when he started traveling for work, money got bad and so did things in the bedroom. He thought it was performance anxiety and thought porn would help, so he was watching it about once a day.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“‘Guys are trained to think of masturbation as practice for sex, but it’s not at all,’ Kevin said. ‘You’re thinking to yourself, ‘It’ll relax you, it’ll keep your libido high because you’re thinking about sex, it’ll make you more confident,’ but it doesn’t, it makes you the exact opposite.’” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“Kevin didn’t feel more confident with porn and found that he was comparing himself to it. This is especially common in female porn addicts, which there are seemingly fewer of compared to men (the Proven Men Ministries study found that 7 percent of women ages 18 to 30 thought they were addicted to porn or unsure, and 3 percent of all women said the same). However, it hits the male demographic too. ‘I thought that I should be this mind-blowingly great partner because I knew all of these moves from porn,’ Kevin said.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“Kevin tried counseling and meditation and eventually turned to a doctor who prescribed him sexual enhancement drugs. Nothing was helping. Then he heard about nofap.com, a porn recovery site, which got him thinking about quitting porn altogether. Wilson’s TEDx Talk was the wake-up call. ‘I wish I could turn back the clock and have my doctor send me to nofap.com instead of getting me on the little blue pill,’ Kevin said.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“Porn, ironically, inhibited me from actually getting my needs met in any kind of deep, connected or sustained way. It kept me stuck in a never-ending cycle of ‘tension and release’ that made true intimacy impossible.”  
“There’s a real sense of grief for me in acknowledging all this – I feel like I’ve been living a pornographed lie: like my experience of my own ‘sexuality’ has often amounted to little more than a superficial obstruction, blocking the true essence of embodied sexual power that lay dormant

within me.” (Dan Mahle, “Courage to Quit: How I’m Outgrowing Pornography and Waking Up to my True Self”, The Good Men Project, March 31, 2015, <http://goodmenproject.com/featured-content/courage-quit-im-outgrowing-pornography-re-awakening-sexuality-hesaid/>)

**“Pornography is addictive.** Several studies have shown that all persons, normal and unbalanced, who view pornography develop a craving for ever more deviant materials. Many persons even begin to employ more violent methods in their sexual relations. As with drug users, those who use pornography seek more and more deviant materials to maintain their previous level of sexual arousal.” (“Pornography: one of the greatest enemies of the family today,” These Last Days Ministries, April 2, 2012, <http://www.tldm.org/News6/purity2.htm>)

### **“What are the Stages of Pornography Addiction?”**

“Pornography addiction is progressive. This means that in order to get the same pleasure or rush, pornography use has to escalate. Below is the common pattern of escalation”

**“Early exposure.** Initial exposure to pictures or provocative material. The exposure is frequently accidental or may result from general curiosity. The problem begins when the person deliberately begins viewing pornography.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

**“Addiction.** The person keeps returning to pornography. They recognize their activity as inappropriate, but regardless of what they resolve to do, it becomes a regular part of their life. The user begins to depend on pornography as their main source of ‘feeling good.’ The time spent viewing material continues to increase despite the consequences. Periods of abstinence may be followed by periods of bingeing.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

**“Escalation.** The person starts to look for more graphic material. The images they now view might have disgusted them initially. They spend even more time looking at pornography and thinking about it becomes consuming. They may want their spouse to “act out” things that they have seen in pornography in their sexual relationship” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

**“Desensitization.** Eventually, the person becomes numbed to the effects of the pornography. They are in denial about their addiction and begin to

see pornography and the sexual acts depicted as “normal” and acceptable. Even the most graphic, degrading pornography doesn’t excite them anymore. They become desperate to feel the same thrill again but can’t find it.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

**“Acting out.** At this point, addicts make a dangerous jump and start acting out sexually with other people. Rather than limiting their exposure to images and experiences on the internet, they begin to act out the sexual fantasies they have seen. Their acting out may take the form of exhibitionism, voyeurism, promiscuity, strip clubs, sex with minors, soliciting prostitutes, or rape.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

### **“Wisdom from the Sexaholics Anonymous White Book”**

“There is an attractive healing atmosphere in confidential, anonymous 12-step meetings when someone is transparent and self-revealing at depth. Vulnerable and like a child, we take the supreme risk of exposing the truth about ourselves, dark as it may be. We speak of our weakness because that’s where we’re hurting, and THIS becomes the point of our identification with each other, the point of true union. Once this single ray of truth and light shines in a meeting, it finds ready reception and response in the others present. Honesty is catching; we’re learning to walk in the light.”

(White Book, Sexaholics Anonymous) (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

### **“The White Book: Part 1, Section 3: The Spiritual Basis Of Addiction”**

“I became aware of the power this thing had over me and that I was actually acting against my will” .” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“The addictive process involves the most fundamental aspect of our being, our spirit which is the combination of all our attitudes, choices, thoughts and behavior” .” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“Under the surface we are seething with resentment, hostility, anger, envy, rebellion and rage. We use these feelings to create a change of heart which allows our addictive behavior” .”(“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“As we make the conscious choices setting into motion the addictive process, we become increasingly selfish and self-centered. We become increasingly closed off and defensive, unteachable and willful” .”(“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“Even though part of us knew the habit controlled us, it was often the one thing in our lives we thought we were controlling.”(“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

### **“Here are five questions...are you addicted?”**

1. “Do you have a preoccupation with pornography” (Matt Fradd, “The Battle Plan”, Covenant Eyes, 2015, <http://www.covenanteyes.com/five-step-battle-plan-to-fighting-porn/>)
2. “Have you had repeated unsuccessful attempts to control or stop viewing pornography?” (Matt Fradd, “The Battle Plan”, Covenant Eyes, 2015, <http://www.covenanteyes.com/five-step-battle-plan-to-fighting-porn/>)
3. “Do you use pornography as a reward for hard work, and/or a way to escape problems or negative emotions?” (Matt Fradd, “The Battle Plan”, Covenant Eyes, 2015, <http://www.covenanteyes.com/five-step-battle-plan-to-fighting-porn/>)
4. “Are you risking the loss of a significant relationship, job or educational or career opportunity because of the use of porn?” (Matt Fradd, “The Battle Plan”, Covenant Eyes, 2015, <http://www.covenanteyes.com/five-step-battle-plan-to-fighting-porn/>)
5. “Have you been thinking that you might need counseling because of your pornography use?” (Matt Fradd, “The Battle Plan”, Covenant Eyes, 2015, <http://www.covenanteyes.com/five-step-battle-plan-to-fighting-porn/>)

“...the underlying nature of an addiction to pornography is chemically nearly identical to a heroin addiction: Only the delivery system is different.” (Dr. Judith Reisman, Dr. Jeffrey Stainover, Dr. Mary Anne Layden & Dr. James B. Weaver, III, “Hearing on the Brain Science Behind Pornography Addiction and the Effects of Addiction on Families and Communities”, CCV.org, November 11, 2004, [http://www.ccv.org/wp-content/uploads/2010/04/Judith\\_Reisman\\_Senate\\_Testimony-2004.11.18.pdf](http://www.ccv.org/wp-content/uploads/2010/04/Judith_Reisman_Senate_Testimony-2004.11.18.pdf))

“‘There are a lot of people out there using a lot of porn who have no problems with it whatsoever,’ says Erick Janssen, PhD, a senior scientist at the Kinsey Institute. ‘So when does it become an addiction?’” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)



“That, of course, is a key question for researchers trying to understand pornography's dark side.” (Kirsten Weir, “Is Pornography Addictive”, American Psychological Association, April 2014, <http://www.apa.org/monitor/2014/04/pornography.aspx>)

“For far too many, once they become “hooked,” their satisfaction with “soft-core” porn diminishes and they require something more enticing and stimulating.” (“Pornography”, Oregon Family Council, Accessed November 13, 2015, <http://www.oregonfamilycouncil.org/issues/pornography/>)

“Dr Cline’s study reveals the progressive nature of pornography in four stages: Addiction, Escalation, Desensitization, and Acting out Sexually.” (“Pornography”, Oregon Family Council, Accessed November 13, 2015, <http://www.oregonfamilycouncil.org/issues/pornography/>)

### **“The White Book: Part 1, section 3: The spiritual basis of addiction”**

- “I became aware of the power this thing had over me and that I was actually acting against my will” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))
- “The addictive process involves the most fundamental aspect of our being, our spirit which is the combination of all our attitudes, choices, thoughts and behavior” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))
- “Under the surface we are seething with resentment, hostility, anger, envy, rebellion and rage. We use these feelings to create a change of heart which allows our addictive behavior” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))
- “As we make the conscious choices setting into motion the addictive process, we become increasingly selfish and self-centered. We become increasingly closed off and defensive, unteachable and willful” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))
- “Even though part of us knew the habit controlled us, it was often the one thing in our lives we thought we were controlling.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“In their pain and frustration, many of them ask me the following questions:”

“How can I tell if I am really addicted to pornography?”

“How do I know if I really need to get help for my behavior?”

“What’s involved in overcoming these unwanted behaviors?”

“I will answer these questions in an attempt to outline a road map for understanding and overcoming an addiction to pornography and discovering a new way of living life. (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“Simply stated, 1) if you want to stop the behavior, 2) but you can’t, and 3) the behaviors are causing life-damaging consequences, 4) then you’re probably addicted.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“It’s common to wonder if addiction only counts for those guys who look at pornography multiple times per day. While this is certainly a pattern of addiction, the definition can also apply to a much broader type of behavioral pattern.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“Pornography is effective at shaping both beliefs and behaviors about sex. Pornography poses such a danger not only because it assaults a human being’s emotional psyche, but also because it causes physical addictions similar to hard drugs. Consequently, research shows that most people who commit a sex crime regularly view pornography.” (Kenneth Artz and Peter J. Smyczek, “Sexual Assaults in the Military: Porn is Part of the Problem”, Public Discourse, June 14, 2013, <http://www.thepublicdiscourse.com/2013/06/10360/>)

“According to Robert Weiss, director of the Sexual Recovery Institute in Los Angeles, “Online porn is to sex addiction what crack cocaine is to drug addiction.” As detailed in the Army Times, a brain scan of a sex addict looks the same as of someone who has just used cocaine. As the brain receives the pornographic images it releases adrenaline into the



bloodstream, increasing the heart rate and causing sweaty palms and dilation of the eyes. The pituitary gland and hypothalamus secrete endorphins to produce dopamine, which opens up the pleasure centers of the brain; and too much dopamine is what actually causes the addiction.” (Kenneth Artz and Peter J. Smyczek, “Sexual Assaults in the Military: Porn is Part of the Problem”, Public Discourse, June 14, 2013, <http://www.thepublicdiscourse.com/2013/06/10360/>)

“In a [statement](#) before Congress, Dr. Jeffrey Satinover, a psychiatrist, psychoanalyst, physicist, and former Fellow in Psychiatry at Yale, cautioned:

*With the advent of the computer, the delivery system for this addictive stimulus [internet pornography] has become nearly resistance-free. It is as though we have devised a form of heroin 100 times more powerful than before, usable in the privacy of one’s own home and injected directly to the brain through the eyes. It’s now available in unlimited supply via a self-replicating distribution network, glorified as art and protected by the Constitution.”* (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“In light of the new brain science, the relevant scientific community (the American Society of Addiction Medicine), which used to believe addiction was primarily a *behavior*, recently [redefined](#) “addiction” as primarily a *brain disease* revolving around the neurological rewards system. Internet pornography’s powerful force on the neurological reward system clearly places it within this new definition of “addiction.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“Another aspect of pornography addiction that surpasses the addictive and harmful characteristics of chemical substance abuse is its permanence. While substances can be metabolized out of the body, pornographic images cannot be metabolized out of the brain because pornographic images are stored in the brain’s memory. While substance abusers may

cause permanent harm to their bodies or brains from drug use, the substance itself does not remain in the body after it has metabolized out of the body. But with pornography, there is no timeframe of abstinence that can erase the pornographic “reels” of images in the brain that can continue to fuel the addictive cycle.” (Morgan Bennett, “The New Narcotic”, Public Discourse, October 9, 2013, <http://www.thepublicdiscourse.com/2013/10/10846/>)

“Is pornography use an unhealthy addiction that ruins men for relationships, or a healthy sexual outlet that both men and women enjoy? How people answer may affect whether they are harmed by porn. A study in the September issue of the journal Psychology of Addictive Behavior found that it was the perception of being ‘addicted to porn,’ rather than the intensity of porn use per se, that was tied with psychological distress.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“Pornography use is almost always carefully hidden. Directly asking about pornography use can open discussions and help identify men and women who are struggling. Once the individual can admit to being addicted and talk about the problem in a safe environment, the shame and guilt begin to dissipate. Likewise, the spouses and other loved ones of addicts have a need to discuss the problem openly with others.” (“Safety Net – Resources to Protect Your Family from Pornography,” Healthy Sandy Partnership, [www.healthysandy.org/fileadmin/downloads/healthy\\_sandy/Ecclesiastical\\_Packet.pdf](http://www.healthysandy.org/fileadmin/downloads/healthy_sandy/Ecclesiastical_Packet.pdf))

“...with frequent doses of Playboy or other sexually charged imagery – a person will need bigger hits to feel a response, Plaud said.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Fox News Health, October 14, 2015, <http://www.foxnews.com/health/2015/10/14/5-ways-porn-affects-brain.html>)

