Food Addiction:
An Overlooked Cause of Persistent Overweight and Obesity

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Goals

• Explain recent theoretical advancements in obesity research
• Identify symptoms of food addiction scientifically
• Provide new tools and resources
Therapy...Medication...Surgery

Sustained Weight Loss

Weight Bias

The inclination to form unreasonable judgments based on a person's weight
Weight Bias in America

• Common
• Acceptable
• Hard to ignore

• Happens in:
  • Education
  • Employment
  • Personal Relationships
  • Health Care

Complexity of Obesity

• Neurological

Blame the Person

• It’s their fault.
• Person won’t change behavior.
• Figure it out themselves.
WHAT WILL YOU GIVE UP?

• 46% of subjects reported that they would be willing to give up at least 1 year of life.
• 5% reported that they would give up 10 years or more of their life.
• 30% of respondents reported that they would rather be divorced.
• 25% reported that they would rather be unable to have children.
• 15% reported that they would rather be severely depressed.
• 14% reported that they would rather be alcoholic.

The question the researchers did not ask: Were they willing to abstain from desserts and other comfort foods?

Impact of Physician Weight Bias

• Jeopardize patient health
• Correlation between high BMI and fewer exams
• Delay or avoid doctor visits
Other Coping Responses

• Isolation
• Depression
• Social Withdrawal

AMA Strategies for Reducing Bias Against Overweight and Obese People

• Recognize that obesity is a chronic medical condition
• Improve your knowledge of nutrition, multi-disciplinary treatments, and community resources
• Create a friendly office culture and atmosphere
• Treat the overweight and obese population with respect and support
What People Want...

• How to stop the cravings
• Why they overeat
• Why they eat the wrong foods
• How to manage emotional eating
Why People Overeat

• Accessibility
• Availability
• Sedentary lifestyle
• Cheap food
• Emotional eating

Why Do People Overeat?

• Despite efforts to lose weight
• Despite the consequences

Food Addiction
Obesity
Chronic Overeating
Binge eating

Food Addiction

Obesity

Chronic Overeating

Binge eating

Food Addiction

Obesity

Chronic Overeating

Binge eating
Negative Beliefs

- Lazy
- Noncompliant
- Undisciplined
- Low will power

Brookhaven Findings
U.S. Dept of Energy, Brookhaven Lab

- Sight and smell of food elevates dopamine
- Affects the pleasure and reward centers
- Biochemical process induces intense cravings and loss of control
- Increase in dopamine = increased hunger and desire for food.
• Food cravings similar to drug cravings.
• Dopamine can be triggered without eating.
• Reason people eat when full
• Reason people lose control

Rush University Medical Center
2006
• Environmental clues trigger cravings
• Modulate food seeking and food intake
• Appetizing foods change the brain
• Promotes increased hunger
• Not all foods produce the response
What Makes Food Addictive?

Processed (Palatable) Foods

High Concentrations of:
- Sugar
- Flour
- Fat
- Salt
- Caffeine

Causes Over Consumption

- Enhances reward neurochemistry
- Increases desire to overeat these foods
- Results in addictive loss of control
- Food companies are aware

Refined VS. Unrefined
Unrefined Foods

- Found in nature
- Not addictive

Refined Foods

- The foods people crave
- Refined by an industrial process
- Not addictive until extracted and concentrated
- Refining enhances addictive power
Food - Reward

Certain foods enhance the reward neurochemistry:

- **Serotonin**: warm milk, pasta, potatoes, bananas, turkey
- **Dopamine**: sugar, white starches
- **Opiates**: chocolate, sugar, dairy, spices

Addictions UnPlugged

- Addictive loss of control
- Major implications for assessment and treatment

The Findings

- Cannot generally attribute obesity to food addiction
- All obese people are not food addicts
- Palatable foods do not have the same effect on everyone
Factors Contributing to Obesity

- Food addiction
- Poor digestion
- Hormonal issues
- Oxidative stress
- Inflammation
- Low immune system
- Chronic stress
- Toxins in the body
- An obesogenic environment
- Genetics
- Age and gender
- Emotional eating

Food Addiction

A chronic relapsing problem caused by various fundamental factors that encourage craving for food or food-substances so as to obtain a state of heightened pleasure, energy or excitement.
**Carbohydrates**
- Potato Chips
- Pastries
- Pasta
- French Fries

