Anxiety is an *Emotion* characterized by:

- An unpleasant state of inner turmoil
- accompanied by nervous behavior, such as pacing back and forth, somatic complaints and rumination.
- It is the subjectively unpleasant feelings of dread over anticipated events, such as the feeling of imminent death.
Depression is an *Emotion*

- Depression is a state of low mood and aversion to activity that can affect a person’s thoughts, behavior, feelings and sense of well-being.
- People with depressed mood can feel sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable or restless.
- They may lose interest in activities that were once pleasurable.

*Emotional* Trauma

- *(Emotional) Trauma* is an emotional response to a terrible event like an accident, rape or natural disaster.
- Immediately after the event, shock and denial are typical. Longer term reactions include unpredictable emotions, flashbacks, strained relationships and even physical symptoms like headaches or nausea.
- While these feelings are normal, some people have difficulty moving on with their lives.

*Emotions* are the **Expression** of the Neurotransmitters in your Brain

Reference: [http://choosinghealthnow.com/blog/does‐this‐neurotransmitter‐make‐my‐butt‐look‐fat/](http://choosinghealthnow.com/blog/does‐this‐neurotransmitter‐make‐my‐butt‐look‐fat/)
Gamma‐Aminobutyric acid is the chief inhibitory neurotransmitter in the mammalian central nervous system.

Areas of the Brain
Genetic SNPs

Are There Genetic Predispositions?
Acknowledgement

I want to thank Dr. Ben Lynch for allowing me to use many of his Pathway Planners in this lecture.

Benjamin Lynch, ND
Pioneer, Innovator, Researcher, Clinician, Helluva Nice Guy!

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Pioneer, Innovator, Researcher, Clinician, Helluva Nice Guy!

EXCITATION CAN CAUSE THESE SYMPTOMS, WHICH SNPS ARE IMPORTANT TO CONSIDER?

COMT, MAO

INCREASED GLUTAMATE CAN CAUSE EXCITATION
What SNPs can cause that?

GAD

L-Glutamine

H^+

CO2

B6

GAD

Delta-AMPA

Inhibitory
Neurotransmitter

Excitatory
Neurotransmitter


Hettema JM, 1 An SS, Neale MC, Bukszar J, van den Oord EJ, Kendler KS, Chen X.
ROS, Aldehydes (Yeast)

Suspect difficulty in metabolizing aldehydes. Also involved in MCS.

SOD suspect mitochondrial involvement. Involved in MCS.

PON1 Organophosphates (Patient lives in a farming community)


The role of COMT gene variants in depression: Bridging neuropsychological, behavioral and clinical phenotypes. Antypa, N1, Drag, A, Serretti, A.

TransSulfuration

When it does express you may see brain fog, high ammonia on lab tests, and/or high taurine on NT testing.

METHYLATION

MTHFD1 gastrointestinal health http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3047240/
MTHFR ulcerative colitis http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1774509/

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Mitochondrial Complex 1 - The Most Important

- NADH-ubiquinone oxidoreductase (NDUFS)
- Complex 1: NDUFS
- Complex 3: UQCRC2
- Complex 4: COX
- Complex 5: ATP synthase

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What Can Alter Our Neurotransmitters?

- Those Things that Damage the Cell:
  - Chemical/Physical
    - Heavy Metals
    - UV, Benzoate
    - Heat, Cold
    - Stress, Radiation
    - Trauma
  - Microbial
    - Viruses, Bacteria, Parasites
  - Psychological
    - Yelling, Abuse
    - Isolation, Abandonment
    - PTSD

Naviaux, R.K., Metabolic features of the cell danger response, Mitochondrion (2013), http://dx.doi.org/10.1016/j.mito.2013.08.006

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www.DrJessArmine.com
Causes of Distress and Imbalances

- Immune
  - Toxins
  - Xenobiotics
  - Dietary peptides
  - Dysbiosis
  - Bacterial
  - Viral
  - Fungal
  - Parasites

Emotional Trauma

JUST as important as microbial and physical trauma.

An event will most likely lead to emotional or psychological trauma if:

- It happened unexpectedly.
- You were unprepared for it.
- You felt powerless to prevent it.
- It happened repeatedly.
- Someone was intentionally cruel.
- It happened in childhood.
Commonly Overlooked Causes of Emotional Trauma

- Falls or sports injuries
- Surgery (especially in the first 3 years of life)
- The sudden death of someone close
- A car accident
- The breakup of a significant relationship
- A humiliating or deeply disappointing experience
- The discovery of a life-threatening illness or disabling condition

What will these cellular assaults cause?

Of assault

The Method
Leaky Gut Creates Inflammation

What can Inflammation do to us?

HPA/HPT/HPG Axis

Distress or imbalance in one axis can cause dysfunction in all three.


Mood Disorders have numerous causes. How are they identified?

“Listen to your patient, he is telling you the diagnosis”
Sir William Osler, Bt
Founder Father of Johns Hopkins Medical Center

“Listen to your patient, he is telling you the diagnosis”

REMEMBER, In Real Estate, It’s “Location, Location, Location.”
In Health Care it’s, “History, History, History!”

The root causes
Look for
• Neurotransmitter and stress hormone testing to identify the level of adrenal stress
• Looking at gut function for Leaky Gut Syndrome, food allergies, candida, dysbiosis, etc...
• Looking for immune dysfunction from possible metal allergies, chronic viral, bacterial, fungal or autoimmune disease.
• Most of all, root cause analysis requires someone who can....