“Why do men seek out a variety of new explicit sexual images rather than being satisfied with the same ones? The reason is attributed to the Coolidge effect, a phenomenon seen in mammalian species whereby males (and to a lesser extent females) exhibit renewed sexual interest if introduced to new receptive sexual partners, even after refusing sex from prior but still available sexual partners. This neurological mechanism is one of the primary reasons for the abundance and addictiveness of Internet pornography.” (Joe Carter, “9 Things You Should Know about Pornography and the Brain”, The Gospel Coalition, May 8, 2013,

<http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

“This new definition makes clear that addiction is not about drugs, it’s about brains.” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain On Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“It is not the substances a person uses that make them an addict; it is not even the quantity or frequency of use. *Addiction is about what happens in a person’s brain when they are exposed to rewarding substances or rewarding behaviors...*” (“Recent Internet Addiction Brain Studies Include Porn”, Your Brain On Porn, January 13, 2013, <http://yourbrainonporn.com/recent-internet-addiction-brain-studies-include-porn>)

“However, the observed volumetric association with PHs in the striatum could likewise be a precondition rather than a consequence of frequent pornography consumption. Individuals with lower striatum volume may need more external stimulation to experience pleasure and might therefore experience pornography consumption as more rewarding, which may in turn lead to higher PHs.” (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

“Addiction” (Donald L. Hilton, Pornography Addiction – A Supranormal Stimulus Considered in the Context of Neuroplasticity 3 SOCIOEFFECTIVE NEUROSCIENCE & PSYCHOLOGY 20767 (2013); Valerie Voon, Thomas B. Mole, Paula Banca, Laura Porter, Laurel Morris, Simon Mitchell, Tatyana R. Lapa, Judy Karr, Neil A. Harrison, Marc N. Potenza & Michael Irvine, Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviors, 9 PLOS ONE, July, 2014; Kyle Pitchers, Vincent Vialou, Eric Nestler, Steven Laviolette, Michael Lehman, & Lique Coolen, Natural and Drug Rewards Act on Common Neural Plasticity Mechanisms with FosB as a Key Mediator 33 THE JOURNAL OF NEUROSCIENCE 3434 (2013); Donald L. Hilton & Clark Watts, Pornography Addiction; A Neuroscience Perspective 2 SURGICAL NEUROLOGY INTERNATIONAL 2:19 2011; NORMAN DOIGE, Chapter 4: Acquiring Tastes and Loves: What Neuroplasticity Teaches About Sexual Attraction and Love, in THE BRAIN THAT CHANGES ITSELF (December 18, 2007). (“S.C.R. 009 Resolution on the Public Health Crisis, Sponsored by Senator Todd Weiler, written by the National Center on Sexual Exploitation, February 2016, <http://utahcoalition.org/wp-content/uploads/2016/02/Utah-Resolution-Updated-and-Revised-1-5-2016.pdf>)

“Is potentially biologically addictive which means the user requires more novelty, which is often more shocking material, in order to be satisfied.”

(Donald L. Hilton, Pornography Addiction – A Supranormal Stimulus Considered in the Context of Neuroplasticity 3 SOCIOEFFECTIVE NEUROSCIENCE & PSYCHOLOGY 20767 (2013); Valerie Voon, Thomas B. Mole, Paula Banca, Laura Porter, Laurel Morris, Simon Mitchell, Tatyana R. Lapa, Judy Karr, Neil A. Harrison, Marc N. Potenza & Michael Irvine, Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviors, 9 PLOS ONE, July, 2014; Kyle Pitchers, Vincent Vialou, Eric Nestler, Steven Laviolette, Michael Lehman, & Lique Coolen, Natural and Drug Rewards Act on Common Neural Plasticity Mechanisms with FosB as a Key Mediator 33 THE JOURNAL OF NEUROSCIENCE 3434 (2013); Donald L. Hilton & Clark Watts, Pornography Addiction; A

Neuroscience Perspective 2 SURGICAL NEUROLOGY INTERNATIONAL 2:19 2011; NORMAN DOIGE, Chapter 4: Acquiring Tastes and Loves: What Neuroplasticity Teaches About Sexual Attraction and Love, in THE BRAIN THAT CHANGES ITSELF (December 18, 2007). ("S.C.R. 009 Resolution on the Public Health Crisis, Sponsored by Senator Todd Weiler, written by the National Center on Sexual Exploitation, February 2016, <http://utahcoalition.org/wp-content/uploads/2016/02/Utah-Resolution-Updated-and-Revised-1-5-2016.pdf>)

## How Porn Can Become Addictive

*"A lot of people are convinced that there's no such thing as an addiction to porn. But science disproved the old belief that in order to have an addiction to something it has to involve a substance that is physically put into the body; like with cigarettes, alcohol, or drugs. Excessive consumption of internet porn bears all of the signs, and dangers, of a true addiction."* ("How Porn Can Become Addictive", Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

"Is pornography addiction even a thing?"

"There's an ongoing debate right now in the media, and even in academic circles, over whether compulsive porn consumption is truly an addiction. Part of the problem is simply that people don't agree on exactly what the word "addiction" means. (Lewis, M. (2017). Addiction And The Brain: Development, Not Disease. *Neuroethics*. 1-12. Doi:10.1007/S12152-016-9293-4; Hall, P., (2014). Sex Addiction—An Extraordinarily Contentious Problem. *Sexual And Relationship Therapy*, 29(1) 68-75. Doi:10.1080/14681994.2013.861898) But Dr. Nora Volkow, director of the United States' National Institute on Drug Abuse (NIDA), is convinced that porn addiction is real. She even suggested changing NIDA's name in order to recognize "addictions such as pornography, gambling, and food." (Hilton, D.L., & Watts, C. (2011). Pornography Addiction: A Neuroscience Perspective, *Surgical Neurology International* 2, 19. Doi:10.4103/2152-7806.76977)" ("How Porn Can Become Addictive", Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

"In fact, research shows that of all of the forms of online entertainment—like gambling, gaming, surfing, and social networking—porn has the strongest tendency to be addictive. (Meerkerk, G.J., Van Den Eijnden, R.J., & Garretsen, H.F. (2006). Predicting Compulsive Internet Use: It's All About Sex!, *CyberPsychology And Behavior*, 9(1), 95-103. Doi:10.1089/Cpb.2006.9.95; See Also Korkeila, J., Kaarlas, S., Jaaskelainen, M, Vahlberg, T., Taiminen, T. (2010). Attached To The Web—Harmful Use Of The Internet And Its Correlates. *European Psychiatry* 25(4) 236-241. Doi: 10.1016/J.Eurpsy.2009.02.008 (Finding "Adult Entertainment"

To Be The Most Common Reason For Compulsive Internet Use.))” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“Doctors and scientists used to believe that in order to have an addiction to something it has to involve a substance that is physically put into the body; like with cigarettes, alcohol, or drugs. (Holden, C. (2001). Behavioral Addictions: Do They Exist? *Science* 294(5544), 980. Doi: 10.1126/Science.294.5544.980) But once scientists started to look inside the brain, it changed our understanding of how addictions work. (Voon, V., Et Al. (2014). Neural Correlates Of Sexual Cue Reactivity In Individuals With And Without Compulsive Sexual Behaviors, *PLoS ONE*, 9(7), E102419. Doi:10.1371/Journal.Pone.0102419; Olsen, C. M., (2011). Natural Rewards, Neuroplasticity, And Non-Drug Addictions. *Neuropharmacology*, 61, 1109-1122. Doi:10.1016/J.Neuropharm.2011.03.010; Nestler, E. J. (2005). Is There A Common Molecular Pathway For Addiction? *Nature Neuroscience* 9, 11: 1445–1449. Doi:10.1038/Nn1578) What’s important, we now know, is not necessarily what gets inside the body or how it got there, but rather what reactions it triggers in the brain. Cigarettes, alcohol, and drugs bring foreign chemicals into the body in a myriad of ways: sniffed, injected, drunk from a glass, or lit on fire and smoked. Porn and other behavioral addictions, like gambling, on the other hand, bring no new chemicals or substances into the body that weren’t already there. But, these behaviors initiate strikingly similar processes inside the brain like substance addictions, and that’s what makes them potentially addictive. They hijack the brain’s reward pathways. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, *Behavioral Sciences*, 5(3), 388-433. Doi:10.3390/Bs5030388;) (See [How Porn Affects the Brain Like a Drug.](#)) That’s what every addictive substance and habit do. (Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. *Neuron*, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology*, 3, 20767. Doi:10.3402/Snp.V3i0.20767)” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“Porn may enter through a different “how” and be a different “what,” but it ultimately does the very same things. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, *Behavioral Sciences*, 5(3), 388-433. Doi: 10.3390/Bs5030388; Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. *Neuron*, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Voon, V., Et Al. (2014). Neural Correlates Of Sexual Cue Reactivity In Individuals With And Without Compulsive Sexual

Behaviors, PLoS ONE, 9(7), E102419. Doi:10.1371/Journal.Pone.0102419; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. Journal Of Neuroscience, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013)

See, your brain comes equipped with something called a “reward center.”

(National Institute On Drug Abuse: The Reward Pathway. (2016). Retrieved From <http://www.drugabuse.gov/publications/teaching-packets/understanding-drug-abuse-addiction/section-1/4-reward-pathway>; Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. Cell, 162 (8), 712-725. Doi:10.1016/J.Cell.2015.07.046; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. Journal Of Neuroscience, 33 (8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013)

Its job is to motivate you to do things that protect and promote your survival—things like eating to stay alive or having sex to produce babies.

(Berridge, K. C., & Robinson, T. E. (2016). Liking, Wanting, And The Incentive-Sensitization Theory Of Addiction. American Psychologist, 71(8), 670-679. Doi:10.1037/Amp0000059; Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. Neuron, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018; Paul, P. (2007). Pornified: How Pornography Is Transforming Our Lives, Our Relationships, And Our Families. (75) New York: Henry Hold And Co.; Hyman, S. E. (2005). Addiction: A Disease Of Learning And Memory. American Journal Of Psychiatry, 162(8), 1414-1422.)

The way it rewards you for doing those things is by flooding your brain with dopamine and a cocktail of other “pleasure” chemicals each time you do.

(Volkow, N. D., & Morales, M. (2015). The Brain On Drugs: From Reward To Addiction. Cell, 162 (8), 713. Doi:10.1016/J.Cell.2015.07.046) ” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“But your brain doesn’t always reward you for the right things. For example, it produces higher levels of dopamine when you have chocolate cake than it does for whole-wheat bread. (Johnson, P. And Kenny, P. (2010). Dopamine D2 Receptors In Addiction-Like Reward Dysfunction And Compulsive Eating In Obese Rats. Nature Neuroscience 13: 635-641. Doi:10.1038/Nn.2519; See Also Berridge, K.C., & Kringelbach, M. L. (2015). Pleasure Systems In The Brain. Neuron, 86, 646-664. Doi:10.1016/J.Neuron.2015.02.018 (“[P]leasure Can Be Thought Of As Evolution’s Boldest Trick, Serving To Motivate An Individual To Pursue Rewards Necessary For Fitness, Yet In Modern Environments Of Abundance, Also Influencing Maladaptive Pursuits Such As Addictions.”)) Why? Because 3,000 years ago, high-calorie foods were really hard to come by, so when our ancestors found them, they needed to eat a whole bunch while they had the chance. (Linden, D. J. (2011). Food, Pleasure And Evolution. Psychology Today, March 30.) These days, a bag of Oreos is only as far as the nearest supermarket. If we gorged on them every chance we got, we’d have heart disease and a lot of other health problems.” (“How



Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“[Porn is basically sexual junk food](#). When a person is looking at porn, their brain is fooled into pumping out dopamine just as if they really were seeing a potential mate. (Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience & Psychology* 3:20767. Doi:10.3402/Snp.V3i0.20767; Pfaus, J. (2011). Love And The Opportunistic Brain. In *The Origins Of Orientation*, World Science Festival, June; Georgiadis, J. R. (2006). Regional Cerebral Blood Flow Changes Associated With Clitorally Induced Orgasm In Healthy Women. *European Journal Of Neuroscience* 24, 11: 3305–3316. Doi:10.1111/J.1460-9568.2006.05206.X) Sure, filling your brain with feel-good chemicals might sound like a great idea at first, but just like with junk food, [it's more dangerous than it seems](#).” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“When porn enters the brain, it triggers the reward center to start pumping out dopamine, which sets off a cascade of chemicals including a protein called DeltaFosB. (Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting. *The Journal Of Sex Research*, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123; Nestler, E. J., (2008) Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB, *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 363(1507) 3245-3255. Doi:10.1098/Rstb.2008.0067) DeltaFosB’s regular job is to build new nerve pathways to mentally connect what someone is doing (i.e. consuming porn) to the pleasure he or she feels. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Pitchers, K. K., Et Al. (2013). Natural And Drug Rewards Act On Common Neural Plasticity Mechanisms With DeltaFosB As A Key Mediator. *Journal Of Neuroscience*, 33(8), 3434-3442. Doi:10.1523/JNEUROSCI.4881-12.2013; Hilton, D. L. (2013) Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. *Socioaffective Neuroscience And Technology* 3. 20767. Doi:10.3402/Snp.V3i0.20767; Doidge, N. (2007). *The Brain That Changes Itself*. (208-209) New York: Penguin Books.) Those strong new memories outcompete other connections in the brain, making it easier and easier to return to porn. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. *Behavioral Sciences*, 6, 17. Doi:10.3390/Bs6030017; Nestler, E. J., (2015). Role Of The Brain’s Reward Circuitry In Depression: Transcriptional Mechanism. *International Review Of Neurobiology*, 124: 151-170. Doi:10.1016/Bs.lrn.2015.07.003; Doidge, N. (2007). *The Brain That Changes Itself*. New York:



