

The Psychology and Neuroscience of Sustainable Weight Loss

Susan Peirce Thompson, Ph.D.

Introduction...



The Problem

- There is a global obesity pandemic



It's as Bad as You Think

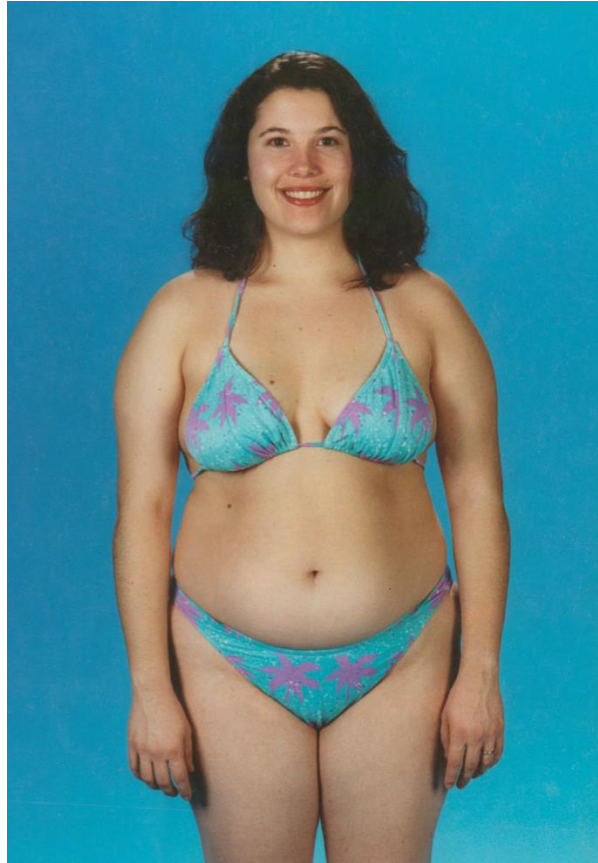
- 2.1 billion people are overweight or obese
- In the USA, 108 million people are on a diet
- Obesity is now a bigger problem in developing nations than malnutrition
- China and India lead the world in numbers of overweight people
- The Middle East has the highest per-capita rates of Type 2 Diabetes – 40%
- 75% of people are dying prematurely from diet-related diseases

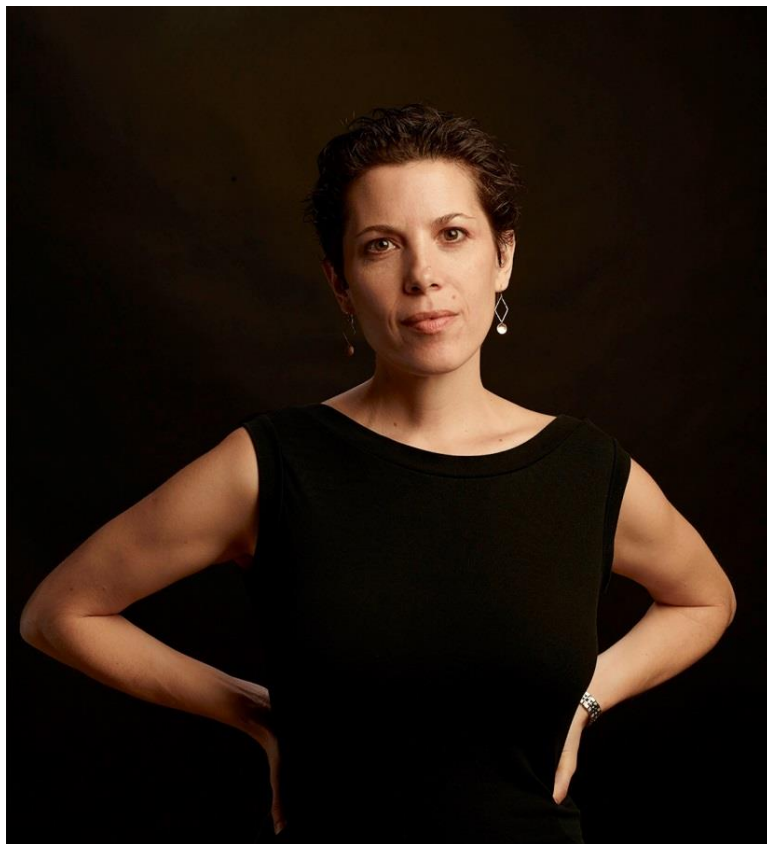
...And Worse

- Over the next three years, a new McDonald's will be opening in China ***every single day***
- Over the next 20 years, we will spend an estimated \$47 trillion dollars on diseases caused by the Global Industrial Diet
- Over 99% who try to lose weight do not get slender and stay slender long-term



1. How and why are so many millions being stymied in their weight-loss attempts?
2. Why can some people maintain a healthy weight, while others struggle?
3. What does it really take?





