

Food Addiction: Process Addiction or Substance Use Disorder

NAADAC 2016 ANNUAL CONFERENCE
MILESTONES EATING DISORDERS PROGRAM

PART ONE – THE PROBLEM...



Basic Assumptions

- ▶ Addiction in general is a complex combination of interactions between the biology of the “addict”, the nature of the substance abused, and the environment these take place.
- ▶ In other words, there is the nature of the person and the nature of the substance. The availability of the offending substances is the spark that starts the process.
- ▶ Food addiction / Eating Disorders are no exception.

Can Compulsive Overeating, Binge Eating Disorder, and Bulimia really be an Addiction?

The “Naysayers” –

Drug addiction, alcohol dependency, and process addictions [e.g. compulsive gambling] are substances and behaviors that are ***not necessary for life***. Food is.

The “Believers” –

But so is water and air – However, people do not consume water & air beyond their biological needs or in ways that threaten their survival. **So perhaps the problem is semantics**

drug addiction... not all drugs are addictive

food addiction... not all foods are addictive

SUBSTANCE USE DISORDERS

AMERICAN PSYCHIATRIC ASSOCIATION 2016

- ▶ **Tolerance**
- ▶ **Withdrawal Symptoms**
- ▶ **More For Longer Periods Than Intended**
- ▶ **Unsuccessful Effort To Cut Back Or Control**
- ▶ **Significant Time To Obtain Or Recover From Effects**
- ▶ **Giving up social, occupational, recreational, activities because of substance use**
- ▶ **Continuation Despite Consequences**

* **LEVEL OF DEPENDENCY: MILD 2-3 MODERATE 4-5 SEVERE 6+**

“A Rose is a Rose”

Given the interaction between the biology of a person and their behavior with food...

“**Addictive Eating**” may be considered by some as synonymous with:

- * Compulsive Overeating [non binge eating]
- Binge Eating Disorder
- Bulimia
- Some forms of Anorexia*
- “Food Addiction”

EMOTIONAL OR BIOLOGICAL DETERMINANTS?

Much more often than not, disordered eating is approached as a psychological problem involving poor impulse control and “emotional eating.”

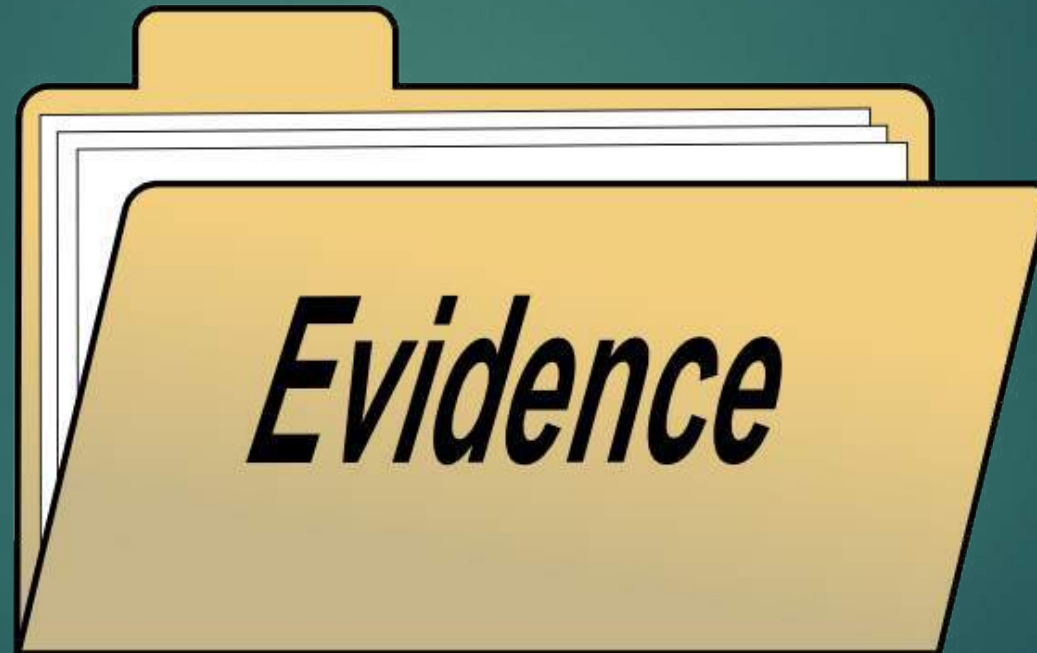
Not recognizing, and treating, the biological drivers of food cravings and overeating often leads to a poor outcome of treatment. Likewise for restricting types of eating disorders.

