The 3rd Leg of the Stool:
Nutritional Approaches to Reducing Cravings and Relapse

Presented By: *Christina Veselak, LMFT, CN*
Director, *The academy for Addiction and Mental Health Nutrition*
www.addictionnutritionacademy.com

Outline

- Amino Acid Therapy for Supporting Neurotransmitter Restoration
- How Stabilizing Blood Sugar Reduces Cravings and Relapse

What is Addiction?

- A Bio
  - Psycho/Social
    - Spiritual Disorder

Driven By the Brain!

Master Control Panel

Feelings
Skills
Willpower
Behaviors
Cognitions
Perceptions

Mood
Sleep
Choice
Relaxation
Motivation
Energy

CRAVINGS!

An *In-Balance Life*

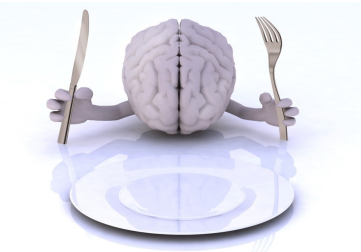
★

Requires An *In-Balance Brain*

What Throws the Brain *Off-Balance?*

- Unstable Blood Sugar
- Depleted Neurotransmitters
- Nutrient Deficiencies/Malnutrition
- Hormone Imbalance
- Toxins
- Food Allergies & Intolerances
- Genetics
- Mood Altering Chemicals and Behaviors
- Impaired Digestion

A HUNGRY BRAIN!

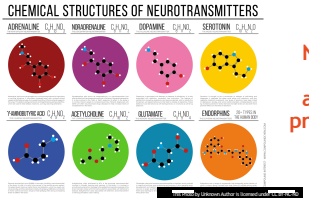


Food is *Not* Optional!

- The Brain ***Requires*** Certain Nutrients to Function!
  - Adequate Protein
    - To provide amino acid precursors of NTs
  - Specific Vitamins and Minerals
    - To act as enzymes and co-factors
  - Essential Fatty Acids
    - To support neurotransmission
  - Water

Neurotransmitters: Our Mood Mediators

- All of our feelings, behaviors and ability to respond to stress are mediated by chemical families called *neurotransmitters*.
- If our neurotransmitters are in balance and functioning properly, so, probably, are we
- Depleted neurotransmitters lead to symptoms such as cravings, depression, apathy, anxiety and insomnia
  - It is our brain's job to allow us to cope with stress gracefully!
    - To do that, it must be fed optimally!



Neurotransmitters are made out of amino acids in the presence of vitamins and minerals

Sources of these Amino Acids

- High Protein Foods:
  - Meat
  - Fish
  - Eggs
  - Milk and Milk Products
  - Legumes, Nuts and Seeds






- Carefully Grown Free-Form Amino Acids
  - Available over-the-counter

What Are Amino Acids?

- AAs are molecules which form the building blocks of the human body
- Essential AAs are found in food, and clump together to form protein
- When protein is digested, it is broken back down into its component AAs
- These AAs are absorbed into the bloodstream and go everywhere in the body accomplishing many diverse tasks
- Specific AAs cross the blood brain barrier and create neurotransmitters in the presence of specific co-factor vitamins and minerals
- Research shows that ingested AAs cross the blood brain barrier and create new neurotransmitters in as little as 1-20 minutes depending upon delivery methods

Four Mood -Regulating Neurotransmitter Systems

- Catecholamines: Dopamine, Norepinephrine, Epinephrine
  - *Energy, Drive, Enthusiasm, Reward*
  - L-Phenylalanine, L-Tyrosine, co-factors
- Low Catecholamines: Apathetic depression, boredom, poor focus, fatigue
  - Cravings for:
    - Stimulants, thrills, opioids, alcohol, sugar/starches, tobacco

Four Mood -Regulating Neurotransmitter Systems

- Serotonin:
  - Self-esteem, humor, flexibility, mellowness, sleep
  - L-Tryptophan, 5 HTP, co-factors
- Low Serotonin:
  - Obsessive worry, insomnia, bulimia, OCD, perfectionism, irritability, PMS, holding grudges
  - Cravings for:
    - Sugar/starches, Ecstasy, alcohol, THC, tobacco, SSRI's

Four Mood -Regulating Neurotransmitter Systems

- GABA:
  - Muscle relaxation, sleep, ability to cope with stress
  - GABA, Taurine, Inositol, Theanine, Glutamine, Magnesium, co-factors
- Low GABA:
  - Muscle tension, Insomnia/restless sleep, Overwhelm, Seizure disorders, Anxiety/Panic, Highly Sensitive
  - Cravings for: Alcohol, THC, GABA, Sugar/starches, Tobacco, Benzodiazapines