Penguin Books, 108.)” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“But DeltaFosB has another job, and this is why its nickname is “the molecular switch for addiction.” (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388) If enough DeltaFosB builds up, it flips a genetic switch, causing lasting changes in the brain that leave the user more vulnerable to addiction. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388; Hilton, D. L. (2013). Pornography Addiction—A Supranormal Stimulus Considered In The Context Of Neuroplasticity. Socioaffective Neuroscience & Psychology, 3, 20767. Doi:10.3402/Snp.V3i0.20767; Nestler, E. J. (2008). Transcriptional Mechanisms Of Addiction: Role Of DeltaFosB. Philosophical Transactions Of The Royal Society B: Biological Sciences 363: 3245–56. Retrieved From [Www.Ncbi.Nlm.Nih.Gov/Pmc/Articles/PMC2607320/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2607320/); Doidge, N. (2007). The Brain That Changes Itself. New York: Penguin Books, 107.) For teens, this risk is especially high because a teen’s reward center in the brain responds two to four times more powerfully than an adult’s brain, releases higher levels of dopamine and produces more DeltaFosB. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374: 363-371. Doi:10.1056/NEJMra1511480; Sturman, D., & Moghaddam, B. (2011). Reduced Neuronal Inhibition And Coordination Of Adolescent Prefrontal Cortex During Motivated Behavior. The Journal Of Neuroscience 31, 4: 1471-1478. Doi:10.1523/JNEUROSCI.4210-10.2011; Ehrlich, M. E., Sommer, J., Canas, E., & Unterwald, E. M. (2002). Periadolescent Mice Show Enhanced DeltaFosB Upregulation In Response To Cocaine And Amphetamine. The Journal Of Neuroscience 22(21). 9155–9159. Retrieved From [Http://Www.Jneurosci.Org/Content/22/21/9155](http://www.jneurosci.org/content/22/21/9155))” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

“Overloaded with dopamine, the brain will try to defend itself by releasing another chemical called CREB (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388) (It’s called CREB because no one wants to have to say its real name: cyclic adenosine monophosphate response element binding protein!) CREB is like the brakes on a runaway reward center; it slows the pleasure response. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388) With CREB onboard, porn that once excited a person stops having the same effect. (Love, T., Laier, C., Brand, M., Hatch, L., & Hajela,

R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388) Scientists believe that CREB is partly why consumers have to keep increasing their porn intake to get aroused. (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017; Negash, S., Van Ness Sheppard, N., Lambert, N. M., & Fincham, F. D. (2016). Trading Later Rewards For Current Pleasure: Pornography Consumption And Delay Discounting. The Journal Of Sex Research, 53(6), 698-700. Doi:10.1080/00224499.2015.1025123) That numbed-out state is called “tolerance,” and it’s part of any kind of addiction. (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMra1511480; Nestler, E. J., (2015). Role Of The Brain’s Reward Circuitry In Depression: Transcriptional Mechanism. International Review Of Neurobiology, 124: 151-170. Doi:10.1016/Bs.lrn.2015.07.003; Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience Of Internet Pornography Addiction: A Review And Update, Behavioral Sciences, 5(3), 388-433. Doi: 10.3390/Bs5030388; Kuss, D. J., & Griffiths, M. D. (2012). Internet And Gaming Addiction: A Systematic Literature Review Of Neuroimaging Studies. Brain Sciences, 2(3) 347-374. Doi:10.3390/Brainsci2030347)” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

**“As porn consumers become desensitized from repeated overloads of dopamine, they often find they can’t feel normal without a dopamine high.**

(Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMra1511480; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017; Kalman, T. P. (2008). Kalman, T.P. (2008). Clinical Encounters With Internet Pornography. Journal Of The American Academy Of Psychoanalysis And Dynamic Psychiatry, 36(4) 593-618. Doi:10.1521/Jaap.2008.36.4.593)

**Even other things that used to make them happy, like going out with friends or playing a favorite game, stop providing**

**enjoyment because of the dulling effects of CREB.** (Volkow, N. D., Koob, G. F., & McLellan, A. T. (2016). Neurobiological Advances From The Brain Disease Model Of Addiction. New England Journal Of Medicine, 374, 363-371. Doi:10.1056/NEJMra1511480; Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017)

**They experience strong cravings and often find themselves giving more of their time and attention to porn, sometimes to the detriment of relationships, school, or work.** (Park, B. Y., Et Al. (2016). Is Internet Pornography Causing Sexual Dysfunctions? A Review With Clinical Reports. Behavioral Sciences, 6, 17. Doi:10.3390/Bs6030017; Bostwick, J. M., & Bucci, J. E. (2008). Internet Sex Addiction Treated With Naltrexone. Mayo Clinic Proceedings, 83(2), 226–230. Doi:10.4065/83.2.226; Kalman, T. P. (2008). Kalman, T.P. (2008). Clinical Encounters With Internet Pornography. Journal Of The American Academy Of Psychoanalysis And Dynamic Psychiatry, 36(4) 593-618. Doi:10.1521/Jaap.2008.36.4.593; Doidge,

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“If this sounds like the classic symptoms of addiction, well....the head of the United States’ National Institute on Drug Abuse agrees.” (“How Porn Can Become Addictive”, Fight the New Drug, August 23, 2017, <https://fightthenewdrug.org/how-porn-can-become-addictive/>)

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**“Battling Sexual Addcition”** – (Keith Morrison, Dateline NBC, Updated October 11, 2017, <http://www.nbcnews.com/id/4302347/>)

“What makes a sex addict?”

“How do experts tell what makes a person a sex addict as opposed to someone who just likes sex?”

“You look for the obvious things, like bad things happening, knowing that you are doing something that is going to hurt you so you make efforts to stop that don't work,” says Carnes. “Obviously, you’ve got a problem.”

“There was that selfish needy, lonely, angry part of myself that didn't want to stop and saw that sex was my solution to other things,” says Mark Laaser, who had an insatiable need for secret sex. To anyone who knew him, it would have seemed incomprehensible. Laaser, a minister and counselor, was married with children and an icon of respect. But that wasn't enough.”

“Mark says that early on he felt an emptiness, a loneliness that sex seemed to fill. “It was just an excitement, a raw excitement -- kind of like what a drug addict would describe,” he says. “It was just a high.”

“How to get help”

“National Council on Sexual Addiction and Compulsivity”

“It was a high Laaser started experiencing at a young age. When he was 11, he says he discovered pictures -- what he'd call soft porn now.

“And some of that is not abnormal for a person seeing that for the first time,” he says. “Of course when it becomes abnormal is how preoccupied you get with it.”

“Laaser was so fixated by what he saw, he started stealing Playboy magazines from the local drugstore.”

“And then also for me, I started crossing moral boundaries almost right away ... Stealing magazines -- and I'm a preacher's kid, a minister's son,” says Laaser. “So I knew that stealing was bad. But I was willing to go ahead with it because the high was so fantastic of what I was experiencing.”

'I wanted to act it out'

“In high school, Laaser hoped his behavior might stop when he met Debbie, the girl he thought could change him.”

“There was a part of myself that she just didn't know because I wasn't revealing it to her or anybody for that matter,” says Laaser. He wasn't revealing that he was now doing more than looking at magazines. He was watching porn videos and masturbating daily. Debbie, unaware of Mark's double life, trusted him and they got married. Mark hoped that married life would bring an end to a life preoccupied by sex.”

“All this crazy stuff in the past, that will be over now. I'm getting married. I'll have a regular sexual partner and so forth,” says Laaser. “But I was amazed early on, even in the first year of marriage, that my temptation to masturbate and look at pornography returned rather quickly.”

“A lot of people think human beings are preoccupied by sex a lot of time, so what could be so unusual about his feelings?”

“The part that was unusual was where my mind tended to go with it,” says Laaser. “I wanted to experience it. I wanted to act it out. Eventually I had a lot of preoccupation with planning or doing or thinking what it would be like.”

“Laaser soon was no longer planning, but doing, paying monthly visits to massage parlors, having sex with so-called “masseuses,” all the while hiding it from his wife Debbie, whom Laaser says he still loved deeply.”

“I was always completely attracted to her,” says Laaser. “There was just something so much deeper in me that cannot be satisfied by sex.”

“He says something deeply emotional was missing, and he wondered why he couldn't just stop.”

'Wracked with shame'

“I was wracked with shame and tried time and time again to stop,” says Marnie Ferree, who like Laaser, knows what it's like to be out of control of her sexual feelings. For Ferree, it wasn't so much about sex itself, but about the relationships she thought she could have by engaging in sex with acquaintances and friends.”

“The sexual part was pleasurable and it was a nice byproduct for me, but that wasn't the most important thing,” says Ferree. “I was trying to get non-sexual needs met sexually and that was the only way I knew how to meet those needs.”

“Ferree says that as a child, she was sexually abused by a family friend, a common precursor to later addiction. Ferree's promiscuity lasted from her teen years through two marriages, with numerous affairs in between. She felt an emotional void that she says sex filled -- at least initially.”

“Test yourself”

“Cervical cancer: What's your risk?”

“At the time there is an incredible adrenaline rush,” says Ferree. “It's a connection that I found I couldn't replicate anywhere else. But immediately after that experience is over, I mean driving back home, there is this incredible let down and you're just in a wash of shame.”

“That shame that worsened after Ferree was diagnosed with cervical cancer. The cause, she was told, was HPV, a sexually transmitted disease.”

“That was the lowest point,” says Ferree. “I experienced three surgeries in a year as treatment of that cervical cancer. Had a major hemorrhaging after one of those surgeries. I mean my life was literally in danger and I found still that I could not stop.”

“Thoughts of suicide”

“Ferree was sick, married and a mother, yet none of those things could make her change, even though she was horrified by what she was doing.”

“It's about feeling rotten,” says Ferree. “I want to feel better. What way am I going through a ritual to feel better? I'm connecting with someone, I'm going to act out sexually. I feel horrible after that and the whole cycle starts over again.”

“Ferree was desperate. Sex with her husband was not enough, and she believed the only way to stop having sex outside her marriage was to end her life.”

“I had really strong suicidal thoughts,” says Ferree. “But I knew I couldn't keep on living but I was too afraid to die.”

“Another woman, who calls herself “Karen,” was also overtaken by sexual addiction and by her own shame, so raw that she asked Dateline NBC to hide her face and use a different name.”

“It's just this 24-hour distraction,” she says. “Like the shame that it causes, I feel like it just stole my soul.”

“Karen is in her '30s, single, and for almost as long as she can remember she's been preoccupied with finding love. For years, she says, this meant having sex several times a week with strangers she would pick up in bars, frequently putting herself in dangerous situations.”

“I ended up going home with a group of guys like 10 years younger than me,” says Karen, “and I figured I would have sex with one of them and maybe have a relationship. But I ended up having sex or doing sexual things with several of them. And that was a new low ... Absolutely humiliated. What horrified me the most about it is that these guys were graffiti writers and they wrote on my body and that's what made me feel like, oh my God, I was just completely used as an object.”

“Karen even found herself contemplating prostitution. “That actually seemed like a logical thing to do since I found myself having sex with people I didn't know anyway,” she says. “And I kind of became obsessed with some ads in the back of a free newspaper for escort services and I went on a couple of interviews.”

'I was frightened, incredibly frightened'

“Laaser was also building toward behavior he would never have thought was possible for him.”



“He had degrees in religion and divinity, had attended seminary school, was a deeply committed Christian and had been ordained as a minister. “There was that good side. There was that moral side. There was that caring side,” says Laaser.”

“And yet, he'd escape, feeling furtive and guilty, to feed his sexual addiction. At the same time, he was working on getting his Ph.D. in, of all things, psychology.”

“Now I'm the Rev. Dr. Laaser,” he says, “and there are people that are going to be attracted to that and I actually wound up becoming sexual with some of my clients at that time. ... It happened multiple times over a 10-year period. ... [I was] frightened, incredibly frightened ... I think for years I felt totally worthless. I can't describe to you the times I would sit in church, even preaching on a Sunday morning, thinking God's grace was for everybody else but certainly not for me.”

“Laaser was preaching redemption, but for him, redemption might be more difficult. He betrayed parishioners, colleagues and clients. It was a trust that was about to be shattered.”

“One of the people I was involved in with had reported (our affair). Yes, the very thing I was afraid of actually happened. Eight very angry people called me in, canceled my appointments for that day,” says Laaser.”

“He says he didn't even realize what they knew “until the first one opened his mouth and started talking. Then it all came crashing in on me.”

“Laaser's colleagues at the center where he was a counselor angrily confronted and fired him. They would help him get treatment for his sexual misbehavior, but first, they said, he had to tell his wife Debbie everything.”