Treatment of an eating disorder demands attention to the **nature of the substance** [properties of the foods consumed], the **nature of the person** [psychological contributors] and the **biology of the individual**.

Dynamics of Pathological Eating

- **Genetics?** Appetite Gene, ED Gene(s)?
- **Reward Circuits?** – **Dopamine/ Opioid** Receptors
- Role of **Serotonin** and effect on Mood
- Classical **Conditioning**/Associative Learning?
- **External** food [salient] **cues** “trumping” **internal cues**
- **Hormonal** – ghrelin, leptin, insulin controlled?
- **Emotional** Eating
- **Processed foods**, “junk food environment”
- Plasticity and **Cross Addiction?**
- **Switching** forms of **eating disorders**
- **Stress** > Cortisol > Increased [or decreased] **Appetite**

THE CASE FOR ADDICTIVE EATING

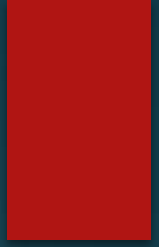
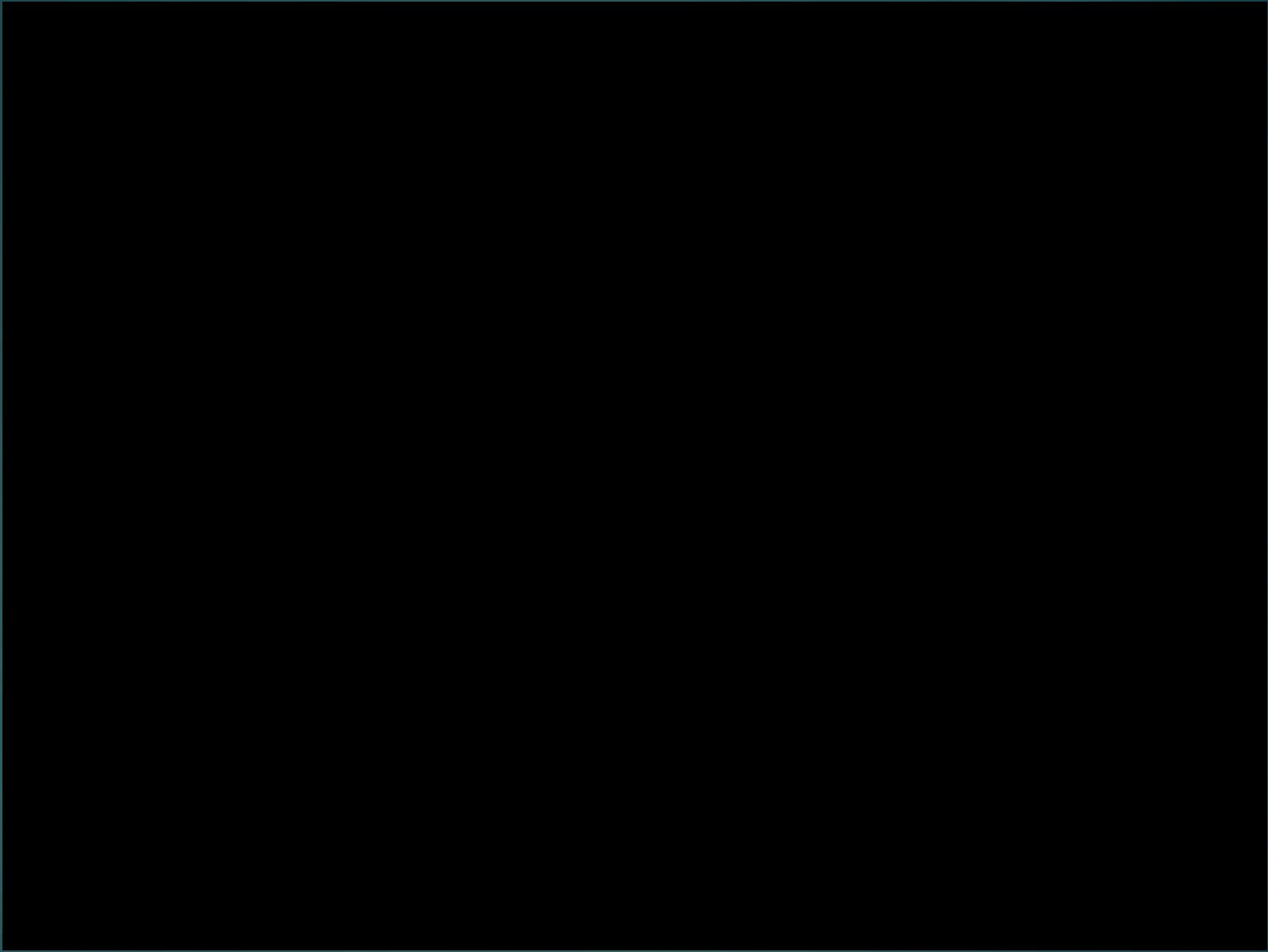


