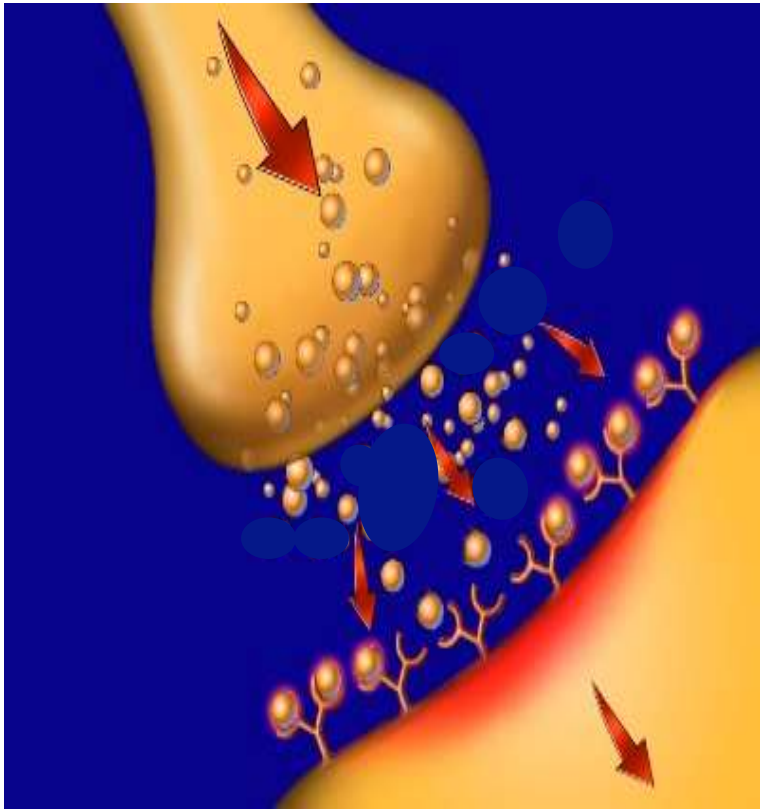
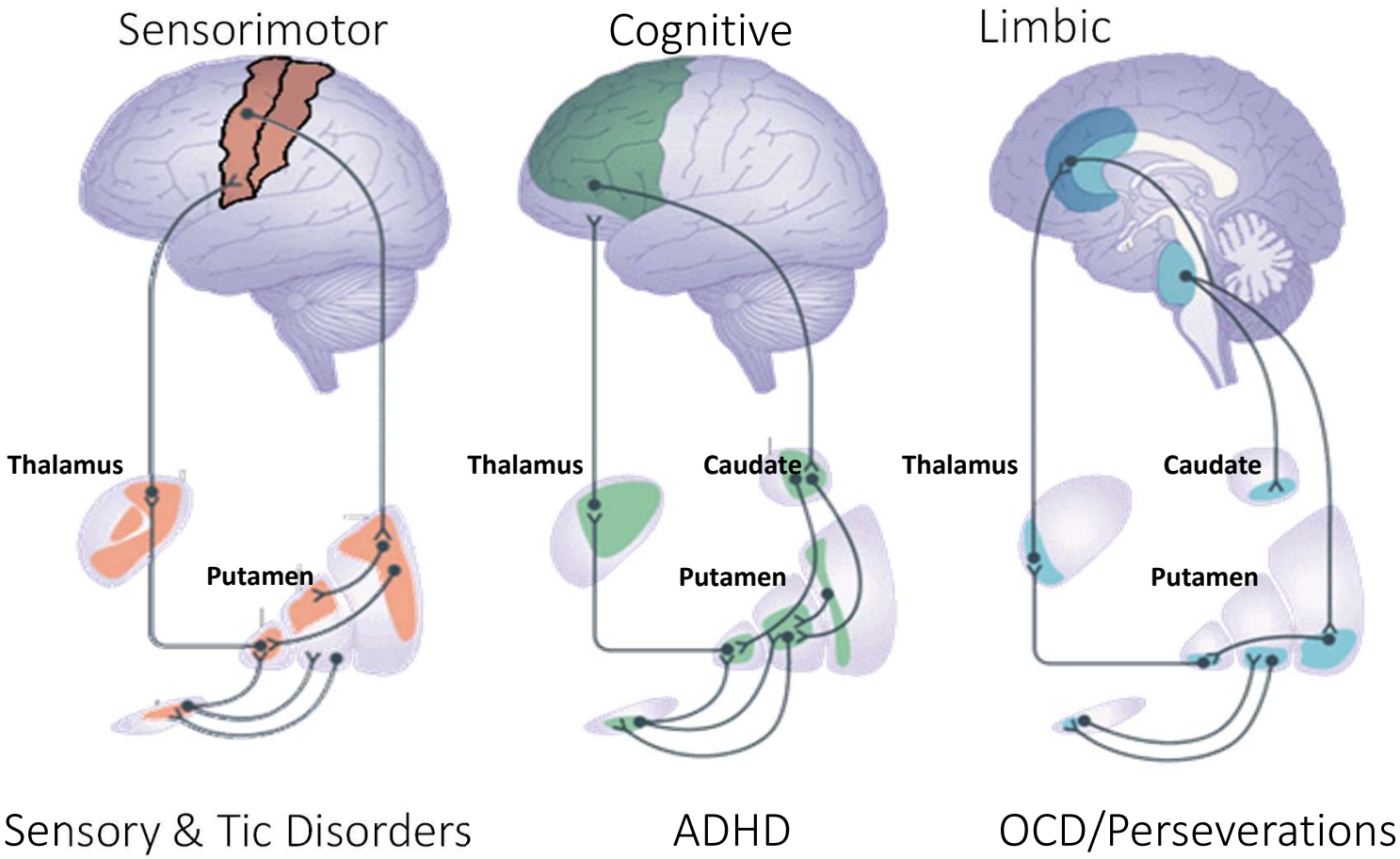
The Dopamine Neuron