“I was totally blindsided,” says Debbie. “I had no idea that this man I had been living with for 15 years -- married to for 15 years -- could possibly have been doing all these things. And I'll never forget the look on Mark's face. Actually he was sitting in a chair across from me and I guess today

what I know is brokenness in a person ... I think there were times truthfully when I questioned whether I would stay. There were times I know when I felt so extremely sad, that I wasn't sure we would ever be able to have happiness in our life again."

"And then, in the midst of all that pain, her husband felt something else."

"This pent up secret that is now over 30 years old is now all of a sudden out of the bag," says Laaser. "I don't have to protect the secret anymore. So I think mixed up with fear, sadness and confusion there was a sense of relief."

"Is sex addiction really about the sex?"

"So is sex addiction really about the sex?"

"No," says Carnes, "but that's the mistake people often make. It's really about pain ... or escaping or anxiety reduction. It's a solution."

"Ferree thought sex was her solution to painful feelings, but it was a solution that was not working. After years of failing to will herself to stop having sex with acquaintances, she was ready to take her own life. And then, at last, she confided in someone."

"I picked up the phone and called a dear friend and poured out this awful saga of my life and said I need help," says Ferree."

"She did get help. A therapist helped her learn to deal with the childhood sexual abuse that contributed to her many affairs. Her second marriage survived and is, she says, better."

"Ferree was surprised to find she wasn't alone. About a third of sex addicts are female, which is why, Ferree says, she decided she wanted to do something to help other women. She went back to school to get a degree in counseling."

"I didn't choose sex addiction," says Ferree. "Sex addiction chose me and this field chose me."

"She now runs a counseling program for sexually addicted women, called Bethesda Workshops."

"Women are afraid to talk about it," says Ferree. "We're afraid of being labeled as whores. It's kind of guys will be guys, men will be men. But for a woman to be out of control in her sexual behavior, there is just a whole other level of shame."

"Recovery programs"

"Karen, awash in that same shame, one day found herself surfing the Internet to see if she was the only woman in the world who suffered in this way, when she ran across Web sites for sexual addiction. She entered a 12-step program and has been dealing with sex appropriately for a year."

"The real problem for most sex addicts, they would say to you, I wouldn't know healthy sexuality if it hit me over the head. So how do I know when I am in my craziness and when what I'm doing is a normal healthy reaction to have. And that's part of what recovery teaches," says Carnes."

"Laaser has been in recovery for over a decade. He says it's a continuing process. After his sexual misbehavior was exposed, Laser entered a sex addiction treatment center for a month where he received psychotherapy."

"He now runs a program called Faithful and True Ministries. He still occasionally goes for counseling and relies on the support of those around him, such as his wife Debbie who stayed by his side through it all."

"I never had these real feelings of just running and leaving," says Debbie. "I wasn't aware that running would solve anything necessarily."

"Their relationship eventually strengthened. They dealt with some of the loneliness Laaser felt and both found comfort in their religious faith."

“Now that Debbie and I are more spiritually intimate, sex in our relationship is totally satisfying,” says Laaser.”

“His work has also helped him. He is again counseling others -- including men with problems like his.”

“Why can't people just stop?”

“So why can't people just stop these behaviors? If there's no drug or chemical involved, how is sex addiction like drug addiction or smoking?”

“When you have a compulsive gambler,” says Carnes, “you're not taking a chemical. ... In other words, we produce chemicals in our brain whether we use an outside chemical or not.”

“New studies, like one at Vanderbilt University, are being conducted to determine if brains of sex addicts are somehow different, and if sex addiction is a true, measurable disorder. Yet despite growing interest in such research, there are still some who do not believe it is a true addiction. The American Psychiatric Association's diagnostic manual, for example, does not list sex addiction as a disorder.”

“That book is always changing,” says Carnes, “and a consensus is starting to build. People who work in the addiction realm are starting to get a common agreement about how to start describing this.”

“But, however the scientific debate works itself out, people like Ferree, Karen and Laaser want to help other people suffering from the same compulsions. They want people to know how to recognize the problem and discover that there is hope.”

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**“Faithful & True: Certification Article: (featured in Christian Counseling Connection – Volume 18 – Issue 2) “Partnering TOGETHER To Heal Sexual Brokenness”**

“In the average Christian church today, two thirds of the men and one third of the women have intentionally looked at pornographic images over the past 30 days. The Internet, with its various forms of pornography and the endless possibilities to find and make sexual contact, is being called a tsunami that is drowning our culture in moral depravity.”

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**“How Porn Can Become Addictive”**

“Now we know that the brain goes on changing throughout life,<sup>A</sup> constantly rewiring itself and laying down new nerve connections, and that this is particularly true in our youth.”<sup>B</sup>

“... 100 billion special nerves called neurons...” ‘neuronal pathway’<sup>C</sup>

“... neuronal pathway ... every time a message travels down a neuronal pathway, the pathway gets stronger.”<sup>D</sup>

“Use it or lose it, as they say. Only the strong survive.”

“The ideal conditions for forming strong neuronal pathways are when you’re in what scientists call “flow.” Flow is “a deeply satisfying state of focused attention.”<sup>E</sup> When you’re in flow, you get so deep into what you’re doing that nothing else seems to matter.<sup>F</sup> You’ve probably experienced it before, playing a game or having a conversation with friends or reading a great book. You were so focused on what you were doing that you lost track of time, and everything around you disappeared. You wanted it to keep going forever. That’s flow.”

“When you’re in flow, it’s like you have superhuman abilities. Athletes call it being “in the zone,” when you seem to do everything right. Your focus is intense. Your memory is phenomenal. Years later, you’ll still recall exact words of the conversation or details of what you read.”

“Now imagine someone sitting in front of the computer at 3:00 in the morning, looking at porn. That person is so absorbed in his or her porn trance that nothing else can compete for the consumer’s attention, not even sleep. This person is in the ideal condition for forming neuronal pathways, and that’s what they are doing. Clicking from page to page in search of the perfect image, not realizing that every image seen is reinforcing the pathways the consumer is forging in his or her brain. By now, those images are burned so deeply into their mind that they will remember them for a long time to come, maybe the entirety of their life.”

“The brain is primed to make strong mental connections between the porn being consumed by individuals and the pleasure they feel while consuming.<sup>G</sup> The DeltaFosB is saying, ‘This feels good. Let’s be sure to remember it so we can do it again.’”

“DeltaFosB is important for learning any kind of new skills, but it can also lead to addictive/compulsive behaviors,<sup>H</sup> And once it has been released, DeltaFosB sticks around in the brain for weeks or months, which is why porn consumers may feel strong cravings for porn long after they’ve stopped the habit.”<sup>I</sup>

“The good news is, neuroplasticity works both ways. If porn pathways aren’t reinforced, they’ll eventually disappear, so the same brain mechanisms that lay down pathways for porn can replace them with something else.<sup>J</sup> If the time has come for you or someone you love to begin that healing process, learn more about how to get help.”

“But your brain doesn’t always reward you for the right things. For example, it produces higher levels of dopamine when you have chocolate cake than it does for whole-wheat bread.”<sup>K</sup>

“Porn is basically sexual junk food.”

“DeltaFosB’s regular job is to build new nerve pathways to mentally connect what someone is doing (i.e. consuming porn) to the pleasure he or she feels.<sup>L</sup> Those strong new memories outcompete other connections in the brain, making it easier and easier to return to porn.”<sup>M</sup>

“If enough DeltaFosB builds up, it flips a genetic switch, causing lasting changes in the brain that leave the user more vulnerable to addiction.<sup>N</sup> For teens, this risk is especially high because a teen’s reward center in the brain responds two to four times more powerfully than an adult’s brain, releases higher levels of dopamine and produces more DeltaFosB.”<sup>O</sup>

“Overloaded with dopamine, the brain will try to defend itself by releasing another chemical called CREB<sup>P</sup> (It’s called CREB because no one wants to have to say its real name: cyclic adenosine monophosphate response element binding protein!) CREB is like the brakes on a runaway reward center; it slows the pleasure response.<sup>Q</sup> With CREB onboard, porn that once excited a person stops having the same effect.<sup>R</sup> Scientists believe that CREB is partly why consumers have to keep increasing their porn intake to get aroused.<sup>S</sup> That numbed-out state is called “tolerance,” and it’s part of any kind of addiction.”<sup>T</sup>

“As porn consumers become desensitized from repeated overloads of dopamine, they often find they can’t feel normal without a dopamine high.<sup>U</sup> Even other things that used to make them happy, like going out with friends or playing a favorite game, stop providing enjoyment because of the dulling effects of CREB.<sup>V</sup> They experience strong cravings and often find themselves giving more of their time and attention to porn, sometimes to the detriment of relationships, school, or work.<sup>W</sup> Some report feeling anxious or down until they can get back to their porn.<sup>X</sup> As they delve deeper into the habit, their porn of choice often turns increasingly hard-core.<sup>Y</sup> And many who try to break their porn habits report finding it really difficult to stop.”<sup>Z</sup>



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## #18 SIGN OF COMPULSIVE BEHAVIOR

**“Common warning signs that an adolescent may be experiencing compulsive sexual behavior problems”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“A demonstrated lack of empathy toward other individuals involved (either directly or indirectly) in the child’s sexual behavior.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Viewing and/or masturbating to pornography for multiple hours per day/night.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Decreased interest in and/or declining performance in school and extracurricular activities.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Diminished interest in ad/or ability to socialize with peers.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Excessive interest (or a total lack of interest) in typical adolescent dating activity.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Secretiveness around computer and smartphone usage such as erasing browser histories, password protecting devices, etc.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Lying to parents or others about the nature or the amount of sexual/romantic activities.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Sexual aggression, incest, age-inappropriate relationships, etc.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Secrecy in general, such as spending large amounts of time alone in a room with the door locked.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

**“Sexual behavior involving drug use.”** (“How Pornography Addiction Affects the Teenage Brain – Infographic”, Help Your Teen Now, September 25, 2014, <http://helpyourteennow.com/how-pornography-addiction-affects-the-teenage-brain-infographic/>)

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## **“5 WAYS PORN AFFECTS THE BRAIN”**

**“Say goodbye to the most famous bunnies in the world.”** (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**“Playboy Magazine announced yesterday (Oct. 12) that it was revamping its design. Among its changes: No longer will naked ladies grace the pages of the magazine. (Of course, you only read it for the articles anyway, right?)”** (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)


**““Playboy's great success was that it legitimized sexualized images in the context of good fiction, interesting articles and groundbreaking interviews,” Kim Wallen, a psychologist at Emory University in Atlanta, Georgia, wrote in an email to Live Science. ‘Still, it would not have been able to sell these often-excellent features without including nude women, which was the reason a majority of men bought Playboy.’”** (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**“But ultimately, even the nude pictures weren't enough to hold readers. The magazine, which first exploded into public consciousness when it published nude shots of Marilyn Monroe in 1953, has been losing readers for years, according the Alliance for Audited Media., largely thanks to the rise of Internet pornography. With the click of a button, a smorgasbord of sexual options, from the**

violent and disturbing to the frankly weird, are instantly available. [Hot Stuff! 10 Unusual Sexual Fixations]” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“Yet porn has effects beyond siphoning readers from the lad mag of a bygone era. It may also be changing people in myriad subtle ways. Scientists don't fully understand how pornography affects people, but a few studies have revealed surprising — and disturbing — trends. From shrinking the brain to sabotaging relationships, here are five ways pornography affects the brain.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

### **“Same old, same old”**

“Along with eating, drinking and sleeping, sex is one of the most fundamental human drives. That means it activates ancient parts of the brain such as the limbic system, which also controls basic emotions such as fear and anger, said Joseph J. Plaud, a private, clinical  forensic psychologist in Boston, Massachusetts, who has studied the effects of pornography.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

“Adolescents wire together experiences and arousal much faster and more easily than young adults will just a few years later. The brain actually shrinks after age 12 as billions of nerve connections are pruned and reorganized. The use-it-or-lose-it principle governs which nerve connections survive.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p86)

“Once new connections form, teen brains hold tightly to these associations. In fact, research shows that our most powerful and lasting memories arise from adolescence — along with our worst habits.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p87)



## #19 OXYTOCIN/VASOPRESSIN

“...pornography affects the brain – its hormonal, neurochemical, and neurological consequences that play a role in developing attachments.”

(William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“This mirror neuron system triggers the arousal, which leads to sexual tension and a need for an outlet. The unfortunate reality is that when he acts out (often by masturbating), this leads to hormonal and neurological consequences, which are designed to bind him to the object he is focusing on. In God’s plan, this would be his wife, but for many men it is an image on a screen. Pornography thus enslaves the viewer to an image, hijacking the biological response intended to bond a man to his wife and therefore inevitably loosening that bond.”