So...What Have We Learned and Who Have We Studied?



A Couple of "Volunteers"





Food Addiction Is...

“Food addiction is a disease causing loss of control over the ability to stop eating certain foods. Scientifically, food addiction is a **cluster of chemical dependencies on specific foods** or food in general; after the ingestion of highly palatable foods such as sugar, excess fat and/or salt the brains of some people develop a physical craving for these foods. Over time, the progressive eating of these foods distorts a person’s thinking and leads to negative consequences they do not want but cannot stop.”

- ▶ From: Food Addiction Institute Website
- ▶ <http://foodaddictioninstitute.org/what-is-food-addiction/>

Dopamine – The Reward /Feel Good Neurotransmitter

- ▶ The greater the expectation and experience of the substance, the “stronger” the dopamine signal.
- ▶ Drugs such as cocaine, amphetamines, alcohol, opiates stimulate increased levels of dopamine.
- ▶ Dopamine deficiencies will develop in response to repeated abuse of substances. The down regulation of D2 receptors creates tolerance.
- ▶ Dopamine deficiencies are thought to motivate drug seeking behavior / craving in an attempt to avoid withdrawal or experience the prior pleasant feelings.
“Chasing the original high”

Anorexia, Restricting Type

- ▶ “If anorexic individuals experience endogenous DA release as anxiogenic rather than hedonic, this may explain their pursuit of starvation, because food refusal may be an effective means of diminishing the anxious feelings associated with the disorder.” [negative reinforcement]

Anorexia: Addictive Elements

- ▶ “Many people with AN exercise compulsively and find little in life rewarding aside from the pursuit of weight loss. Like other traits, these too persist, in a more modest form, after recovery. These particular traits all involve the neurotransmitter dopamine, which contributes to altered reward and affect, decision-making, and executive control. There is considerable evidence that altered function of dopamine occurs in AN possibly contributing to over-exercise and decreased food intake.”

- ▶ **Eating Disorders Center for Treatment and Research, University of California School of Medicine**

