Dopamine and How It May Affect Your Eating Behaviors

the Fasting Method

Coach Terri Lance
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Dopamine

- Neurotransmitter/neuromodulator made in the brain from amino acids
- Frequently described as the currency of desire
- Commonly known as “the happy chemical”
- Modulates our pleasure/pain continuum
- Influences numerous processes necessary for life
  - Motivation
  - Sleep
  - Mood
  - Attention
  - Lactation
  - Kidney Function
  - Learning
  - Movement
  - Pain processing
  - Heart rate
  - Blood vessel functioning
  - Control of nausea and vomiting
- Helps us to strive, focus, and find things interesting
- Travels along 4 pathways in the brain
- Generally not noticeable unless too much or too little (Parkinson’s or depression)

Degrees of Impact of Dopaminergic Response

- At rest 3-4 pulses of dopamine per second
- Can increase significantly with behaviors and substances
- Food – 50% increase (chocolate 55%)
- Sex – 100%
- Nicotine – 150%
- Cocaine – 225%
- Amphetamine –1000%
- Video games – somewhere between nicotine and cocaine

The Pleasure-Pain Balance

Pleasure

Pain

Goal is Homeostasis

Connection to Addiction and Problematic Use

- Neuroadaptation: once stimulus is removed, the pleasure threshold or deviation to side of pleasure is not matched – gets less intense and shorter lived
- Tolerance: needing more of behavior of substance to counterbalance all the self-regulating responses
- The more of your behavior or substance used, the more you withdrawal or more intense the pain
- Decreases pleasure from other things due to decreased dopamine receptor activity
- And herein lies the rub – more use means less pleasure and more pain when stimulus is removed and less pleasure from other things…so even more drive to seek the behavior or substance…voila, ADDICTION!

Digging in More About Overuse and Addiction

- Hedonism – the result of pursuing pleasure for its own sake leads to anhedonia
- Anhedonia is the inability to enjoy pleasure of any type
- Continuing to seek the next high (dopamine pulse) can set us on the hedonistic treadmill
- Withdrawal from an addictive substance leads to symptoms of anxiety, irritability, insomnia, and dysphoria
- Relapse is typically driven the pleasure-pain balance being tilted to side of pain
- Cravings are the desire to tip the balance from pain to normal
- “With prolonged and repeated exposure to pleasurable stimuli, our capacity to tolerate pain decreases, and our threshold for experiencing pleasure increases.” (Dopamine Nation, pg. 66)

What Do You Do With To Help Balance This?

- Balance the dopamine system with more activation of serotonin
- Serotonin is another neuromodulator that works almost the opposite of dopamine – it is about recognizing enough (satiety) and enjoying what you have instead of the drive to seek more or something outside of you
- Manipulating the information you give your brain as far as expected reward of behavior or substance – the habenula in an area of the brain that helps us move toward things we anticipate a high reward from and with drive us less toward things we anticipate as less rewarding
- Taking breaks from constant seeking of dopamine and highlighting the positives of things more to help recognize satiety and feel good