(William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Pornography hyperactivates the appetite system. But the satisfying system is left starving for the real thing, which includes actual touching, kissing, caressing, and a connection not only with the body but also the mind and soul. The satisfying system releases oxytocin and endorphins, and bellows, in the words of Marvin Gaye, ‘Ain’t nothing like the real thing, Baby.’” (Sam Black, “Porn Can’t Give No Satisfaction”, Covenant Eyes, April 26, 2013, <http://www.covenanteyes.com/2013/04/26/porn-no-satisfaction/>)

“Understanding the brain is pivotal. When a woman is nursing her child and she’s skin-to-skin with her baby, her brain releases a neurochemical called oxytocin, which emotionally bonds her to her child. The same thing happens during sex. God designed oxytocin as the glue for human bonding. During a sexual release, oxytocin, along with other neurochemicals, are released and cause us to emotionally bond with our partner.” .”(Terry Cu-Unjieng, “Why 68% of Christian Men Watch Porn”, Conquer Series, Accessed April 5, 2017, <https://conquerseries.com/why-68-percent-of-christian-men-watch-porn/>)

“When you watch porn these neurochemicals are also released, which bond you to those images. This is why Satan attacks our sexuality so much, because in attacking human sexuality it actually interferes with human bonding.” .”(Terry Cu-Unjieng, “Why 68% of Christian Men Watch Porn”, Conquer



Series, Accessed April 5, 2017, <https://conquerseries.com/why-68-percent-of-christian-men-watch-porn/>)

- “Sex or porn also trigger the release of oxytocin and vasopressin. These hormones help to lay down the long-term memories for the cells. They ‘bind’ a person’s memories to the object that gave him or her the sexual pleasure.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“This system works the way it is supposed to work when you’re having sex with your spouse. Together you can experience a high, an alertness of sexual pleasure, and the deep calm afterwards (norepinephrine, endorphins, and serotonin). With each sexual embrace you are emotionally bonding to this person (oxytocin and vasopressin). Over time a craving for sex is transformed into a desire for one another (dopamine).

But porn short-circuits the system.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“Multiple problems happen when porn is used. First, instead of forming a deep connection to a person, your brain ends up ‘bonding’ to a pornographic experience. Your brain remembers where the sexual high was experienced, and each time you desire sexual stimulation, you feel a sharp sense of focus: I’ve got to go back to the porn.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“Sexually explicit material triggers mirror neurons in the male brain. These neurons, which are involved with the process for how to mimic a behavior, contain a motor system that correlates to the planning out of a behavior. In the case of pornography, this mirror neuron system triggers the arousal, which leads to sexual tension and a need for an outlet. ‘The unfortunate reality is that when he acts out (often by masturbating), this leads to hormonal and neurological consequences, which are designed to bind him to the object he is focusing on,’ says Struthers. ‘In God’s plan, this would be his wife, but for many men it is an image on a screen. Pornography thus enslaves the viewer to an image, hijacking the biological response intended to bond a man to his wife and therefore inevitably loosening that bond.’”

(Joe Carter, “9 Things You Should Know about Pornography and the Brain”, The Gospel Coalition, May 8, 2013, <http://www.thegospelcoalition.org/article/9-things-you-should-know-about-pornography-and-the-brain>)

“Or if you hold hands with someone you care about, your brain releases a chemical called oxytocin, which helps you bond with people.” (Schneiderman, I., Zagoory-Sharon, O., Leckman, J., and Feldman, R. (2012). Oxytocin During the Initial Stages of Romantic Attachment: Relations to Couples’ Interactive Reciprocity. *Psychoneuroendocrinology* 37:1277-1285.)

## “Highjacked Brain”

“Understanding the brain is pivotal. When a woman is nursing her child and she’s skin-to-skin with her baby, her brain releases a neurochemical called oxytocin, which emotionally bonds her to her child. The same thing happens during sex. God designed oxytocin as the glue for human bonding. During a sexual release, oxytocin, along with other neurochemicals, are released and cause us to emotionally bond with our partner.”

“When you watch porn these neurochemicals are also released, which bond you to those images. This is why Satan attacks our sexuality so much, because in attacking human sexuality it actually interferes with human bonding.”

“The repeated viewing of porn literally changes the physical structure of their brain.”

(Terry Cu-Unjieng, “Why 68% of Christian Men Watch Porn”, Conquer Series, Accessed April 5, 2017, <https://conquerseries.com/why-68-percent-of-christian-men-watch-porn/>)

“Sex or porn also trigger the release of **oxytocin** and **vasopressin**. These hormones help to lay down the long-term memories for the cells. They “bind” a person’s memories to the object that gave him or her the sexual pleasure.” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“With each sexual embrace you are emotionally bounding to this person (oxytocin and vasopressin).” (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

“Some assume that porn users ‘bond’ to porn in lieu of women, perhaps due to the spurt of oxytocin often released at climax. This seems doubtful.

Porn hijacks our drive to mate, which is probably the most powerful, most drug-like, neurochemical response we humans experience. Porn can certainly lead to subsequent dissatisfaction and a desire for more. But porn users don't desire more of the same. Instead they desire the more intense stimulation of novelty. So they generally aren't 'bonding' to specific porn; most are simply becoming dependent on the neurochemicals of intense arousal. One of our website visitors mentioned he had seen a TV show on sex dolls. One man had already acquired ten life-size rubber dolls he barely had room to store, because only novelty seemed to offer satisfaction. (Obviously, it didn't, and this is a graphic example of how the binge trigger actually promotes dissatisfaction.)" (Marnia Robinson, "Pornography and Addiction: Brain Chemistry Research and Porn", Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

"Or if you hold hands with someone you care about, your brain releases a chemical called oxytocin, which helps you bond with people." (McAline, D. (2001). Interview on American Porn. Frontline, PBS, August) ("Porn's Harm is Changing Fast", Fight the New Drug, August 4, 2014, <http://fightthenewdrug.org/porns-harm-is-changing-fast/#sthash.XvAu4Fq3.dpbs>)

"Oxytocin and vasopressin are important hormones in the brain with regard to physically performing sexually. Studies show that oxytocin is also important in increasing trust in humans, in emotional bonding between sexual mates, and in parental bonding. We are wired to bond to the object of our sexuality." (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

## #20 INTIMACY

“RESULT ‘Zillman and Bryant concluded, the more porn someone saw, the more likely they were to prefer sex without emotional involvement.’” (Dolf Zillmann, Jennings Bryant, “Pornography’s Impact on Sexual Satisfaction”, *Journal of Applied Social Psychology*, April 1988, <http://onlinelibrary.wiley.com/doi/10.1111/j.1559-1816.1988.tb00027.x/abstract>) (Luke Gilkerson, “Your Brain on Porn”, Covenant Eyes, Accessed July 29, 2016, <http://www.covenanteyes.com/brain-ebook/>)

“Dr. Gary Brooks, author of *The Centerfold Syndrome ... Pornography trans men to be digital voyeurs, to prefer looking at women more than seeking out genuine intimacy.*” (Gary R. Brooks, PhD. *The Centerfold Syndrome: How Men Can Overcome Objectification and Achieve Intimacy with Women.* (Jossey-Bass: San Francisco, 1995).) (Luke Gilkerson, “Your Brain on Porn”, Covenant Eyes, Accessed July 29, 2016, <http://www.covenanteyes.com/brain-ebook/>)

### “Dehumanized Sexuality”

“Another harm, referred to in my interview with Dr. Robert Jensen, comes up in men’s intimate relationships.”

“‘On the male side, more and more men will say that their own use of pornography, especially those who use it habitually, it has an effect on their ability to be intimate with female partners. I don’t know how many times I’ve heard men say ‘I can’t get an erection without thinking about porn. I can’t perform sexually if I don’t have a pornographic loop going on in my mind.’ That is not the speculation of ‘crazy radical feminists,’ that is the self-reports of lots of men.’”

“First Amendment advocates, and sociologists—a critical voice is being left out. As a brain researcher, I believe it is essential that an understanding of how pornography affects the brain should be included in this discourse. By gaining a better understanding of how sexually explicit material is processed and how it influences brain development, we can begin to understand its effects on our understanding of sexuality, what harm it might lead to, and how our framework of sexuality is evaluated.” (William M. Struthers, “The Effects of Porn on the Male Brain”, *Christian Research Journal*, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“But if we understand sexuality as only a matter of biological reproduction (making babies), we miss a significant part of the story. Human sexuality is also about intimacy. In our culture, however, the term intimacy is often used to be synonymous with sexual intercourse. So as individuals feel the need for intimacy, it is not uncommon for them to think that sexual activity is the only ‘real’ form of intimacy.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“It is here more than anywhere else that pornography takes human sexuality out of its intended purpose—the establishing and deepening of intimacy between two human beings—and makes it a product to be consumed. Human beings become objects of consumption rather than individuals requiring dignity... This harm is not only sociological and psychological, but also spiritual. The pornographic selection may be consumed once, occasionally, or on an ongoing basis, for as often as you would like. Whenever it fails to meet your standards for beauty or excitement, whenever it fails to stimulate your fantasy, or if you just become bored with the images, the people within are disposed of.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The need for human intimacy is ongoing. Like food or water, intimacy is not met once and forevermore fulfilled. The desire for ongoing, deepening intimacy is in our nature, it is part of being made in the relational image of God. Intimacy is what drives us to know and to be known. It pushes us forward through life and is at the heart of our relational nature; it is part of our design—our wiring.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...pornography is influencing and shaping assumptions about identity, sexuality, the value of women, and the nature of relationships...” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...during that span of time, the portrayal of unaffectionate sexual encounters increased in frequency from 54% to 94% of pornographic scenes.” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“...how pornography affects the brain – its hormonal, neurochemical, and neurological consequences that play a role in developing attachments.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“In a 2010 interview with *Playboy* Magazine, Grammy Award-winning musician John Mayer: (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Pornography? It’s a new synaptic pathway. You wake up in the morning, open a thumbnail page, and it leads to a Pandora’s Box of visuals. There have probably been days when I saw 300 [women] before I got out of bed....Internet pornography has absolutely changed my generation’s expectations....You’re looking for the one photo out of 100 you swear is going to be the one you finish to, and you still don’t finish. Twenty seconds ago you thought that photo was the hottest thing you ever saw, but you throw it back...How does that not affect the psychology of having a relationship with somebody? It’s got to.” (Rob Tannenbaum, “Interview with John Mayer,” *Playboy* Magazine, March 2010) (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“....a better understanding of how sexually explicit material is processed and how it influences brain development.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...pornography takes human sexuality out of its intended purpose—the establishing and deepening of intimacy between two human beings—and makes it a product to be consumed. Human beings become objects of consumption rather than individuals requiring dignity...This harm is not only sociological and psychological, but also spiritual.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The pornographic selection may be consumed once, occasionally, or on an ongoing basis, for as often as you would like. Whenever it fails to meet your standards for beauty or excitement, whenever it fails to stimulate your fantasy, or if you just become bored with the images, the people within are disposed of.” (William M. Struthers, Ph.D., “The Effects of

Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“The need for human intimacy is ongoing. Like food or water, intimacy is not met once and forevermore fulfilled. The desire for ongoing, deepening intimacy is in our nature, it is part of being made in the relational image of God.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“It provides a false, or counterfeit, way of feeding the need for intimacy...people are pieces of meat for our consuming pleasure and entertainment...the objectification and commoditization of people will seep into other parts of the viewer’s mind. It will affect the way he views people when he is not watching porn...he fantasizes throughout the day about sex.

Each woman he sees will be seen through a pornographic lens.” (Todd G. Morrison et al., “Exposure to Sexually Explicit Material and Variations in Body Esteem, Genital Attitudes, and Sexual Esteem among a Sample of Canadian Men,” *The Journal of Men’s Studies* 14, 2 (Spring 2006): 209–22.) (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“...these consequences can destroy a marriage, family, ministry, or career. While it offers the promise of intimacy and connection, pornography only delivers isolation, disconnectedness, and depravity.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“While the payoff for orgasm is powerful, it is not an easy thing to achieve. The highs of orgasm are not available on demand. In the real world with real people, considerable effort has to go into cultivating a relationship that may result in a sexual encounter. A great deal of neurological effort, hormonal preparation, and appropriate behaviors usually precede this high. Here is where pornography hijacks God’s intended pattern of sexual attraction, arousal, and response.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)



“...pornography becomes part of the ritual that is used to get a short-term fix. Like eating candy to satisfy hunger, pornography can feel like a healthy way to satisfy the drive for intimacy.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Sexual intimacy is a complex neurochemical, hormonal, and spiritual event. It is one of the most powerful God-given means by which human beings form attachments. The question ‘Who or what are you bound to?’ has to be asked in the arena of sexuality, and it has a neurobiological answer. There is no such thing as ‘just looking’ at porn. There can be no doubt that it affects us neurologically in long-lasting ways. How we choose to exercise that knowledge—for sanctification or for depravity—is up to each one of us.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Journal, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Not everyone who watches porn uses it compulsively. But those who do crave it say it’s affecting their sex lives, causing erectile dysfunction, changing how they view real partners and their own body image and, in some cases, ruining relationships and careers.” (Heather Schroering, “The Porn Problem,” Chicago Tribune, July 14, 2015, [www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1](http://www.chicagotribune.com/news/redeye-porn-addiction-20150714-story.html#page=1))

“It provides a false, or counterfeit, way of feeling the need for intimacy.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF 1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Another confounding factor is that orgasm without a partner appears to have a different neurochemical profile than orgasm during intercourse with a partner. Orgasm with intercourse, for example, releases four times as much prolactin after climax and is associated with lower stress markers for a week.” (‘Penile-Vaginal Intercourse Is Better: Evidence Trumps Ideology’ <http://www.informaworld.com/smpp/content~content=a758475782~db=all> and “The Post-Orgasmic Prolactin Increase Following Intercourse Is Greater Than Following Masturbation and Suggests Greater Satiety” <http://www.ncbi.nlm.nih.gov/pubmed/16095799>) (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)



**“It’s likely related changes are going on in the limbic system.”** (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