Four Mood -Regulating Neurotransmitter Systems

- Endorphins:
  - Emotional and Physical Pain Control, Bonding, Comfort, *Love…*
  - Cleaved off POMC which is made from many amino acids; D-Phenylalanine/DLPA, co-factors
- Low Endorphins:
  - Chronic physical/emotional pain, loneliness
  - Cravings for: Opioids, sugar/starch, alcohol, THC, tobacco

References

- Alcohol and the Addictive Brain, by Dr. Kenneth Blum, New York: The Free Press, 1991
- The Mood Cure, by Julia Ross, Penguin Books, 2002
- End Your Addiction Now, by Dr. Charles Gant, Warner Books, 2002
- Seven Weeks to Sobriety, by Joan Mathews Larson, New York: Fawcett Columbine, 1997
- "L-Tyrosine", Alternative Medicine Review, Volume 12, No. 4, 2007, pg. 364-368
- How To Quit Drinking For Good and Feel Good : The NEW Alcoholism Story, by Suka Chapel-Horst RN PhD
- *www.OpiateAddictionSupport.com*

Reactive Hypoglycemia

- Rampant in the American population
- Commonly under diagnosed
- A direct result of the SAD
- Causes many of the symptoms in our clients
- Is a major cause of Impulsive Violence, PAW, PMS, Cravings

Seems to be the primary relapse trigger for all addiction!

Process of Reactive Hypoglycemia

Eating a high carbohydrate meal with lots of simple sugars

⇒

Dramatic rise in blood sugar levels

⇒

Over-production of insulin

⇒

Dramatic drop in blood sugar levels

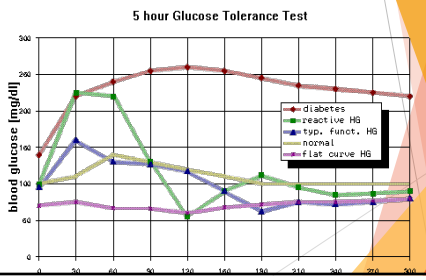
⇒

Release of adrenaline to release stored sugar

⇒

SYMPTOMS and CRAVINGS!

Patterns of Glucose Metabolism



Common Symptoms of Low Blood Sugar

Symptom	Reported Frequency
Nervousness/Anxiety	94%
Irritability	89%
Exhaustion	87%
Depression	86%
Forgetfulness	69%
Insomnia	67%
Constant Worrying	62%
Anti-social behavior	47%
Crying Spells	46%
Suicidal Intent	20%

Some Symptoms of Relative Hypoglycemia

Hypoglycemia Sx	Post Acute Withdrawal Sx
Irritability	Irritability
Depression	Depression
Aggressiveness	Aggressiveness
Insomnia	Insomnia
Fatigue	Fatigue
Restlessness	Restlessness
Nervousness/Anxiety	Nervousness/Anxiety
Desire to Drink or Use	*Desire to Drink or Use*

Clinical experience indicates that most people reporting a craving or slip also report missing one or two meals prior. (Alliance for Addiction Solutions)

Statistics from Inner Balance, Loveland 2017

20 Recent Clients - 4 Hour Glucose Tolerance Test

Primary DOC	Hypoglycemia	Primary DOC	Hypoglycemia
Marijuana	Yes	Opiates/Benzos	Yes
Meth	Yes	Suboxone	Yes
Meth	Yes	Opiates	Yes
Inhalants/Cocaine	Yes	Heroin/Opiates	Yes
Suboxone/Benzos	Yes	Benzos/Concaine	Yes
Heroin/Meth	Yes	Amphetamines	Yes
Heroin	Yes	Benzos/Alcohol	Yes
Opiates	Yes	Meth	Yes
Heroin	Yes	Opiates/Benzos	Yes
Opiates	Yes	Opiates/Benzos	Yes

Harry Salzer, MD: 1966 study of 300 patients
University of Cincinnati, College of Medicine

- During a 6-hour glucose tolerance test the patient would drink a glass of sugar water. Blood sugar levels were monitored at regular time intervals during the six hours following the drink. *A potential relative hypoglycemic diagnosis was made if there was a **blood sugar drop of 10 to 20 mg%** in blood sugar.*
- **It was not necessary** for there to be a blood sugar drop into the hypoglycemic range of **less than 70 mg%**. A patient whose fasting blood sugar is 110 mg% and whose blood sugar drops to 85 mg% during the course of a 6-hour glucose tolerance test has a 25-mg% drop and ***may have symptoms of hypoglycemia***.
- ***The fasting blood sugar does not need to be low!***

(http://www.drz.org/asp/NL/NL_hypoglycemia_Low_Blood_Sugar_psychiatric_disorders_OL_6.21.12.htm)

Thesis

Put simply, we ARGUE that:

- Missing a meal
- Eating a very high carbohydrate meal, low in protein
- Going too long without food:

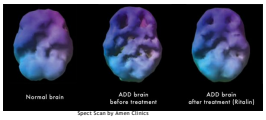
Puts people directly into a high-risk situation for relapse.