**Sugar**
- Cookies
- Cake
- Candy
- Sodas

**Highest Increase in Consumption**
- High fructose corn syrup
- Soft drinks
- Flour

**Impact of Refined Carbohydrates**
- Increase in Type 2 Diabetes with increased consumption of corn syrup
- Increase in Type 2 Diabetes with increased carbohydrate intake
- Increase in Type 2 Diabetes with increased consumption of refined grains – ready-to-eat cereals
- Increase of obesity with increased carbohydrate intake
• People overeat carbohydrates
• Unaware of dopamine release

Sugar Addiction

Dr. Nicole Avena’s Research
• Studied sugar addiction
• Eating style encourages addictive eating
• Restriction and bingeing
• Promotes addictive eating behaviors
Princeton University

- Palatable foods also release opioids
- Excessive sugar cause behavioral and neurochemical signs of dependency
- Causes opioid withdrawal
- Withdrawal from sugar similar to withdrawal from nicotine and morphine

Food Addiction Hypothesis

- People can become addicted to palatable foods
- Addiction creates dependence
- DSM-IV-TR definition
  - Substance dependence that meets 3 of 7 criteria
  - Occurring within one year
Substance Dependence Criteria

- Tolerance
- Withdrawal Symptoms
- Taking in larger amounts or for a longer duration
- Attempts to cut down or control use
- Excessive time spent pursuing, using, or recovering from use
- Reduction/discontinuation of important activities because of use
- Continued use despite consequences

Neurochemical Response

**Food**
- Activate mesolimbic dopamine reward system
- Significantly lower dopamine receptor levels
- Decreased sensitivity in the reward system
- Causes loss of control

**Drugs**
- Activate mesolimbic dopamine reward system
- Significantly lower dopamine receptor levels
- Decreased sensitivity in the reward system
- Causes loss of control

NIDA Study

- Obese people may need to overeat to get gratification
- Found similarities between compulsive drug abuse, overeating, and gambling
  - Brain changes
  - Reward circuits disrupted
  - Involuntary behavior
Lower Levels of D2 Receptors

Lower Levels of D2 Receptors

Dopamine and Serotonin

- Obese people have lower levels
- Obese people and drug addicts have similar levels
- People can be addicted to food like drug or alcohol addictions

If Food Addiction Exists...

- An addiction model should be used
- Avoid trigger foods
- Follow an abstinent-based food plan
- Use the same approach as AA
- Abstinence may be harder with food
Food Addiction Intervention

• Motivation (Mentoring/Coaching)
• Cognitive-Behavioral Therapy
• 12-Step Programs
• Abstinence from Trigger/Binge Foods
• Expect long-term care

12-Step Programs

Referral Sources

• Food Addicts Anonymous
• Food Addicts In Recovery Anonymous
• Overeaters Anonymous
• Center for Food Addiction Freedom
• Food Addiction Institute

Center for Food Addiction Freedom

www.FoodAddictionFreedom.com
678-763-9266

• Assessment and treatment
• Detoxification
• Teleclasses
• Coaching
• Support Groups
• Abstinent-based meal plans
Sample Abstinent-Based Meal Plan
FAA Basic Food Plan

<table>
<thead>
<tr>
<th></th>
<th>Breakfast</th>
<th>Lunch (4 hrs after breakfast)</th>
<th>Dinner (5 hours after lunch)</th>
<th>MA (Metabolic Adjustment) (4 hrs after dinner)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>1</td>
<td>1 Protein</td>
<td>1 Protein</td>
<td>1 Dairy or 2 oz Protein</td>
</tr>
<tr>
<td>1 Dairy</td>
<td></td>
<td>1 Cooked Vegetable</td>
<td>1 Cooked Vegetable</td>
<td>1 Fruit</td>
</tr>
<tr>
<td>1 Fruit</td>
<td>1 Cooked Vegetable</td>
<td></td>
<td>1 Fresh Vegetable</td>
<td>1 Fruit</td>
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<tr>
<td>1 Grain or Starchy Vegetable</td>
<td>½ daily oil</td>
<td>1 Grain or Starchy Vegetable</td>
<td>½ daily oil</td>
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<tr>
<td></td>
<td></td>
<td>Men add 1 fruit or 1 grain, or 1 starchy vegetable</td>
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</table>