## #21 PLASTICITY

“The plasticity of the beautiful, complex brain can be a blessing or a curse. While the brain is malleable, it typically follows a set of rules in performing its functions. These rules govern how connections are made, how images are processed, how behaviors are executed, and how emotions are triggered. It is here in some of these circuits that pornography seems to be exploiting one of the brain’s Achilles’ heels: the naked human form.” (William M. Struthers, Ph.D., “The Effects of Porn on the Male Brain,” Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Neurologists define neuroplasticity as the ability of the brain to build and rebuild connections. Due to this, after stopping pornography use, the brain is able to reboot itself, albeit slowly, to return to its normal way of functioning. This neuroplasticity effect is something that neurologists have found in the brains of people who stop using pornography, where their brain begins to reboot to its originally designed way of functioning. But it isn’t easy. Professor Wilson reports that several studies examining brain scans of pornography users (not addicts, but users) found that with increasing porn use comes a weaker brain, a reduced sense of reward from everyday activities, and weaker willpower. Therein lies one of the insidious elements of porn, it hooks a man and with more use, weakens his ability to leave it behind. After prolonged pornography use, the reward system in the brain simply wears out.” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

“...recovery from an addiction to pornography can occur thanks to the neuroplasticity of the brain. The process obviously necessitates abstinence from viewing pornography. This can take between two and six months, in a process called rebooting. So what is the process like within the brain when a person views pornography? Dr. William Struthers, noted in a recent article that,” (John D. Foubert, “How Pornography Harms”, John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

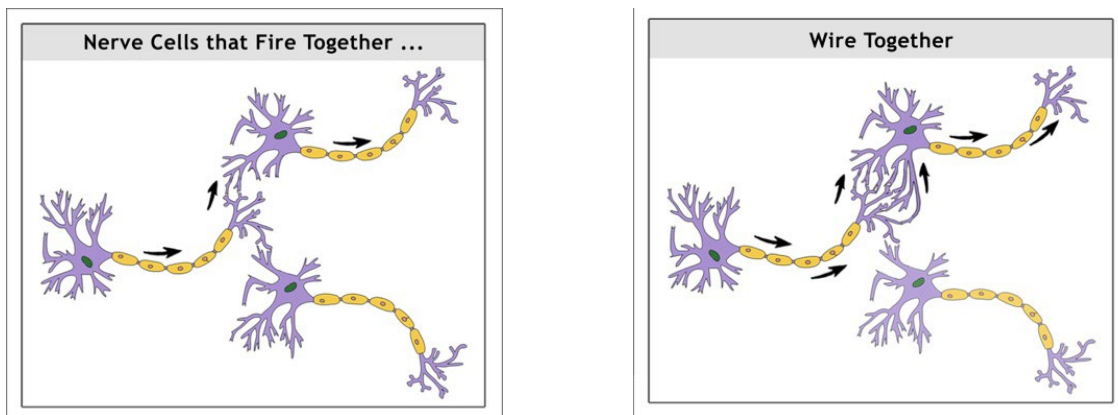
“The human body consumes and digests food. In a similar way, we can think about the brain as a consumer of stimuli and information. When we eat, food is broken down by the digestive system and used to supply the body with the energy it needs to survive and thrive. Once it has been fully digested, whatever that is unusable (waste) is

excreted. This helps to ensure the healthy functioning of the organism. If we take this analogy and extend it to the brain, the brain's job is to consume and digest information. This information is taken in through the eyes and other senses and digested and stored with meaning and memories. Anything that might have strong emotional content or is highlighted as being important information is stored and used later. The brain doesn't always get to decide what it wants to keep and what it doesn't. Sexual images are inherently powerful and have emotional content. As such, pornography forces itself on the brain. Whether one consents or not, pornography becomes a part of the fabric of the mind.' He continued, 'The plasticity of the beautiful, complex brain can be a blessing or a curse. While the brain is malleable, it typically follows a set of rules in performing its functions. These rules govern how connections are made, how images are processed, how behaviors are executed, and how emotions are triggered. It is here in some of these circuits that pornography seems to be exploiting one of the brain's Achilles' heels: the naked human form. There are few things in the world that can grab someone's attention like the naked human body, and fewer still than naked bodies engaged in an intimate sexual act. One need look no further than prime time television, DVD sales, and the most frequently viewed websites to see that a great amount of time, energy, and resources take advantage of this fact of life. Sexuality and nakedness are used to entice us to watch, to buy, to follow, and to arouse us to any number of other actions. Our sexual nature provides a powerful impulse that tends to drive us. While it is true that not everyone who looks at sexually explicit images develops addictive or compulsive patterns of consumption and acting out, it is important to note that these images of nakedness and sexuality tap into a reflexive arousal response in many men, which can lead to devastating outcomes.'" (Struthers, W.M. (2011). Pornography and the male brain. Christian Research Journal, 34.) (John D. Foubert, "How Pornography Harms", John Foubert.com, April 2016, <http://www.johnfoubert.com/how-porn-harms>)

"Human brains are surprisingly plastic. Psychiatrist Normal Doidge (The Brain That Changes Itself) has explained that brain plasticity means porn causes physiological changes in the brain. Dr. Jeffrey Swartz (author of The Mind and the Brain, and other relevant titles) has shown that even OCD patients can often rewire compulsive behavior by substituting other actions when urges arise. This seems to be critical information for would-

be, and existing, porn users to become aware of. Once they understand how brain plasticity works, they can both gauge the effects of porn use, and know what's entailed in recovery if use becomes compulsive.” (Marnia Robinson, “Pornography and Addiction: Brain Chemistry Research and Porn”, Scribd, April 28, 2010, <http://www.scribd.com/doc/32712148/Pornography-and-Addiction-Brain-Chemistry-Research-and-Porn-by-Marnia-Robinson#scribd>)

“Brains are plastic, and once you wire up a new cue you have no way of knowing when it will trigger a future reaction. Much as Pavlov's dog learned to salivate to the bell, today's porn users learn to wire unexpected stimuli to their erections. The brain's primitive reward circuitry isn't aware that the bell isn't food, or that the novel porn isn't ‘my’ porn. Its axiom is simply ‘Dopamine good’.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p84)



“Porn poses unique risks beyond supernormal stimulation. First, it's easy to access, available 24/7, free and private. Second, most users start watching porn by puberty, when their brain's are at their peak of plasticity and most vulnerable to addiction and rewiring.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p81)

“Brains are plastic, and once you wire up a new cue you have no way of knowing when it will trigger a future reaction. Much as Pavlov's dog learned to salivate to the bell, today's porn users learn to wire unexpected stimuli to their erections. The brain's primitive reward circuitry isn't aware that the bell isn't food, or that the novel porn isn't ‘my’ porn. Its axiom is simply ‘Dopamine good’.” (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p84)

“...prefrontal cortex could reflect change in neural plasticity as a consequence of an intense stimulation of the reward system...” (Simone

Kühn, PhD; Jürgen Gallinat, PhD, "Brain Structure and Functional Connectivity Associated with Pornography Consumption," *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

"The plasticity of the beautiful, complex brain can be a blessing or a curse. While the brain is malleable, it typically follows a set of rules in performing its functions. These rules govern how connections are made, how images are processed, how behaviors are executed, and how emotions are triggered. It is here in some of these circuits that pornography seems to be exploiting one of the brain's Achilles' heels: the naked human form."

"There are few things in the world that can grab someone's attention like the naked human body, and fewer still than naked bodies engaged in an intimate sexual act." (William M. Struthers, Ph.D., "The Effects of Porn on the Male Brain," *Christian Research Journal*, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

"In truth, it provides no nourishment whatsoever, and results in a greater degree of need. Even in the absence of acting out, the images have such a robust, salient character that they are stored as memories that can produce a warped sense of sexuality and objectification." (William M. Struthers, Ph.D., "The Effects of Porn on the Male Brain," *Christian Research Journal*, volume 34, number 05, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

## **"YOUR SEXY PLASTIC BRAIN: PORN ADDICTION CAN'T BE BLAMED ON BIOLOGY"**

"By 'plasticity' he means that our brains and our sexuality are molded by our experiences, interactions, and other means of learning, which is why people vary in what they say is attractive or what turns them on. The brain actually creates neural pathways that label a specific type of person or activity as arousing." (Sam Black, "Your Sexy Plastic Brain: Porn addiction can't be blamed on biology", *Covenant Eyes*, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

"In Elizabethan times lovers were so enamored of each other's body odors that it was common for a woman to keep a peeled apple in her armpit until it had absorbed her sweat and smell. She would give this 'love apple' to her lover to sniff in her absence. We, on the other hand, use synthetic aromas of fruits and flowers to mask our body odor from our lovers. Which of these

two approaches is acquired and which is natural is not so easy to determine. A substance as ‘naturally’ repugnant to us as the urine of cows is used by the Masai tribe of East Africa as lotion for their hair — a direct consequence of the cow’s importance in their culture. Many tastes we think ‘natural’ are acquired through learning and become ‘second nature’ to us. We are unable to distinguish our ‘second nature’ from our ‘original nature’ because our neuroplastic brains, once wired, develop a new nature, every bit as biological as our original.” (Sam Black, “Your Sexy Plastic Brain: Porn addiction can’t be blamed on biology”, Covenant Eyes, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

“This will come as sad news to many. The attraction, compulsion, and even addiction to porn are learned behaviors, which means people play a huge role in their own habituation. Don’t blame it on biology or evolution.”

(Sam Black, “Your Sexy Plastic Brain: Porn addiction can’t be blamed on biology”, Covenant Eyes, April 22, 2013, <http://www.covenanteyes.com/2013/04/22/porn-addiction-your-sexy-plastic-brain/>)

“...prefrontal cortex could reflect change in neural plasticity as a consequence of an intense stimulation of the reward system...” (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

## #22 BRAIN CHEMICALS & PORN

“In men, there are five noteworthy chemicals involved in sexual arousal and response.”

1. **“Testosterone** is the male hormone that seems to drive sexual interest. It has long been known that castrating animals (removal of the testes that produce the majority of testosterone in males) is an effective way to decrease sex drive and castration also reduces interest in sex in men as well (i.e., eunuchs). Testosterone seems to be an enabler of sex drive and its production is triggered by the brain through a hormonal process that can be adjusted throughout the day in response to what is going on in the environment. When sexual cues are identified by the brain, a surge of testosterone production is triggered. This testosterone surge heightens sexual anticipation and prepares the body for sexual encounters. What is fascinating is that these cues can be produced by pornography or through sexual fantasizing. So it’s not just what you see that causes the testosterone surge to increase sexual interest, it is also what you dwell on that can produce the surge as well.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)
2. **“Dopamine** is a neurotransmitter that is known to underlie all drugs of addiction. Dopamine seems to play an important role in helping people identify what things in their environment are significant. This chemical is going to be the primary reason why craving occurs. Often dopamine is referred to as a pleasure chemical. Its levels are increased when we do things that generally perpetuate our lives and the survival of our species. For example, satisfying hunger by eating a meal, satisfying thirst by drinking water, and satisfying the sex drive by engaging in intercourse all are correlated with heightened dopamine levels. External or internal sexual cues can trigger the release of dopamine in key brain regions that are also sensitive to testosterone. The key element to remember here is that dopamine is directing us toward resolving the tension that is being produced by the sexual images and anticipation of sexual release. It provides the rush that men feel when they view pornography.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

3. “Another neurotransmitter involved in heightening this rush is **norepinephrine**. It has two functions in the development of sexual addictions. First, norepinephrine is a significant player in promoting sexual arousal. It is a cousin to adrenaline chemically, and it is involved in helping the body prepare for sexual activity. In addition to preparing the body, it also is readying the brain to remember how the sexual drive is being met. Norepinephrine helps to store the memories of this event. It should come as no surprise that many men who can’t remember what they had for breakfast last week can still remember the image of the first Playboy centerfold that they ever saw. Norepinephrine serves to help store these memories and get these images stuck in the brain because, presumably, they were memories that were important to be stored.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)
4. “While dopamine and norepinephrine may provide the immediate rush that men get from viewing porn, the key event in determining whether or not viewing becomes a habitual pattern is going to be the release of **endogenous opiates** produced during sexual release (most notably in response to orgasm). Many men will report that this experience is accompanied by feelings of transcendence and euphoria that are known to be related to the release of endogenous opiates. It has been known for decades that the brain produces its own opiates that are involved in pain relief and pleasure. Street drugs such as heroin and medicines such as morphine can produce feelings of euphoria and reduce pain. This ability of orgasm to produce euphoria or release from sexual tension is what provides the psychological reward to the sexual drive. The release of endogenous opiates during masturbation or sexual activity with a partner is part of a larger sequence of sexual arousal and response. Viewing pornography provides the stimuli that help prepare the body for sexual response. When the viewer sexually acts out, resulting in orgasm, it gets stored as a behavior that is known to have a significant payoff. That significant payoff is the release of opiates that provide the chemical substrate for the psychological experience of **orgasm**.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“While the payoff for orgasm is powerful, it is not an easy thing to achieve. The highs of orgasm are not available on demand. In the



real world with real people, considerable effort has to go into cultivating a relationship that may result in a sexual encounter. A great deal of neurological effort, hormonal preparation, and appropriate behaviors usually precede this high. Here is where pornography hijacks God's intended pattern of sexual attraction, arousal, and response." (William M. Struthers, Ph.D., "The Effects of Porn on the Male Brain," Christian Research Institute, JAF1345, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

5. "Viewing pornography for sexual arousal and using it to produce the release and euphoria of orgasm provides a merely transient fix to any number of psychological problems. Whether it is depression, poor self-esteem, anger, or any other number of things that cause a person to feel a need for relief or release, pornography becomes part of the ritual that is used to get a short-term fix. Like eating candy to satisfy hunger, pornography can feel like a healthy way to satisfy the drive for intimacy. In truth, it provides no nourishment whatsoever, and results in a greater degree of need. Even in the absence of acting out, the images have such a robust, salient character that they are stored as memories that can produce a warped sense of sexuality and objectification." (William M. Struthers, "The Effects of Porn on the Male Brain", Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)
- "Norepinephrine is also released, creating alertness and focus. It is the brain's version of adrenaline. It tells the brain, 'Something is about to happen, and we need to get ready for it.'" (Luke Gilkerson, "Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us", Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)
- "The body releases endorphins, natural opiates that create a 'high,' a wave of pleasure over the whole body." (Luke Gilkerson, "Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us", Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)
- "After sexual release serotonin levels also change, bringing a sense of calm and relaxation." (Luke Gilkerson, "Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us", Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

"This system works the way it is supposed to work when you're having sex with your spouse. Together you can experience a high, an alertness of sexual pleasure, and the deep calm afterwards (norepinephrine,

endorphins, and serotonin). With each sexual embrace you are emotionally bonding to this person (oxytocin and vasopressin). Over time a craving for sex is transformed into a desire for one another (dopamine).