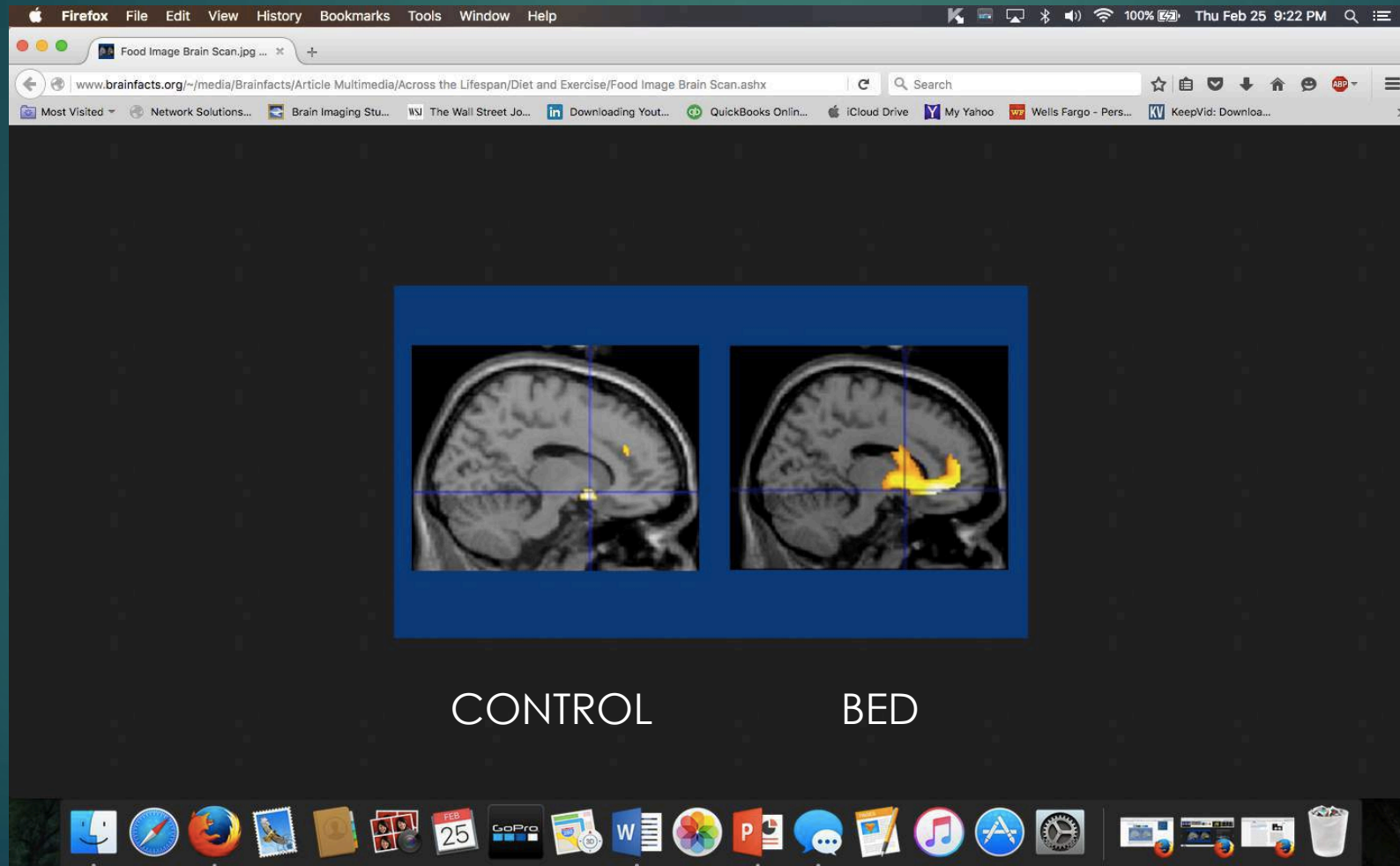
- ▶ Kaye W, Fudge J, Paulus M. New insight into symptoms and neurocircuit function of anorexia nervosa. *Nat Rev Neurosci.* 2009;10(8):573-84.

HEDONIC EATING

Research has shown that the brain begins responding to fatty and sugary foods even before they enter our mouth. Merely seeing a desirable item excites the reward circuit. As soon as such a dish touches the tongue, taste buds send signals to various regions of the brain, which in turn responds by spewing the neurochemical dopamine. The result is an intense feeling of pleasure. *

Nicole Avena, PhD., [Hedonic Eating: How the Pleasure of Foods Affects our Brains and Behavior](#), Oxford University Press, 2015