There are several interconnected reasons for this:

Functions of the Pre-Frontal Cortex

EXECUTIVE FUNCTIONING

- Planning
- Prioritizing
- Making choices
- Willpower
- Thinking through consequences
- Using relaxation & other recovery skills



Spect Scan by Amen Clinics

The Stress Response Impairs PRC Function

- Low or dropping blood sugar stimulates a release of adrenaline which has the effect of activating the reptilian brain (amygdala & brain stem) and deactivating the PFC through change in signaling pathways
- Adrenaline makes us more reactive and impulsive, and interferes with long range planning
- People have *less access to executive functioning* while affected by adrenaline
- Therefore we propose that they have *less access to their recovery skills,* which require executive functions

****

- A well-functioning PFC is crucial to sobriety
- For the PFC to be able to create willpower, it needs an adequate supply of glucose
- Relatively low blood sugar reflects in lower glucose supply to the PFC thus less willpower
- Low or dropping blood sugar results in a surge of adrenaline and other stress hormones
- These chemicals impair effective signaling in the PFC
- Executive functioning is impaired, leading to lack of use of recovery & relapse prevention skills in response to a relapse trigger
- A hypoglycemia induced stress response may stimulate a conditioned response towards use of addictive substances and behaviors

Hypoglycemic Diet

- **Eat protein and complex carbs every 3-4 hours**
- **Avoid simple sugars and starches!**
- **Include fiber and healthy fats:**
  - ***To slow down the absorption of sugar into the blood stream***
- **Premenstrual women have more reactive blood sugar & need to eat more frequently.**
  - ***PMS is a high-risk time for BEING ARRESTED in women***
- **Avoid allergenic foods:**
  - ***Allergens frequently provoke blood sugar dysregulation and can create psychiatric symptoms***

Treatment Implications

To support our clients in developing this recovery and relapse prevention skill, we suggest that clinicians do the following:

- Every time a client reports a craving or slip/relapse the clinician should ask the client when was the last time they ate protein or sugar, to determine if it had been more than 3-4 hours, and the likelihood of dropping blood sugar
- Help clients develop the self-care skill of feeding themselves a protein-rich meal every 4 hours. We recommend 10-15 grams of protein per meal or snack. This skill will require constant reinforcement at first, along with problem-solving to help the client overcome challenges to this new habit
- Review with the client a three-day food diary to identify the relationship between inconsistent food intake, mood dysregulation, cravings and relapse
- We have created a daily questionnaire to help clients track these relationships

References

- Arnsten, Amy FT: Stress Signaling Pathways That Impair Prefrontal Cortex Structure and Function; Nature Reviews Neuroscience 2009 Jun;10(6):410-422
- Crews, Fulton Timm & Boettiger, Charlotte Ann: Impulsivity, Frontal Lobes and Risk for Addiction; Pharmacology Biochemistry and Behavior, Volume 93, Issue 3, September 2009, Pages 237-247
- Gailliot, M. T. (2007). Self-Control Relies on Glucose as a Limited Energy Source. *Journal of Personality and Social Psychology*, 92(2), 325-336. doi: 10.1037/0022-3514.922.32
- Goldstein, Rita Z &Volkow, Nora K: Dysfunction of the Prefrontal cortex in Addiction: neuroimaging findings and clinical implications; Nature Reviews Neuroscience 12, 652-669 (Nov 2011)
- Ketchum, Katherine & Meuller, L. Ann, Eating Right to Live Sober; May 1986

References

- Larson, Joan Mathews: Seven Weeks to Sobriety
- Plesman, J. (2012). *Why alcoholics drink. Hypoglycemic Health Association of Australia.* Retrieved August 28, 2012, from http://www.hypoglycemia.asn.au/2012
- Poulos, C. J., Stoddard, D., & Carron, K. (1976). *Alcoholism, stress, hypoglycemia, with diets.* Santa Cruz, CA: Davis Pub.
- *"Relative Hypoglycemia as a Cause of Neuropsychiatric Illness,"* Salzer HM, J Natl Med Assoc, January 1966;58(1):12-17. 38372 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2611193/pdf/jnma00533-0064.pdf
- Register UD et al. Influence of nutrients on intake of alcohol. J Am Diet Assoc 61(2):159-62, 1972, http://www.healthy.net/library/books/werbach/part1/alcohol.htm)