**But porn short-circuits the system.”** (Luke Gilkerson, “Brain Chemicals and Porn Addiction: Science Shows How Porn Harms Us”, Covenant Eyes, February 3, 2014, <http://www.covenanteyes.com/2014/02/03/brain-chemicals-and-porn-addiction/>)

**“In studies on pharmacological addiction in humans, volumetric alterations have been shown in the striatum and prefrontal cortex.”** (Barrós-Loscertales A, Garavan H, Bustamante JC, et al. Reduced striatal volume in cocaine-dependent patients. *Neuroimage*. 2011;56 (3):1021-1026. Das D, Cherbuin N, Anstey KJ, Sachdev PS, Easteal S. Lifetime cigarette smoking is associated with striatal volume measures. *Addict Biol*. 2012;17 (4):817-825. Ersche KD, Barnes A, Jones PS, Morein-Zamir S, Robbins TW, Bullmore ET. Abnormal structure of frontostriatal brain systems is associated with aspects of impulsivity and compulsivity in cocaine dependence. *Brain*. 2011;134(pt 7):2013-2024) (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“However, the observed volumetric association with PHs in the striatum could likewise be a precondition rather than a consequence of frequent pornography consumption. Individuals with lower striatum volume may need more external stimulation to experience pleasure and might therefore experience pornography consumption as more rewarding, which may in turn lead to higher PHs.”** (Simone Kühn, PhD; Jürgen Gallinat, PhD, “Brain Structure and Functional Connectivity Associated with Pornography Consumption,” *JAMA Psychiatry*. 2014;71(7):827-834, <http://archpsyc.jamanetwork.com/article.aspx?articleid=1874574>)

**“Watching porn also seems to quiet a part of the brain that processes visual imagery, researchers reported in 2012 in the Journal of Sexual Medicine.** It's not clear why this happens, but researchers speculated that the brain diverts blood flow from the visual cortex in order to focus on more pressing things, like being turned on.” (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**“The finding makes sense, in that people looking at pornography would be focusing on the sexually explicit image more than the fine details of the background of the image, the researchers speculated. A person who was scanning the horizon for potential threats would have trouble being aroused.”** (Tia Ghose, “5 Ways Porn Affects the Brain”, Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**“On the flip side, getting aroused requires feeling safe, and freedom from the need to look out for potential dangers, the researchers said.”** (Tia Ghose, “5

Ways Porn Affects the Brain", Live Science, October 13, 2015, <http://www.livescience.com/52469-how-porn-affects-brains.html>)

**"Internet porn: a most *unnatural* natural reinforcer"** (Gary Wilson, "Porn Addiction is not Sex Addiction – and Why it Matters", Your Brain on Porn, November 22, 2011, <http://yourbrainonporn.com/porn-addiction-not-sex-addiction-and-why-it-matters>)

"Interestingly, adrenaline, also called epinephrine, is a drug we physicians use in surgery and in emergencies to start a patient's heart again when it beats too slow, or even stops. So here is the question: Is epinephrine not a drug if the brain makes it (causing the heart to pound and race), yet is a drug if the same epinephrine is given by a physician?" (Donald L. Hilton, Jr., "Slave Master – How Pornography Drugs & Changes Your Brain," Salvo 13, Summer 2010, <http://www.salvomag.com/new/articles/salvo13/13hilton.php>)

## **"Teach Kids What Porn Does to the Brain"**

"If your child has gone through a school program in drug education, he or she has a framework for understanding addiction and the chemical changes that take place in the brain. Show that [porn stimulates the brain in the same way that drugs do](#), appealing to the brain's reward center and retraining your grain to see that porn is the answer to loneliness, stress, fear and other negative emotions. But porn goes a step further than drugs. Even when one stops using it (which is hard enough to do once a taste for it has been developed), the images and scenes linger in the memory, continually calling the user back. You can detox the body from drugs and alcohol, but you cannot detox the memory." (Laura Nott, Elements Behavioral Health, November 22, 2103, "How to Teach Your Kids About Pornography," <https://www.elementsbehavioralhealth.com/adolescent-issues/how-to-teach-your-kids-about-pornography/>)

## #23 PORN & PROBLEM SOLVING

“Viewing pornography for sexual arousal and using it to produce the release and euphoria of orgasm provides a merely transient fix to any number of psychological problems. Whether it is depression, poor self-esteem, anger, or any other number of things that cause a person to feel a need for relief or release, pornography becomes part of the ritual that is used to get a short-term fix. Like eating candy to satisfy hunger, pornography can feel like a healthy way to satisfy the drive for intimacy. In truth, it provides no nourishment whatsoever, and results in a greater degree of need. Even in the absence of acting out, the images have such a robust, salient character that they are stored as memories that can produce a warped sense of sexuality and objectification.” (William M. Struthers, “The Effects of Porn on the Male Brain”, Christian Research Journal, 2011, <http://www.equip.org/article/the-effects-of-porn-on-the-male-brain-3/>)

“Primitive circuits in the brain govern emotions, drives, impulses, and subconscious decision-making.” (M. Walter et al., “Distinguishing specific sexual and general emotional effects in fMRI-subcortical and cortical arousal during erotic picture viewing,” *Neuroimage* 40/4 (2008): 1482-1494. doi: 10.1016/j.neuroimage.2008.01.040) (Gary Wilson, “Your Brain on Porn,” Commonwealth Publishing, 2014, p73)

<sup>1</sup> Wilson, G. (2014). *Your brain on porn: Internet pornography and the emerging science of addiction*. London: Commonwealth Publishers.

<sup>1</sup> Voon V, Mole TB, Banca P, Porter L, Morris L, Mitchell S, et al. (2014) Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviors. *PLoS ONE* 9(7): e102419. doi:10.1371/journal.pone.0102419

## UPDATES – JANUARY 2019

### **Want to Be More Brave? The Brain Can Edit Memories to Erase Fear, Study Says**

“For every new experience someone encounters, bunches of neurons fire in their brain, the connections strengthen, and molecules gather around where the neurons come together. *The Atlantic* reported that some scientists think that these connections are the physical representations of memories. When people think of their memories, these patterns in the brain fire and briefly become unstable.”

(Lisa Spear, “Want to be More Brave? The Brain can Edit Memories to Erase Fear”, Study Says, Newsweek, June 17, 2018, <https://www.newsweek.com/brain-memories-erase-fear-change-memory-979834>)

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### **“Decreased Brain Matter in the Right Caudate of the Caudate Nucleus”:**

“A 2014 study of the brain scans of 64 pornography users found that increased pornography use [i.e. pornography dosage] is linked to decreased brain matter in the areas of the brain associated with motivation and decision-making and contributed to impaired impulse control and desensitization to sexual reward. 79(Simone Kuhn and Jurgen Gallinat, “Brain Structure and Functional Connectivity Associated with Pornography Consumption.” JAMA Psychiatry 71, no. 7 [2014]: 827-834.) Thus the study demonstrated that pornography use can produce physical, anatomic change in the brain – a hallmark of addiction.” 80(Donald L. Hilton, Jr.,and Clark Watts, “Pornography Addiction: A Neuroscience Perspective,” Surgical Neurology International 2, no. 19 [2011].)

### **“Enlargement of the Amygdala”:**

“Structural MRI data comparing healthy adult males to those with compulsive sexual behaviors (CSB) concluded that there was increased

volume of amygdala gray matter in the brains of those with CSB. The amygdala is the reward center and plays a key role in processing emotions. Because of constant stimulation, the amygdala is put under stress and enlarges. This impairs the connectivity of the frontal lobe to the amygdala and distorts decision making. This is characteristic of addictions to controlled substances.” 81(Casper Schmidt et al., “Compulsive Sexual Behavior: Prefrontal and Limbic Volume and Interactions,” *Human Brain Mapping* 38, no.3 [October 27,2016]: 1182-190, doi:10.1002/hbm.23447.)

### **“Hijacks the Brain’s Reward System”:**

“Motivation and reward are regulated by the mesolimbic system. There is ample evidence that the mesolimbic system is activated in response to both substance abuse and natural rewards such as sex.” 82(K.S. Frohmader et al., “Methamphetamine Acts on Subpopulations of Neurons Regulating Sexual Behavior in Male Rats,” *Neuroscience* 166, [2010]:771-784.)

“Addiction occurs when the pleasure/rewards pathways of the brain are hijacked by drugs such as cocaine or by natural process vital to survival such as eating and sex.” 83 (Hilton, *ibid.*) “The constant novelty of Internet pornography, as well as properties such as violation of expectations, anticipation of reward, and the act of seeking [i.e. surfing] stimulate mesolimbic dopamine activity.” (84)( Brian Y. Park, [https://endsexualexploitation.org/brain/#\\_ednref4](https://endsexualexploitation.org/brain/#_ednref4))

“Growing evidence suggests that pornography use hijacks the brain’s reward system in the same way that drug use does. For instance, a study of 19 men with compulsive sexual behavior (CSB) and 19 men without CSB, the same brain activity pattern in pornography addicts [CSB subjects] was seen as in drug addicts and alcoholics. The study also identified a dissociation between desiring or wanting but not liking sexually explicit materials-a finding consistent with theories of incentive motivation underlying drug addiction.” (85)Valerie Voon, “Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviours,”*PLOS ONE*, [Jul 11, 2014]: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0102419>)

### **“Interference and Desensitization”:**

“A study of sexually active individuals found that higher sexual compulsivity scores correlated with greater interference [increased distraction] during a task. Additionally, more years of “compulsive sexual activity” lead to greater habituation or a general numbing of the pleasure response [desensitization]”. 86(Ian P. Albery, et al., “Exploring the Relationship between Sexual Compulsivity and Attentional Bias to Sex-Related Words in a Cohort of Sexually Active Individuals,” European Addiction Research 23, no.1 [November14, 2016]: 1-6, doi:10.1159000448732.)

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### **“How the Teen Brain Transforms Relationships”**

“More intense emotion...” “They found more intense emotional responses among adolescents...” “Teens are also more likely to see emotion in other people, even when there is none.” (Daniel Siegel, “How the Teen Brain Transforms Relationships,” Greater Good Magazine, August 12, 2014, [https://greatergood.berkeley.edu/article/item/how\\_the\\_teen\\_brain\\_transforms\\_relationships](https://greatergood.berkeley.edu/article/item/how_the_teen_brain_transforms_relationships))

“When you show a neutral face to an adolescent in a brain scanner, their amygdala activates—they think that the person is having a negative emotional response rather than a neutral one.” (Daniel Siegel, “How the Teen Brain Transforms Relationships,” Greater Good Magazine, August 12, 2014, [https://greatergood.berkeley.edu/article/item/how\\_the\\_teen\\_brain\\_transforms\\_relationships](https://greatergood.berkeley.edu/article/item/how_the_teen_brain_transforms_relationships))

“...novelty is one of the major things that can trigger dopamine release.”(Daniel Siegel, “How the Teen Brain Transforms Relationships,” Greater Good Magazine, August 12, 2014, [https://greatergood.berkeley.edu/article/item/how\\_the\\_teen\\_brain\\_transforms\\_relationships](https://greatergood.berkeley.edu/article/item/how_the_teen_brain_transforms_relationships))

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### **“5 Ways Kids’ Brains are Super Susceptible to Porn”**

“First, recognize that kids’ brains process porn different from adults...”

“Second, that kids’ brains are more vulnerable to porn.”

“...pornography acts like magnet to the brain. It pulls viewers in to look — even when they find the images disturbing or frightening.”