Control versus binge eater “sight of food cue” and dopamine reaction

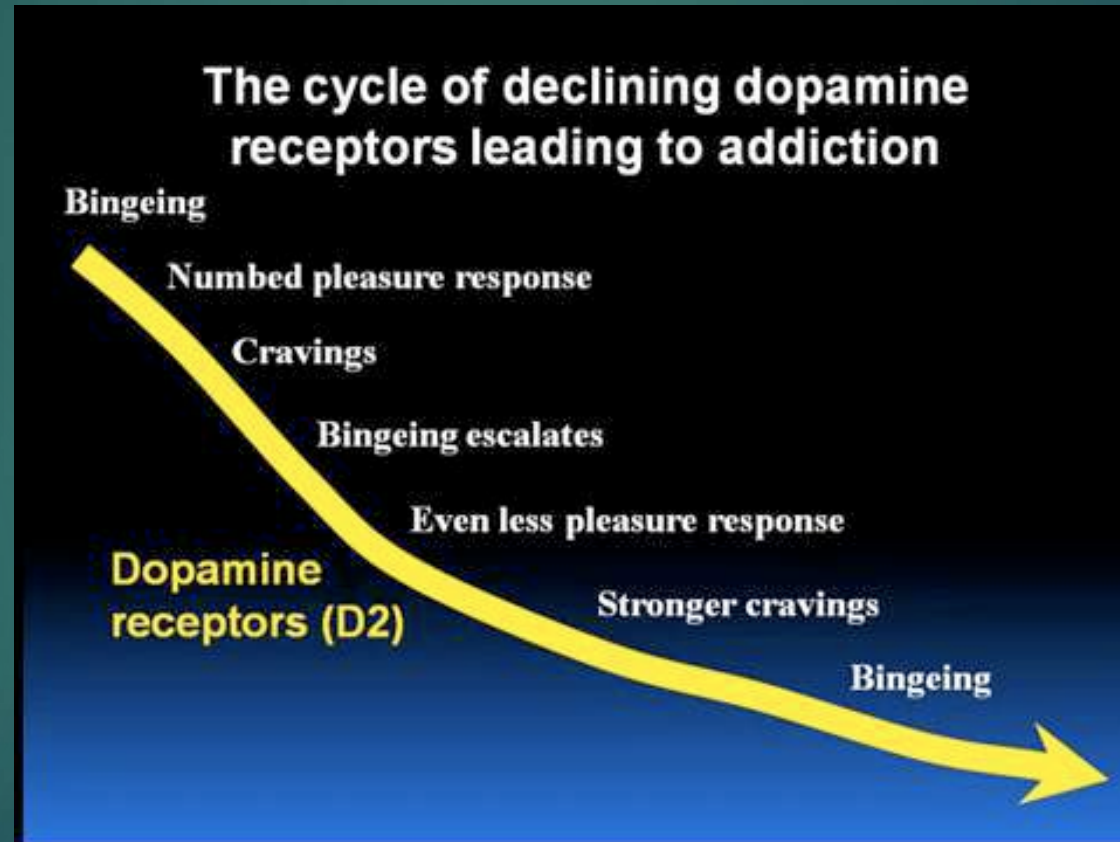


USE > ABUSE > DEPENDENCY

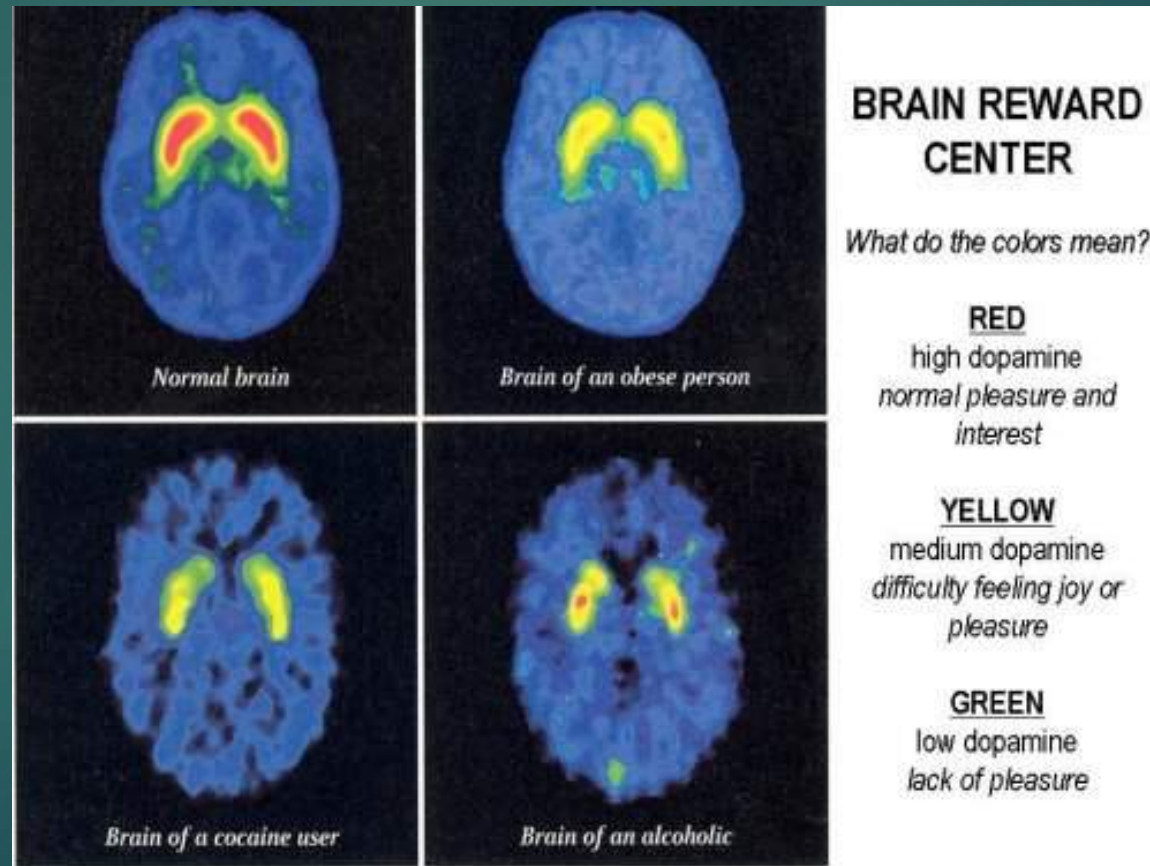
- ▶ “Frequently overeating highly palatable foods saturates the brain with so much dopamine that it eventually adapts by desensitizing itself, reducing the number of cellular receptors that recognize and respond to the neurochemical.”