It's Not Just About Weight

- Plenty of slender people struggle with their eating too
- 17% of slender people qualify as full-blown food addicts
- We need a solution that addresses not just ***weight*** but ***food obsession***
- ***Happy, Thin, and Free!***

Question #1

- Question: How and why are millions of people being stymied in their weight-loss attempts?
- Answer: Their brains are blocking their attempts to lose weight
 - This happens in three main ways
 - To lose weight and keep it off, you must understand and work with your brain

#1 The Wiring of Willpower

- The first huge mistake that people make when they try to lose weight is they rely on their willpower

A Crash Course in Willpower

- 1998: The Radish Experiment



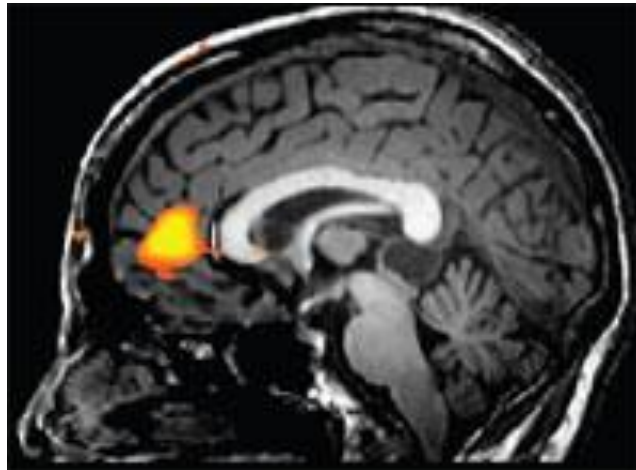
- Willpower is like a muscle that can be fatigued through use

How Does Willpower Work?

- Willpower is like a battery
- The things we do all day everyday deplete our willpower stores
 - Resisting temptations
 - Persevering on a task
 - Regulating emotional responses
 - Redirecting attention
 - Making decisions – (like checking email)
- We make an average of 119 food-related decisions each day

The Anterior Cingulate Cortex

- When willpower stores are depleted, activity in the anterior cingulate cortex slows down to a crawl



- Fueled by brain glucose

“The Willpower Gap”