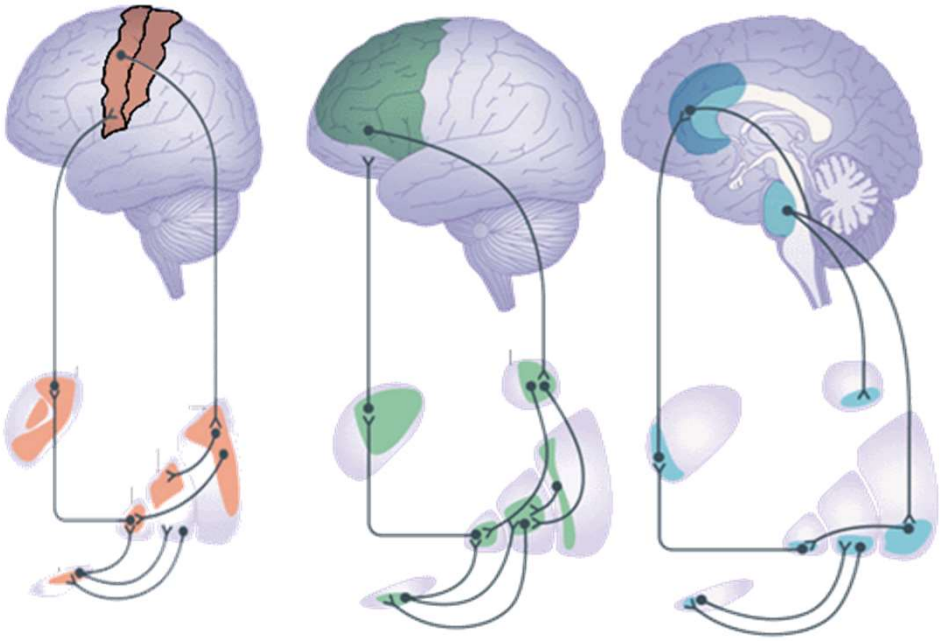
Dopamine Regulatory Circuits



(Wijngaarden-Cremers, et al., 20014)