- ▶ “Consequently, the brains of overeaters demand a lot more sugar and fat to reach the same threshold of pleasure as they once experienced with smaller amounts of the foods. These people may, in fact, continue to overeat as a way of recapturing or even maintaining a sense of well-being.”

* Robert H. Lustig, M.D., et al. “The Toxic Truth About Sugar,” *Nature* 487 (2012)

Down Regulation of D2 Receptors



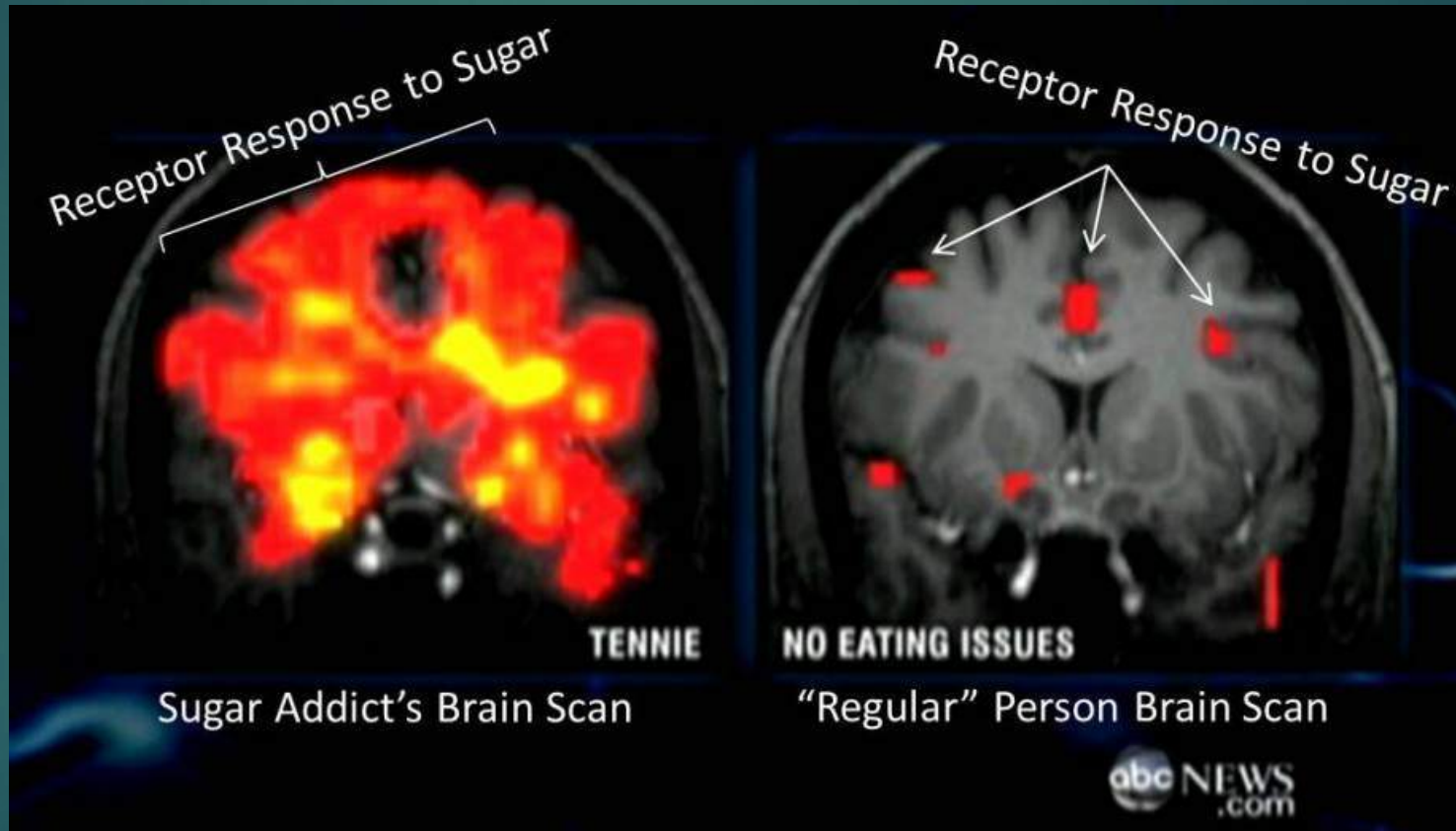
MRI Study with Comparison of Available Dopamine Without Addictive Stimuli