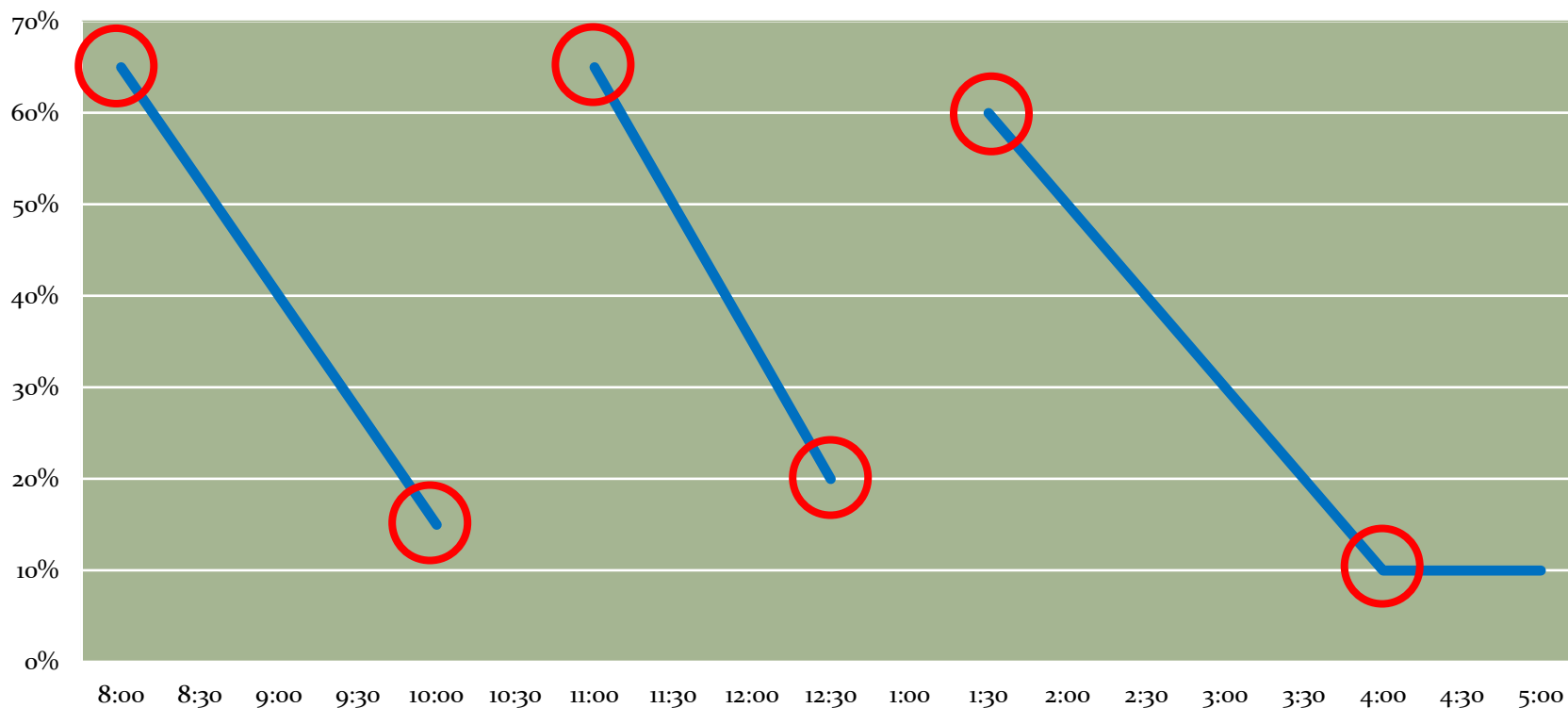


An Illustration: The Legal System

- Two schools of thought:
 1. Lady Justice is blind and impartial
 2. Justice hinges on “What the judge ate for breakfast”



The Minute-by-Minute Data



How Can You Know You're Depleted?

- Is there a way these judges could know they had run out of willpower?
 - Depressed? No.
 - Angry? No.
 - Unhappy? No.
- The effect of willpower depletion on **behavior** is large, but the effect on **subjective experience** is far more subtle

The Telltale Sign

- The telltale sign is that the volume on life feels like it's turned up
- Stronger reactions
 - A sad movie makes you sadder
 - A traffic jam makes you more frustrated
 - Ice-cold water feels more painful
 - Challenging life circumstances feel more catastrophic
 - Temptations pull more strongly

What Should You Do About It?

- Key #1:
- You must take the load off of willpower
- How?

A Curious Finding

- Roy Baumeister & colleagues developed an instrument to measure people's willpower
- Interestingly, the people who score the very highest on the instrument are also those who use their willpower the least

How Can This Be?

- They use their willpower ***in advance*** to avoid having to use it in the future
- They have ***BRIGHT LINES***
 - Clear, unambiguous boundaries that you don't cross no matter what
 - Very effective at bolstering willpower
- They build ***RITUALS***

The Power of the Automatic Brain

- Did anyone here brush their teeth this morning?



The Emergency Action Plan

- Several activities have been scientifically shown to replenish willpower
 - Getting social support
 - Cultivating gratitude
 - Meditation
 - Prayer
 - Sleep

Armed With This Science...

-we can evaluate conventional wisdom when it comes to weight loss
- Q: Does this advice TAX willpower or take the load OFF of willpower?

Example #1

- Meal timing and frequency
- “Eat several small meals throughout the day”
 - “Keep your metabolism revving”
 - Fallacy
 - Don’t let your blood sugar drop
 - Fallacy

The Straight Scoop

- The big problem with eating many small meals throughout the day, or grazing nonstop, is that it taxes your willpower ALL DAY LONG
- Interferes with automaticity



Example #2

- Exercise
- Exercise is pretty useless for weight loss
- Eating right is critical for weight loss
- Exercise burns up
willpower