Yale Food Addiction Scale

- Validated instrument
- Assess food addiction using DSM-IV-TR criteria
- 21 item self-scoring measure
- Identifies signs of addiction to palatable foods
- Easy to administer

Summary

- People notice weight bias
- Food addiction may be the cause of chronic overeating and obesity
- Trigger foods stimulate neurochemicals and heightens reward in the limbic system
- Diet and exercise advice alone is not enough
- Help people understand and manage their food cravings instead
- Assess for food addiction and refer to a reliable source
- Abstain, Abstain, Abstain!
Thank You!
This survey asks about your eating habits in the past year. People sometimes have difficulty controlling their intake of certain foods such as:

- Sweets like ice cream, chocolate, doughnuts, cookies, cake, candy, ice cream
- Starches like white bread, rolls, pasta, and rice
- Salty snacks like chips, pretzels, and crackers
- Fatty foods like steak, bacon, hamburgers, cheeseburgers, pizza, and French fries
- Sugary drinks like soda pop

When the following questions ask about “CERTAIN FOODS” please think of ANY food similar to those listed in the food group or ANY OTHER foods you have had a problem with in the past year.

<table>
<thead>
<tr>
<th>IN THE PAST 12 MONTHS:</th>
<th>Never</th>
<th>Once a month</th>
<th>2-4 times a month</th>
<th>2-3 times a week</th>
<th>4 or more times or daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find that when I start eating certain foods, I end up eating much more than planned</td>
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<td>2. I find myself continuing to consume certain foods even though I am no longer hungry</td>
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<td>3. I eat to the point where I feel physically ill</td>
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<td>4. Not eating certain types of food or cutting down on certain types of food is something I worry about</td>
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<td>5. I spend a lot of time feeling sluggish or fatigued from overeating</td>
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<td>6. I find myself constantly eating certain foods throughout the day</td>
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<td>7. I find that when certain foods are not available, I will go out of my way to obtain them. For example, I will drive to the store to purchase certain foods even though I have other options available to me at home.</td>
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<td>8. There have been times when I consumed certain foods so often or in such large quantities that I started to eat food instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.</td>
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<tr>
<td>9. There have been times when I consumed certain foods so often or in such large quantities that I spent time dealing with negative feelings from overeating instead of working, spending time with my family or friends, or engaging in other important activities or recreational activities I enjoy.</td>
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<tr>
<td>10. There have been times when I avoided professional or social situations where certain foods were available, because I was afraid I would overeat.</td>
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<tr>
<td>11. There have been times when I avoided professional or social situations because I was not able to consume certain foods there.</td>
<td></td>
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<tr>
<td>12. I have had withdrawal symptoms such as agitation, anxiety, or other physical symptoms when I cut down or stopped eating certain foods. (Please do NOT include withdrawal symptoms caused by cutting down on caffeinated beverages such as soda pop, coffee, tea, energy drinks, etc.)</td>
<td></td>
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<tr>
<td>13. I have consumed certain foods to prevent feelings of anxiety, agitation, or other physical symptoms that were developing. (Please do NOT include consumption of caffeinated beverages such as soda pop, coffee, tea, energy drinks, etc.)</td>
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<td>14. I have found that I have elevated desire for or urges to consume certain foods when I cut down or stop eating them.</td>
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<td>15. My behavior with respect to food and eating causes significant distress.</td>
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<td>16. I experience significant problems in my ability to function effectively (daily routine, job/school, social activities, family activities, health difficulties) because of food and eating.</td>
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<tr>
<td>Question</td>
<td>NO</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----</td>
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<td></td>
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</tr>
<tr>
<td>17. My food consumption has caused significant psychological problems such as depression, anxiety, self-loathing, or guilt.</td>
<td>0</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>18. My food consumption has caused significant physical problems or made a physical problem worse.</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I kept consuming the same types of food or the same amount of food even though I was having emotional and/or physical problems.</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20. Over time, I have found that I need to eat more and more to get the feeling I want, such as reduced negative emotions or increased pleasure.</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. I have found that eating the same amount of food does not reduce my negative emotions or increase pleasurable feelings the way it used to.</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I want to cut down or stop eating certain kinds of food.</td>
<td>0</td>
<td>1</td>
<td></td>
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<tr>
<td>23. I have tried to cut down or stop eating certain kinds of food.</td>
<td>0</td>
<td>1</td>
<td></td>
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<tr>
<td>24. I have been successful at cutting down or not eating these kinds of food</td>
<td>0</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>25. How many times in the past year did you try to cut down or stop eating certain foods altogether?</td>
<td>1 or fewer times</td>
<td>2 times</td>
<td>3 times</td>
<td>4 times</td>
<td>5 or more times</td>
</tr>
</tbody>
</table>

Reference:
The Yale Food Addiction Scale is a measure that has been developed to identify those who are most likely to be exhibiting markers of substance dependence with the consumption of high fat/high sugar foods.