Sensitization, Cross-Addiction, and Relapse - Neuroplasticity

- ▶ Opposite of tolerance – repeated abuse of a substance will create a significant “sensitivity” or dopamine release with related substances [cross addiction].
- ▶ Binge eaters, in particular with sugar, will be more “sensitive to the effects of alcohol and cocaine than non-binge eaters
- ▶ Although tolerance is reversible it appears sensitization remains for extended periods and even a small amount of the offending substance [or behavior] will result in a heightened response. [See prior slide]
- ▶ Supports “gateway” substances.

fMRI AFTER DRINKING A MILKSHAKE



*Scan on left – Subject given Milkshake after more than a year of abstinence from sugar + high palatable foods. Concept of “sensitivity” and plasticity...

SUGAR ADDICTION > USE > ABUSE

"The brain's **pleasure center**, called the nucleus accumbens, is essential for our survival as a species... Turn off pleasure, and you turn off the will to live... But long-term stimulation of the pleasure center drives the process of addiction... When you consume any substance of abuse, including sugar, the **nucleus accumbens** receives a dopamine signal, from which you experience pleasure. And so you consume more.

SUGAR ADDICTION - TOLERANCE

The problem is that with prolonged exposure, the signal attenuates gets weaker. So you have to consume more to get the same effect -- tolerance. And if you pull back on the substance, you go into withdrawal.

Tolerance and withdrawal constitute addiction. And make no mistake, sugar is addictive."

- ▶ Dr. Robert Lustig, Professor of Pediatrics in the Division of Endocrinology at the University of California

Neuroplasticity, Chronicity, and Relapse

There appears to be plasticity associated with the addiction phenomenon in general as well as changes produced by addiction to specific addicting drugs. These findings also provide the basis for the current understanding of addiction as a chronic, relapsing disease of the brain with changes that persist long after the last use of the drug. Hence, the **neuroplasticity** in brain circuits and cell function **induced by addictive substances [and behaviors]** that are thought to underlie the compulsions to resume addictive behavior warrant further exploration. **These investigations have significant implications for future therapies and treatments.**

American Society of Addiction Medicine

- ▶ Addiction is a primary, **chronic disease of brain reward, motivation, memory and related circuitry.**
- ▶ Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in the individual **pursuing reward and/or relief by substance use and other behaviors.**
- ▶ The addiction is characterized by impairment in behavioral control, craving, inability to consistently abstain, and diminished recognition of significant problems with one's behaviors and interpersonal relationships. Like other chronic diseases, **addiction involves cycles of relapse and remission.** Without treatment or engagement in recovery activities, addiction is **progressive and can result in disability or premature death.**