My Exercise Recommendations

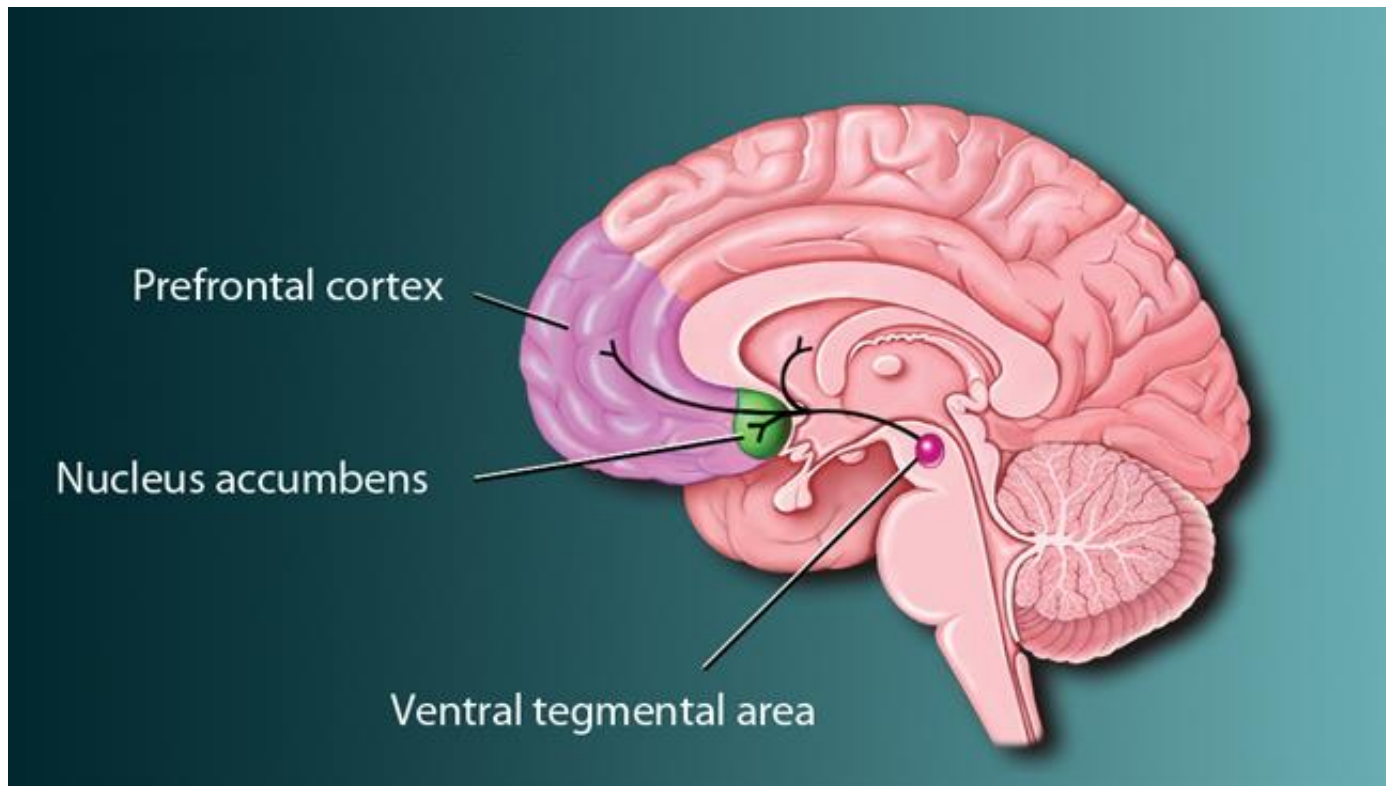
- Exercise is incredibly healthy in just about every way
- Just don't start exercising at first
- Wait until rock-solid habits of healthy eating have become automatic

Recap:

1. How and why are so many millions being stymied in their weight-loss attempts?
 - Their brains are blocking their attempts to lose weight
 - #1 Willpower
 - #2 Cravings

Cravings

- Dopamine / Reward Pathway
- MOTIVATION



Key #2:

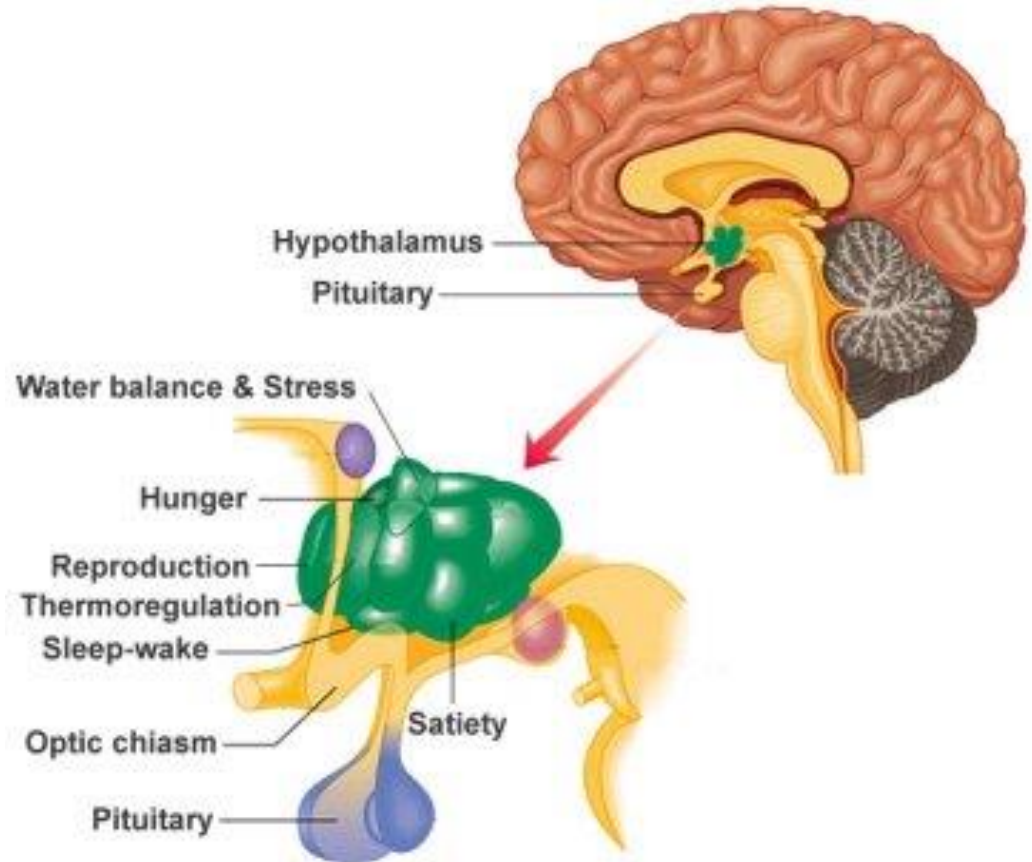
- Stop flooding the brain with dopamine

Recap:

1. How and why are so many millions being stymied in their weight-loss attempts?
 - Their brains are blocking their attempts to lose weight
 - #1 Willpower
 - #2 Cravings
 - #3 Hunger

The Source of Hunger

- The hypothalamus
 - Hormones



The Role of Leptin

- Leptin is a hormone that is secreted by our fat cells
 1. I'm not hungry
 2. I feel like exercising



Key #3:

- Lower insulin levels

Question:

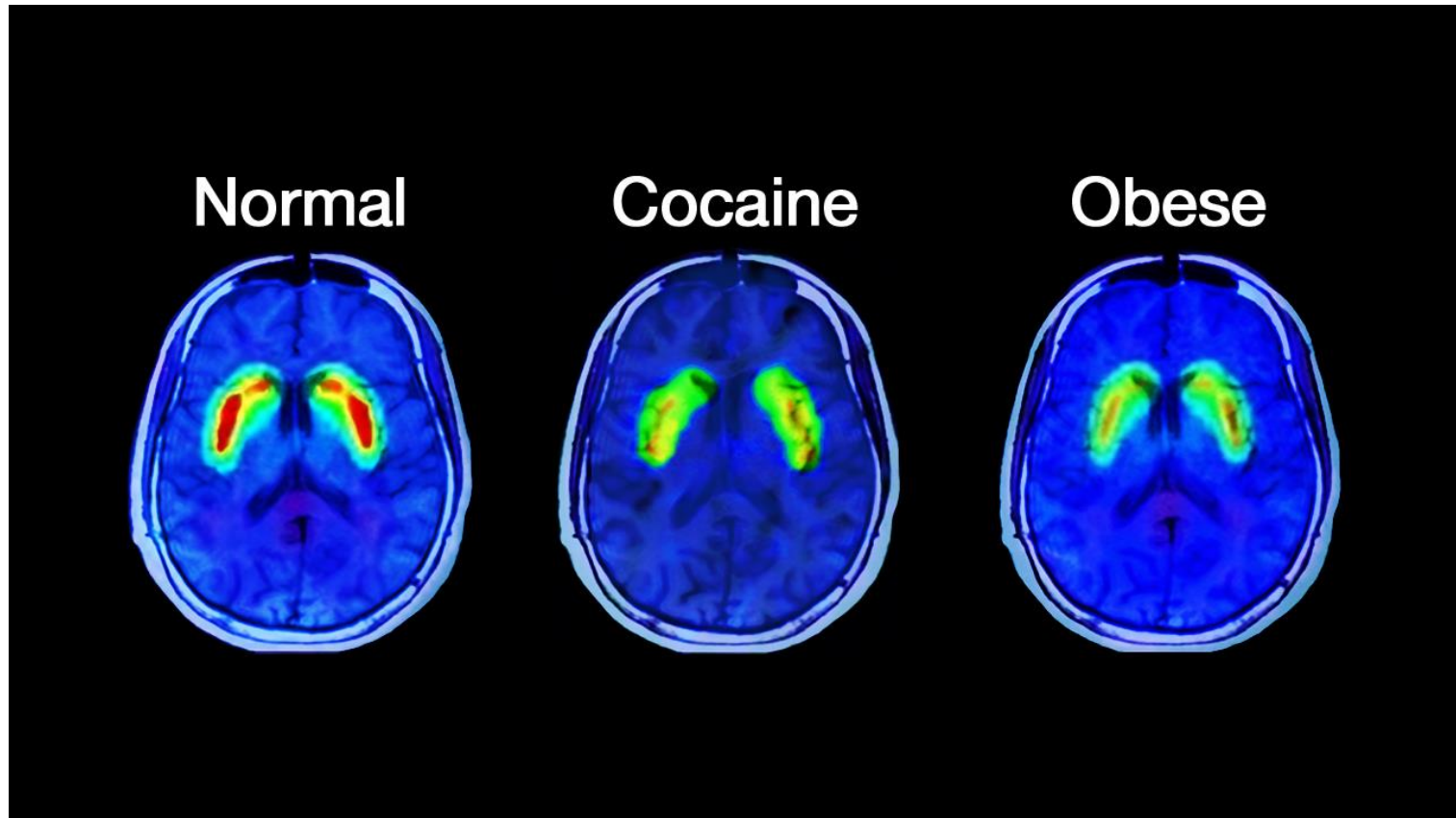
- What floods the brain with dopamine?
- What raises insulin levels?