Dopamine Regulatory Circuits

Sensorimotor CognitiveLimbic



Autism Spectrum Disorder

Sensory & Tic Disorders ADHD OCD/Perseverations

(Wijngaarden-Cremers, et al., 20014)

Neurogenisis In Autism

Neurogenisis

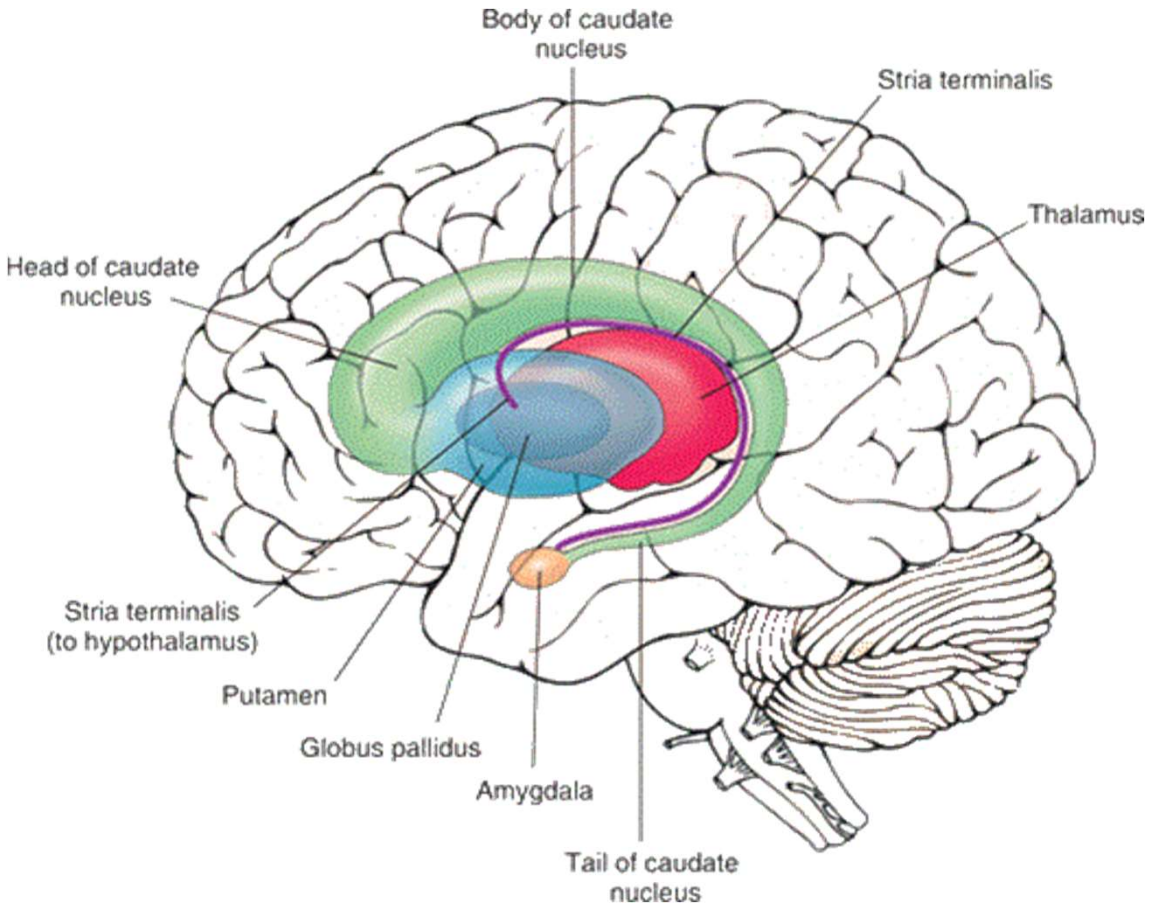
- Is the formation of neurons in the brain

Autism

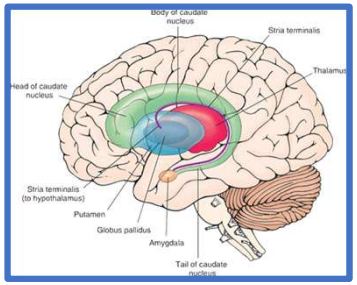
- Several studies have shown significant differences in Neurogenisis between neuro-typical development and those with an ASD.