“That’s because sexually explicit content triggers a physical response in the body — a chain of events that ultimately floods the brain with unnaturally high quantities of chemicals (dopamine among others). In a split second, intense messages of excitement and euphoria are sent through the body. “

“Adults brains’ have safeguards in place to protect them from being tricked by these chemical messages. But in the child and teenage brain, these safeguards are under heavy construction. This is what makes kids more vulnerable to the pull of pornography than adults. When pornography is viewed habitually at younger ages it could drastically [interfere with normal brain development.](#)”

“ #1: Underdeveloped prefrontal cortex...”

“The brain’s ability to reject signals from pornographic content occurs in the prefrontal cortex. That’s where all rational thought patterns and self-control take place. “

“...when kids are exposed to pornography they don’t always have a natural ability to make safe, healthy decisions on their own. “

“#2: Dopamine in overdrive...”

“When kids reach puberty this system goes into overdrive! That means youth exposed to pornography actually feel more and get a higher hit of dopamine than an adult. Dopamine cravings are also stronger at this age...”

“#3: Imbalanced stress response...”

“First, large amounts of cortisol further impair the “thinking brain” (prefrontal cortex) and second, it can increase feelings of anxiety or depression.”

“#4: The organizational window of adolescence...”

“Repeated exposure to pornography increases production of testosterone and cortisol.”

“...steroid hormones...”



“Too much exposure to pornography when young will allow these stress hormones to subtly rewire the brain.”

“ #5: Increased testosterone levels...”

“Testosterone levels are at their natural peak during adolescence. As such, so is sexual anticipation.”

“...when young people, particularly teen boys, are exposed to pornographic content their sexual response will be much higher than that of an adult.”

“...increased feelings to act out on what they are seeing — further increasing their level of sexual anticipation.”

“State Legislature to pass a bill or resolution...”

“Library Bill: Mandated filtering — including WiFi — in all libraries.”

“Custody Bill: If a parent has intentionally exposed a child to pornography, that can be taken into account when determining custody situations.”

“Internet Provider Bill: ISPs have to send out a letter and let their consumers know what options they have for filtering pornography.”

“Resolution Regarding the Impact of Adult Images on Children’s Development: Recognizing that both softcore and hardcore porn negatively impact brain development of children.” (Marilyn Evans, “5 Ways Kids’ Brains are Super Susceptible to Porn”, Protect Young Minds, July 17, 2018, <https://protectyoungminds.org/2018/07/17/5-ways-kids-brains-susceptible-porn/>)

“Resolution on the Public Health Crisis: [pornography was declared to be a public health crisis](#) (Utah was the first state to declare this. It caused enormous media uproar! Since then many other states have passed similar resolutions.)” (Marilyn Evans, “5 Ways Kids’ Brains are Super Susceptible to Porn”, Protect Young Minds, July 17, 2018, <https://protectyoungminds.org/2018/07/17/5-ways-kids-brains-susceptible-porn/>)

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## **“Latest research reveals the more you hug your kids – the smarter they get”**

The more you hug a baby, the more their brains grow, according to a recent survey from the Nationwide Children’s Hospital in Ohio.

125 babies, both premature and full-term, were included in the study, which looked at how well they responded to being physically touched.

“...babies that were subjected to more affection by parents or hospital staff showed stronger brain response.

**Basically, affection is vital for the development of the brain. So, cuddle and hug your babies as much as you can.**

(Newsner, “Latest research reveals the more you hug your kids the smarter they get”, Newsner, June 9, 2017, <https://en.newsner.com/family/latest-research-reveals-the-more-you-hug-your-kids-the-smarter-they-get/>)

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## **“The Brain Literally Starts Eating Itself When it Doesn’t Get Enough Sleep”**

“Researchers have found that persistently poor sleep causes the brain to clear a significant amount of neurons and synaptic connections, and recovering sleep might not be able to reverse the damage.”

(Bec Crew, “The Brain Literally Starts Eating Itself When It Doesn’t Get Enough Sleep”, Science Alert, May 29, 2018, <https://www.sciencealert.com/your-brain-starts-eating-itself-due-to-lack-of-sleep>)

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## Ben Bennett



# BEN BENNETT

## SPEAKER | AUTHOR

Ben grew up in Virginia Beach, Virginia and met Christ at an early age. After being heavily involved in Cru throughout college, and developing a great desire to see college students transformed by the gospel, he joined their staff in 2011.

For over 10 years of his life, Ben battled a porn addiction and other forms of habitual sexual sin before coming to lasting freedom through a Biblical and clinical approach to sexual addiction recovery.

Ben currently resides in Dallas, Texas and serves with Josh McDowell Ministry as an author, speaker, and evangelist supporting the health and restoration of men and women struggling with woundedness, habitual sin, and sexual brokenness.

For more than fifty years, Josh McDowell has been at the forefront of cultural trends and groundbreaking ministry. Ben will serve alongside Josh, writing, speaking and shining the light of Christ into the darkest places, and helping believers be prepared to share with confidence, knowing the reason why Christianity is reliable, relational and relevant to our lives.

### Ben is available to speak on:

iGen for Jesus | Overcoming Sin & Setbacks | You, Me, We | Wholeness In A Sex Saturated World | Relevant, Reliable, Relational: The Bible?



# WHO'S TALKING ABOUT BEN?



*"Ben speaks from personal experience of the freedom Christ offers each and every troubled heart. It is such a delight for me to hear Ben speak for his generation in such a relevant, reliable, and relational way."*

-Dr. Ted Roberts // Pastor, Counselor, and Founder of Pure Desire Ministries

*"While many young people today struggle with hurt, mental health issues, and addictions, few have a story of freedom to share like Ben's that renews hope, gives a roadmap to healing, and inspires next steps. I've personally benefited greatly from what Ben has to share and I think many people in all walks of life will too."*

-Karl Armentrout // Cru National Conference and Events Director

*"My hidden sin had me imprisoned in silence, guilt, and secrets for years. When I attended Ben's session, he shared his journey of liberty from sin, and I felt the Holy Spirit moving and convicting me. Through Ben's personal encouragement and passion for sharing the love of God, I shared my darkest sin with others and began the journey of healing and freedom through Jesus and His wonderful people. Thank you Ben."*

-Marylyn // Texas College Student

## Ben is the author of:

Living Free

FLESH SERIES: Sex, Lust, Porn and The Christian

Josh, Ben, and Jake are launching a movement focused on speaking, equipping, and connecting individuals to solutions to overcoming unwanted struggles.

Through interactive speaking, digital content, and practical next step resources, God is raising up a generation of young people who are passionate about following Jesus wholeheartedly and working through the setbacks and sin that hinder them.



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## Jake Kissack



# JAKE KISSACK

## SPEAKER

Jake was raised where the buffalo still do roam. His family owns a 3000 acre cattle ranch in Wyoming. His adventurous heart was pursued and captivated by Jesus as far back as memory serves. His passion to see Jesus bring life to all was bolstered in his master's degree thesis work on how pornography negatively affects the church.

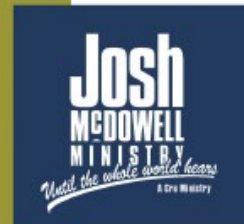
His 13 year journey with a porn addiction crushed his passion and compelled him to seek true freedom, which was found through Christian sexual addiction recovery.

Jake resides in Dallas, Texas and serves with the Josh McDowell ministry as a developing author, speaker, storyteller and evangelist, supporting the health and restoration of men and women struggling with porn and sexual brokenness.

For more than fifty years, Josh McDowell has been at the forefront of cultural trends and groundbreaking ministry. Jake will serve alongside Josh, writing, speaking and shining the light of Christ into the darkest places, and helping believers be prepared to share with confidence, knowing the reason why Christianity is reliable, relational and relevant to our lives.

### Jake is available to speak on:

When God Talks | Empowered to Live Life Fully Alive | Connections that Count  
Wholeness in A Sex Saturated World | Unshakable Truth // Live for Love



# WHO'S TALKING ABOUT JAKE?



*Jake is wholesome, invigorating and smart. His ability to speak is only surpassed by his contagious love for Christ and the Scripture. He wins the hearts and minds of students through stories."*

**-Josh D. McDowell // Author/Speaker**

*Jake communicates with compassion for the wounded and broken and has an authentic desire to see people healed and set free. God's work through his message has been a beacon of hope that has empowered struggling students to find freedom and live wholehearted.*

**-Sherry Broesamle // Field Director of People & Culture, CRU**

*Jake's heart and passion is to participate in and see God heal wounds and restore people.*

**-Austin Adams // Family Pastor, Crossroads Community Church**

*Jake passionately plants seeds of gospel hope and invites people to live whole heartedly for the glory of God. His message is culturally relevant, Gospel focused, and needed wherever young people are gathering!*

**-Kurt Sauder // Author, Speaker, Radio Host, Further Still Ministries**

Josh, Ben, and Jake are launching a movement focused on speaking, equipping, and connecting individuals to solutions to overcoming unwanted struggles.

Through interactive speaking, digital content, and practical next step resources, God is raising up a generation of young people who are passionate about following Jesus wholeheartedly and working through the setbacks and sin that hinder them.



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## Alex McClellan



# ALEX MCLELLAN

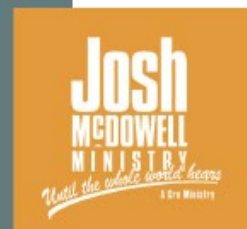
## SPEAKER | AUTHOR

Alex McClellan serves with Josh McDowell Ministry, a Cru ministry (formerly Campus Crusade for Christ). An effective communicator with international experience, Alex is passionate about engaging others with the gospel, and he has joined our team to share the truth of Christ – until the whole world hears.

For more than fifty years, Josh McDowell has been at the forefront of cultural trends and groundbreaking ministry. Alex will serve alongside Josh, writing, speaking and shining the light of Christ into the darkest places, and helping believers be prepared to share with confidence, knowing the reason why Christianity is reliable, relational and relevant to our lives.

### Alex is available to speak on:

You Can Handle the Truth! | How To Find The Meaning Of Life  
Reasons To Believe In The Resurrection | Will The Real Jesus Please  
Stand Up | How Do You Make Sense of Suffering? | Can We Trust The  
Bible? | Be Prepared to Share (1 Peter 3) | Be Prepared to Shine  
(Matthew 5) and more . . .





# WHO'S TALKING ABOUT ALEX?



*"Alex is a winsome and effective communicator who understands how skeptics view the gospel and the questions they raise...I enthusiastically recommend his work."*

—Ravi Zacharias, Ravi Zacharias International Ministry

*"Alex's ministry has been immensely beneficial to the church in helping to train, equip and prepare God's people for the task of bringing the gospel to the world and the world to Christ."*

—Wayne Sutton, Senior Pastor, Carrubbers Christian Centre, Edinburgh, Scotland.

*"Alex is gifted in providing a strong intellectual and culturally relevant expression of the Christian faith and this has been a powerful way for our students to build their own foundation in Christ and His Word."*

—Peter Thomas, National Director, Capernwray Bible School, Australia

## Alex is the author of:

A Jigsaw Guide to Making Sense of the World (InterVarsity Press, 2012)

A Jigsaw Guide to the Meaning of Life (JG2P, 2016)

A Jigsaw Guide to Sharing Your Faith (JG2P, 2016)

Alex and Sheryl have been married for over twenty years and have three children: Sophia, Moriah and Asher. The family lived in Scotland, UK, before relocating to the USA, and they currently reside in San Diego, California.



For more information and to book Alex please contact:



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## Josh McDowell



# JOSH McDOWELL

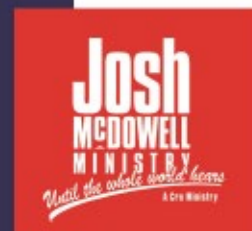
## SPEAKER | AUTHOR

Josh McDowell has been at the forefront of cultural trends and groundbreaking ministry for more than 54 years. He shares the essentials of the Christian faith in everyday language so that people of all ages and stages can know Christ, understand what they believe and why it is true, and learn how to live, share and defend their faith.

Well known as an articulate speaker, Josh has spoken to approximately 35 million people, in 140 countries. Josh has written or co-authored more than 150 books in over 100 languages including *More Than a Carpenter* with over 27 million copies distributed and *Evidence That Demands a Verdict*, named one of the twentieth century's top 40 books and one of the thirteen most influential books of the last 50 years on Christian thought by World Magazine. *Evidence That Demands a Verdict* also just won the 2018 Evangelical Christian Publishers Association award in the Bible Reference Book category.

Josh is available to speak on:

Relationships | Parenting | Reliability of Scripture | My Journey  
Self Image | Sexual Integrity | Truth in Today's Culture



# WHO'S TALKING ABOUT JOSH?



*"This has helped me more than any other kind of seminar on speaking"*  
-Cru Staff Member, Young Communicators Seminar

*"His message spoke to all of us but certainly impacted the hearts and minds of the teens the most."*  
-Alpha Women's Center of Grand Rapids Staff Member

*"Youth leaders and teachers spoke to us for weeks after the dinner telling us his message opened paths to discussion of needs with their groups."*  
- Ministry Leader and Event Host

*"Josh's message was a deep examination of God's truth made relevant for your contemporary, apathetic youth culture."*  
-Tim Rickman, High School Principal, Wesleyan Education Center

**Josh McDowell is an award-winning author and international speaker. He has written or co-written more than 150 books--some in over 100 languages--and has spoken to approximately 35 million people in 140 countries.**

Josh and his wife Dottie have been married 46 years. They have four children and ten grandchildren.



For more information and to book Josh please contact:



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