- **SUGAR**
- **FLOUR**





PET Scans of Dopamine



The Smoking Gun





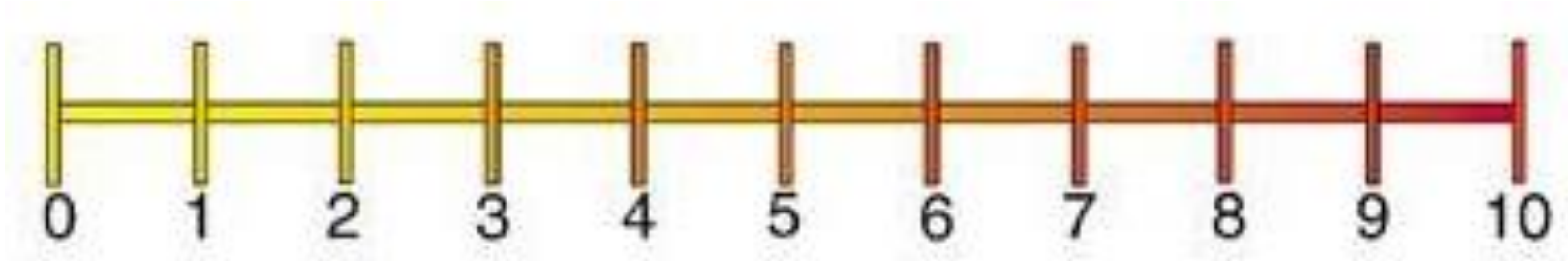
Question:



Our Outline

1. How and why are so many millions being stymied in their weight-loss attempts?
2. Why can some people maintain a healthy weight, while others struggle?
3. What does it really take?

The Susceptibility Scale



$1/3$

$1/3$

$1/3$

- Animal data
- Human data
 - 56% obese women / 43% obese men
 - 30% overweight
 - 17% lean

1/3

Implications

- One size does NOT fit all
- People survey the landscape from their own vantage point
- A sensible eating plan might work really well...if you could stick with it
- But 1/3 of the population is high on the Susceptibility Scale and disproportionately sabotaged by the willpower gap, hunger, and cravings

Question:

- WHY are some people high on the Susceptibility Scale while others are low?
- What causes this difference?

Answer:

- Some people are naturally more sensitive to the cues that predict rewards
- This is true in rats as well
- To illustrate...

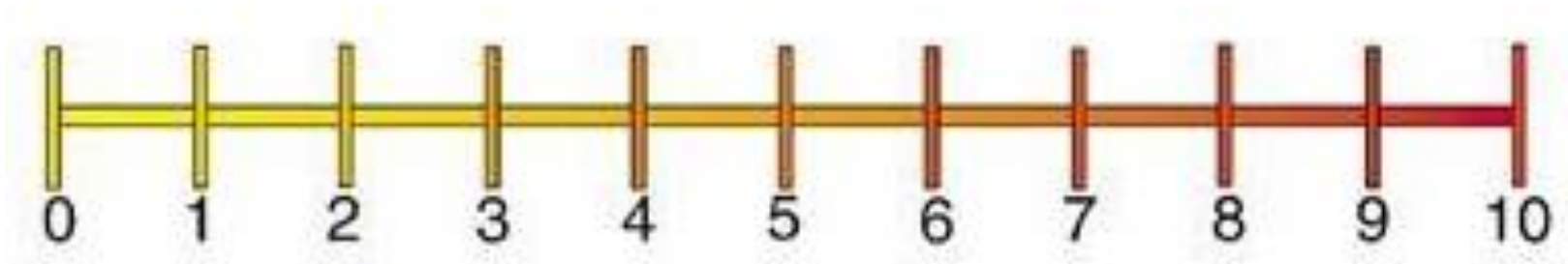
Goal Trackers vs. Sign Trackers



The Results

Goal Tracking

Sign Tracking



$1/3$

$1/3$

$1/3$

Why?