Think Like a Detective

The downstream effects

Look For
...changes in...

- Redox
- Lipid Dynamics
- Creation of Proteins
- Bioenergetics
- Protein Folding and aggregation

...changes in...

- Cellular Electron Flow
- O2 Consumption
- Cellular fluidity
- Vitamin Availability
- Metal Homeostasis

Cell Damage=changes in:

- Acute Conditions cannot be treated like Chronic Conditions

- Acute CDR
  - Little/No downstream effects
  - Quick Recovery

- Chronic CDR
  - Numerous Downstream effects
  - Numerous CDRs Synergize
  - Homeostatic Mechanisms ineffective
  - Healing impossible unless treating the root causes AND downstream effects.

www.DrJessArmine.com
If We Treat Symptoms:

Primary Complaints of Depression & Anxiety

The Traditional Medical Route:

- Antidepressant Medications like Prozac, Zoloft, Lexapro (SSRI)
- If that doesn't work after 4-6 weeks, then, maybe, Wellbutrin (SNRI, SDRI)
- If that doesn’t work after several weeks, then maybe one of the newer meds like Pristiq or maybe referral to a psychiatrist for even stronger meds.
- Let’s not forget the Ativan for the anxiety
- None of this gets at the CAUSE

Neurotransmitters
Microbial Testing & More

Testing Options

Let’s look at the sequence of NT patterns as the neuro system’s ability to compensate over time

Initial Immune Pattern.
Global Excitation

About 3 years later: Inhibitory NTs are lower & more definite adrenal fatigue

About 3 years later: Note: indication of adrenal fatigue

10 years later, ALL NT’s are on their way down

15-20 Years: Pretty Much Exhausted
Lyme pediatric specialist Charles Ray Jones, MD, compiled a list of common symptoms of infection in his young patients: severe fatigue unrelieved by rest

- insomnia
- headaches
- nausea, abdominal pain
- impaired concentration
- post-hypotension syndrome
- difficulty thinking and expressing thoughts
- difficulty reading and writing
- being overwhelmed by schoolwork
- difficulty making decisions
- confusion
- uncharacteristic behavior
- weight loss and mood swings
- frequent colds
- joint pain
- dizziness
- noise and light sensitivity

Dr. Jones has also documented congenital, or gestational, Lyme disease in some children who were infected in utero or by breastfeeding. In these patients his suspicion is raised when the child has:

- frequent fevers
- increased incidence of ear and throat infections
- increased incidence of pneumonia
- irritability
- joint and body pain
- sparse muscle tone
- gastroesophageal reflux
- small windpipe (tracheomalacia)
- cataracts and other eye problems
- developmental delay
- learning disabilities
- psychiatric problems
Hong Kong: 27 year old female with recalcitrant anxiety

Suramin: Anti Parasitic Drug
Apyrase: Used to treat Trichomonas

Of Interest
The Order of Treatment

"Reduce Stress,
Heal the Cells,
Heal the Gut,
Kill the Bugs!!"

Reduce Stress

I Think We Sometimes Forget,
The Foundation of Life Happens in THE CELL!!
Basis of Cellular Function...

Energy Creation

Energy Management

Waste Management

Neurotransmitters

Balance

TAAT

Targeted Amino Acid Therapy

Dr. Kellerman
Neurogenetics and Nutrigenomics of Neuro-Nutrient Therapy for Reward Deficiency Syndrome (RDS): Clinical Ramifications as a Function of Molecular Neurobiological Mechanisms

Kenneth Blum,1,5,6,8,10,11,12,15,*
Marlene Oscar-Berman2,
Elizabeth Stuller3,
David Miller4,5,
John Giordano6,
Siobhan Morse6,
Lee McCormick7,
William B. Downs5,
Roger L. Waite5,
Debmalya Barh8,
Dennis Neal9,
Eric R. Braverman1,10,
Raquel Lohmann10,
Joan Borsten11,
Mary Hauser12,
David Han13,
Yijun Liu1,
Manya Helman14, and
Thomas Simpatico15

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Treatment for Emotional Trauma

1. Emotional Release Technique
2. Cellular Emotional Release Technique
3. Emotional Release Technique Tapping
4. Emotional Trauma Therapy
5. Trauma Counseling Techniques
6. Emotional Healing Techniques
7. Trauma Group Therapy Techniques
8. Neuro-Emotional Technique
9. EMDR (Eye Movement Desensitization and Reprocessing Therapy)

Medicines usually don't help get rid of the downstream effects of these root causes

BHMT

Pearl: Patients like this will internalize stress and/or have chronic dysthymia. People with this pattern who have PTSD will respond better to EMDR than psychotherapy (talk therapy)
To Address Mood Disorders, you MUST consider
Not only Neurotransmitter imbalances but:
• Causes of inflammation
• The integrity of the cell wall
• Mitochondrial function
• Nutritional deficiencies
• Genetic polymorphisms
• Nutrigenomics
• And more…

But if you want to get well…

BACK TO THE BASICS

Working Together to Create a Healthier World

Dr. Armine consults with patients and practitioners worldwide.

Email: Office@DrJessArmine.com
Phone: 610 449 9716
www.DrJessArmine.com
Schedule at www.drjessarmine.com
Evidenced Based References

- The Brain from Top to Bottom: http://thebrain.mcgill.ca/flash/i/i_01/i_01_m/i_01_m_ana/i_01_m_ana.html

www.DrJessArmine.com