**Development**

The scale questions fall under specific criteria that resemble the symptoms for substance dependence as stated in the Diagnostic and Statistical Manual of Mental Disorders IV-R and operationalized in the Structured Clinical Interview for DSM-IV Axis I Disorders.

1) Substance taken in larger amount and for longer period than intended
Questions #1, #2, #3

2) Persistent desire or repeated unsuccessful attempts to quit
Questions #4, #22, #24, #25

3) Much time/activity to obtain, use, recover
Questions #5, #6, #7

4) Important social, occupational, or recreational activities given up or reduced
Questions #8, #9, #10, #11

5) Use continues despite knowledge of adverse consequences (e.g., failure to fulfill role obligation, use when physically hazardous)
Question #19

6) Tolerance (marked increase in amount; marked decrease in effect)
Questions #20, #21

7) Characteristic withdrawal symptoms; substance taken to relieve withdrawal
Questions #12, #13, #14

8) Use causes clinically significant impairment or distress
Questions #15, #16

**Cut-offs**

The following cut-offs were developed for the continuous questions.

0 = criterion not met, 1 = criterion is met

The following questions are scored 0 = (0), 1 = (1): #19, #20, #21, #22
The following question is scored 0 = (0 thru 1), 1 = (2 thru 4): #24
The following questions are scored 0 = (0 thru 1), 1 = (2 thru 4): #8, #10, #11
The following questions are scored 0 = (0 thru 2), 1 = (3 & 4): #3, #5, #7, #9, #12, #13, #14, #15, #16
The following questions are scored 0 = (0 thru 3), 1 = (4): #1, #2, #4, #6
The following questions are scored 0 = (0 thru 4), 1 = (5): #25
The following questions are NOT scored, but are primers for other questions: #17, #18, #23

**SCORING**

After computing cut-offs, sum up the questions under each substance dependence criterion (e.g. Tolerance, Withdrawal, Clinical Significance, etc.). If the score for the criterion is ≥ 1, then the criterion has been met and is scored as 1. If the score = 0, then the criteria has not been met.

Example:
Tolerance: (#20 =1) + (#21 = 0) = 1, Criterion Met
Withdrawal (#12 =0) + (#13 = 0) + (#14 = 0) = 0, Criterion Not Met
Given up (#8 =1) + (#9 = 0) + (#10 =1) + (#11 = 1) = 3, Criterion Met and scored as 1

To score the continuous version of the scale, which resembles a symptom count without diagnosis, add up all of the scores for each of the criterion (e.g. Tolerance, Withdrawal, Use Despite Negative Consequence). Do NOT add clinical significance to the score. This score should range from 0 to 7 (0 symptoms to 7 symptoms.)

To score the dichotomous version, which resembles a diagnosis of substance dependence, compute a variable in which clinical significance must = 1 (items 15 or 16 =1), and the symptom count must be ≥ 3. This should be either a 0 or 1 score (no diagnosis or diagnosis met.)

**Norms (undergraduates)**

Diagnosis of Food Dependence – 11.6%
Median Symptom Count Score – 1.0
Withdrawal – 16.3%
Tolerance – 13.5%
Continued Use Despite Problems – 28.3%
Important Activities Given Up – 10.3%
Large Amounts of Time Spent – 24.0%
Loss of Control – 21.7%
Have Tried Unsuccessfully to Cut Down or Worried About Cutting Down – 71.3%
Clinically Significant Impairment - 14%
Food Addiction: An Overlooked Cause of Persistent Overweight and Obesity

References


Yale Rudd Center for Food Policy & Obesity. (n.d.). Weight Bias in Health Care. Yale University.
http://www.youtube.com/watch?v=lZLzHFgE0AQ&feature=player_embedded