- What causes some rats to be especially sensitive to the cues that predict rewards?
 - Genetic
 - Environmental

Think About This...

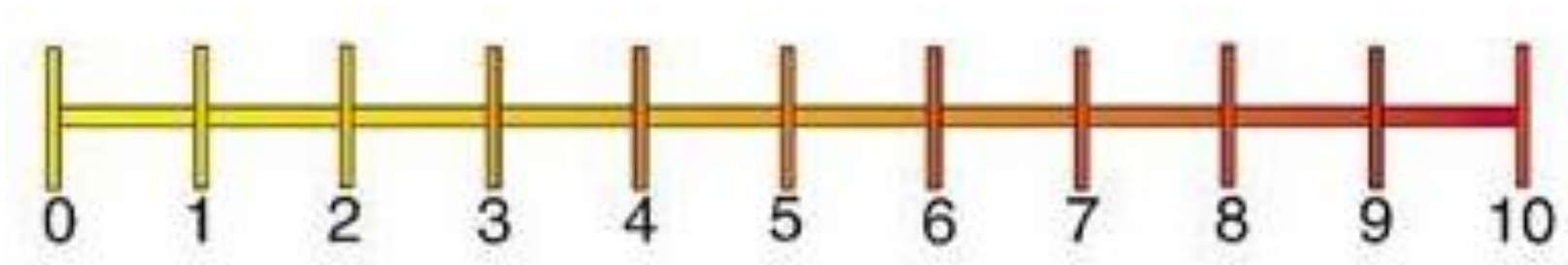
- What are the implications of having a brain that is especially sensitive to the cues that predict food rewards in our society?



Our Outline

1. How and why are so many millions being stymied in their weight-loss attempts?
2. Why can some people maintain a healthy weight, while others struggle?
3. What does it really take?

The Susceptibility Scale



$1/3$

$1/3$

$1/3$

It Depends

- For people who are low on the Susceptibility Scale, conventional wisdom might work (emphasis on “might”)
 - Reduced calories (as opposed to cutting out highly processed foods)
 - Exercise
 - “Cheat day”
 - Many small meals

For People Who are Higher

- Conventional wisdom is likely to backfire entirely
- Get the brain on board
- An integrated system:
- ***BRIGHT LINE EATING***
- Five brain-based suggestions for weight-loss success

The Basics

- Develop a regimen
 - Increase your willpower stamina
- Eat for sustained blood glucose
- Build in habits and automaticity
- Take the load off of willpower as much as possible

Suggestion #1:

1. Stick to Bright Lines

- No sugar
- No flour
 - Stabilize blood glucose (avoid willpower crashes)
 - Lower insulin to get leptin on board
 - Let dopamine receptors repopulate

Suggestion #2

2. Have a food plan

- Shrinks the 119 decisions to a more manageable number
- A good food plan includes both categories & quantities for every meal

Suggestion #3

3. Plan ahead

- Props up willpower by reducing on-the-fly choices when you may be depleted
- Makes the right thing to eat the easiest thing to eat

The #1 Thing You Can Do

- Write down your food the night before

Suggestion #4

4. Engage in regular monitoring

- Nightly checklist sheet
- Little book by the fridge
- Graph paper by the scale

Suggestion #5

5. Have an Emergency Plan that you can activate in times of temptation

- Social Support: Call or text a friend
 - Join a community!
- Meditate
- Pray
- Get grateful
- Sleep

Five Actions to Rewire Your Brain for Success

- Stick to Bright Lines
- Have a food plan
- Write down your food the night before
- Continuously monitor your actions and your progress
- Have an emergency plan written down that you can activate when you get tempted