Coke Spends Lavishly on Pediatricians and Dietitians

Coke beneficiaries include the **Academy of Pediatrics**, as well as a number of respected medical and health groups, including \$3.1 million to the **American College of Cardiology**, more than \$3.5 million to **the American Academy of Family Physicians**, \$2 million to **the American Cancer Society** and roughly \$1.7 million to the country's largest organization of dietitians, **the Academy of Nutrition and Dietetics**.

McDonalds has done the same as well as other fast and junk food manufacturers.

- ▶ [N.Y. Times](#)
- ▶ [September 28, 2015](#)



“See Any Parallels to the Tobacco Industry?”

Food for Thought

“All truth passes through three stages...

- ▶ First, it is ridiculed.
- ▶ Second, it is violently opposed.
- ▶ Third, it is accepted as being self-evident.”

Arthur Schopenhauer German philosopher (1788 – 1860)

FOOD AND ADDICTON...

PART TWO: THE SOLUTION

PRINCIPLES OF RECOVERY



Tenets of Recovery

- ▶ Need to identify and abstain from the addictive food substances [abstinence]-cross addiction
- ▶ Need to address mood / psychological issues contributing to maintenance of addictive eating [addressing depression if present and initiating better coping skills]
- ▶ Need to address the physical issues associated with food addiction [exercise, stress, diabetes]
- ▶ Eliminating isolation, participation with community based support groups, and cultivating a functional spiritual relationship with an entity other than oneself.

Components of a Blended Treatment Model

- ▶ Structured Food Plan – eliminates “trigger” foods
- ▶ CBT + DBT = Harm Reduction
- ▶ Constructive Living Model – Transcending Feelings for “Right Action” [see “Guide to Eating Disorder Recovery”]
- ▶ Concurrent Treatment of Related Diagnoses
- ▶ Real World Setting– In Vivo experiences
- ▶ Use of Community based support groups
- ▶ Medication when needed
- ▶ Evidence Based Treatments
- ▶ Daily Living Skills [meal preparation, food shopping, etc.]
- ▶ Individualized Family Therapy

Elements of a Food Plan

- ▶ Prescribed by a registered dietitian familiar with food addiction model
- ▶ Often involves weighing, measuring food
- ▶ Consistent schedule of eating 3 to 5 times daily
- ▶ Identifies and eliminates trigger foods
- ▶ Focus on a food plan not a “diet” or weight loss
- ▶ Discourages focus on weight but rather restoration of health and end addictive eating
- ▶ Accountability
- ▶ Recognizes nutritional / caloric needs are a dynamic process with period adjustments needed

S.E.R.F.

“A Formula for long term recovery”

- ▶ SPIRITUALITY
- ▶ EXERCISE
- ▶ REST
- ▶ FOOD PLAN

See text “A Guide to ED Recovery” pages 95-106

Principles of “Constructive Living”

1. FEELINGS ARE UNCONTROLLABLE DIRECTLY BY SELF WILL
2. FEELINGS MUST BE RECOGNIZED AND ACCEPTED “AS IS”
3. EVERY FEELING, NO MATTER HOW UNPLEASANT, HAS A PURPOSE
4. FEELINGS CHANGE OVER TIME UNLESS RE-STIMULATED
5. FEELINGS / THOUGHTS CAN BE INDIRECTLY INFLUENCED BY BEHAVIOR
6. WE'RE RESPONSIBLE FOR WHAT WE DO NO MATTER HOW WE FEEL

* David Reynolds, PhD., Constructive Living, 1984

LEVELS OF CARE

“One Size Does Not Fit All”

- ▶ Inpatient (Hospital Based)
- ▶ Residential (Non-Hospital Based)
- ▶ Partial Hospital (Day Treatment)
- ▶ Intensive Outpatient (Half-Day Treatment)
- ▶ Outpatient (Therapist, Dietitian, etc.)
- ...Support Groups [OA, FAA, SR, ABA, etc.]

BEFORE RECOVERY



IN RECOVERY



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*References to topics available upon request