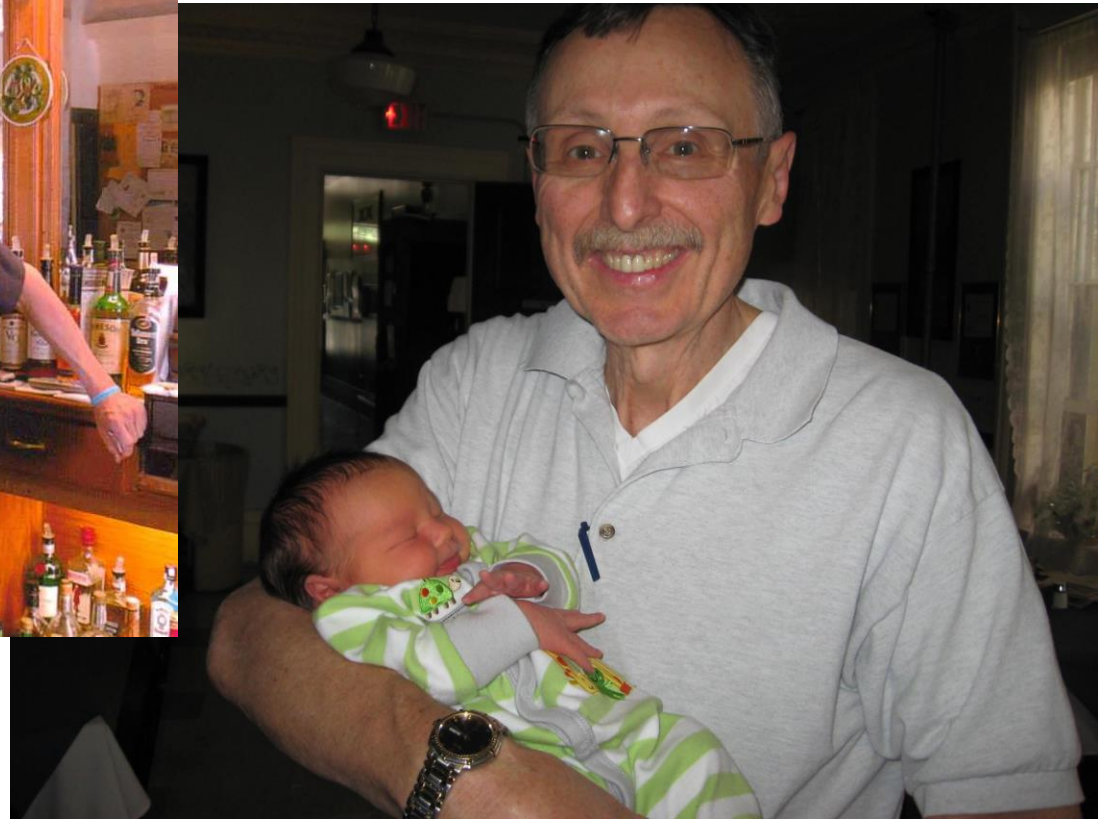
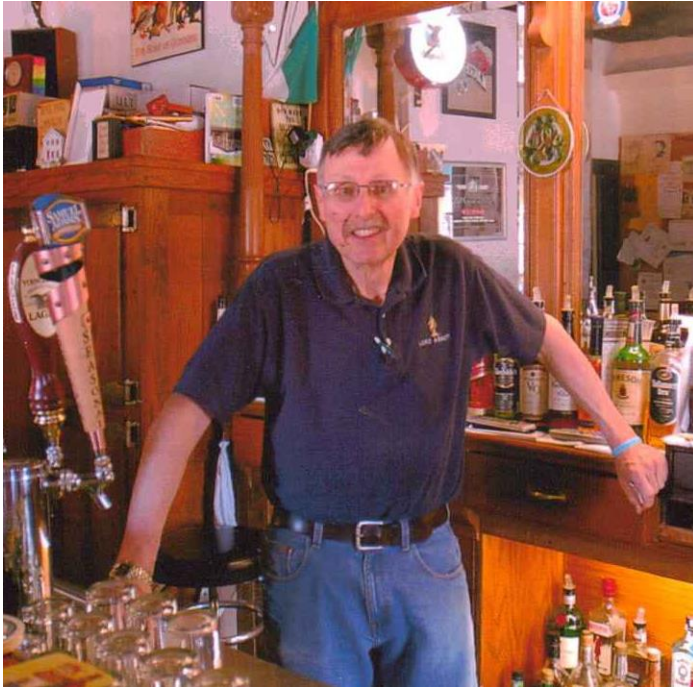
Pat Reynolds



Pat Reynolds



Pat Reynolds



Teresa Stawicki



Teresa Now



Linden Morris DelRio



Linden Morris DelRio



What Makes Weight Loss Truly Sustainable

- **IT GETS EASIER**

- Insulin levels come down and leptin gets on board
- Dopamine receptors replenish and cravings reduce
- Willpower becomes more resistant to depletion
- Habits become automatic

Self-Perception Theory



Spread the Word...

- Refined foods are truly, physiologically addictive
- There is a Susceptibility Scale: Some people are more susceptible to their addictive pull than others

Spread the Word...

- Complete abstinence from sugar & flour is a viable and empowering choice for many
- Bright Lines work for eating like they work for smoking
 - Should be supported and respected
 - Just like the choice to not drink or smoke is supported and respected

Don'tcha Think?

- We can and should upgrade our social norms for expected foods at birthdays, holidays, restaurants, and public venues
 - We are paying the price
 - Obesity
 - Chronic diseases
 - Lethargy
 - Low self-esteem
 - Financial devastation

Q & A TIME