(Kriete & Noelle, 2015; Lisman et al., 2011; Sahay, Wilson, & Hen, 2011)

Neurogenisis In Autism



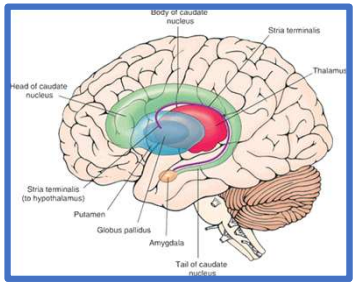
Autism Spectrum Disorder



Dopamine Sensitivity

- Anxiety
- Improved memory
- Mania
- Hyperactivity
- Insomnia
- High goal centered motivation
- Digestive problems
- Nausea
- Paranoia
- Agitation
- Sensory issues

(Wijngaarden-Cremers, et al., 20014)



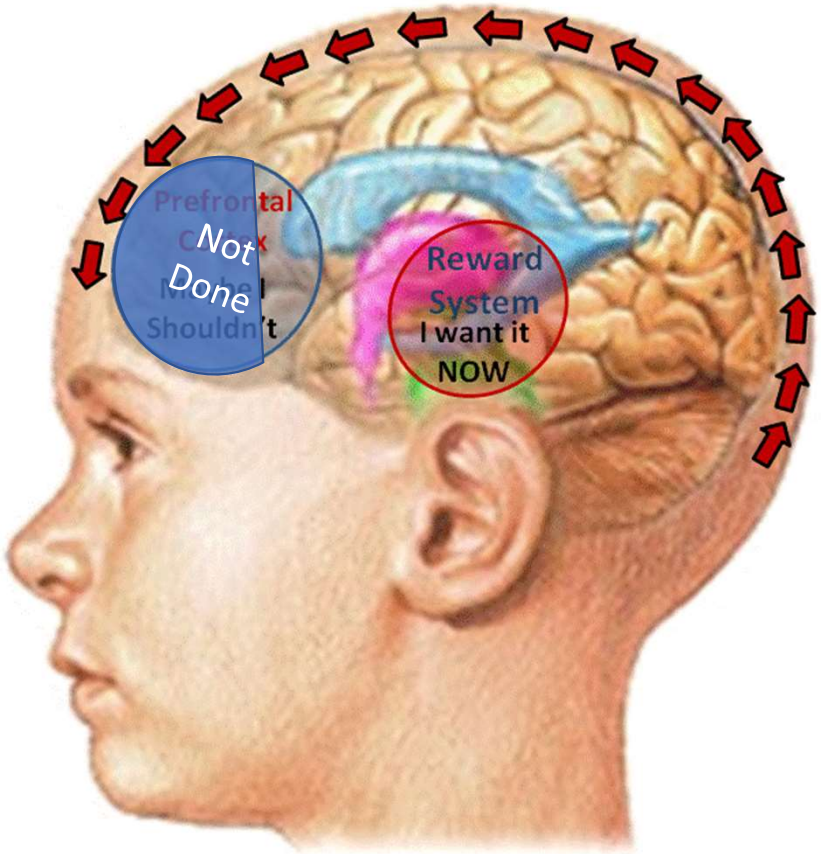
Dopamine Sensitivity

Individuals with ASD's search for stimulus, behavior, and substances that favor dopamine depletion

- Hyper focalization
- Stereotyped behavior
- Substances and Behaviors related to addiction

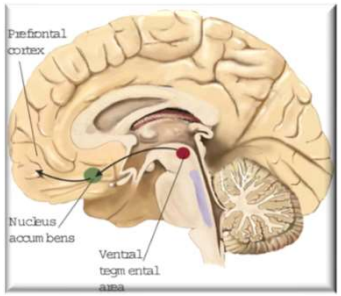
Development

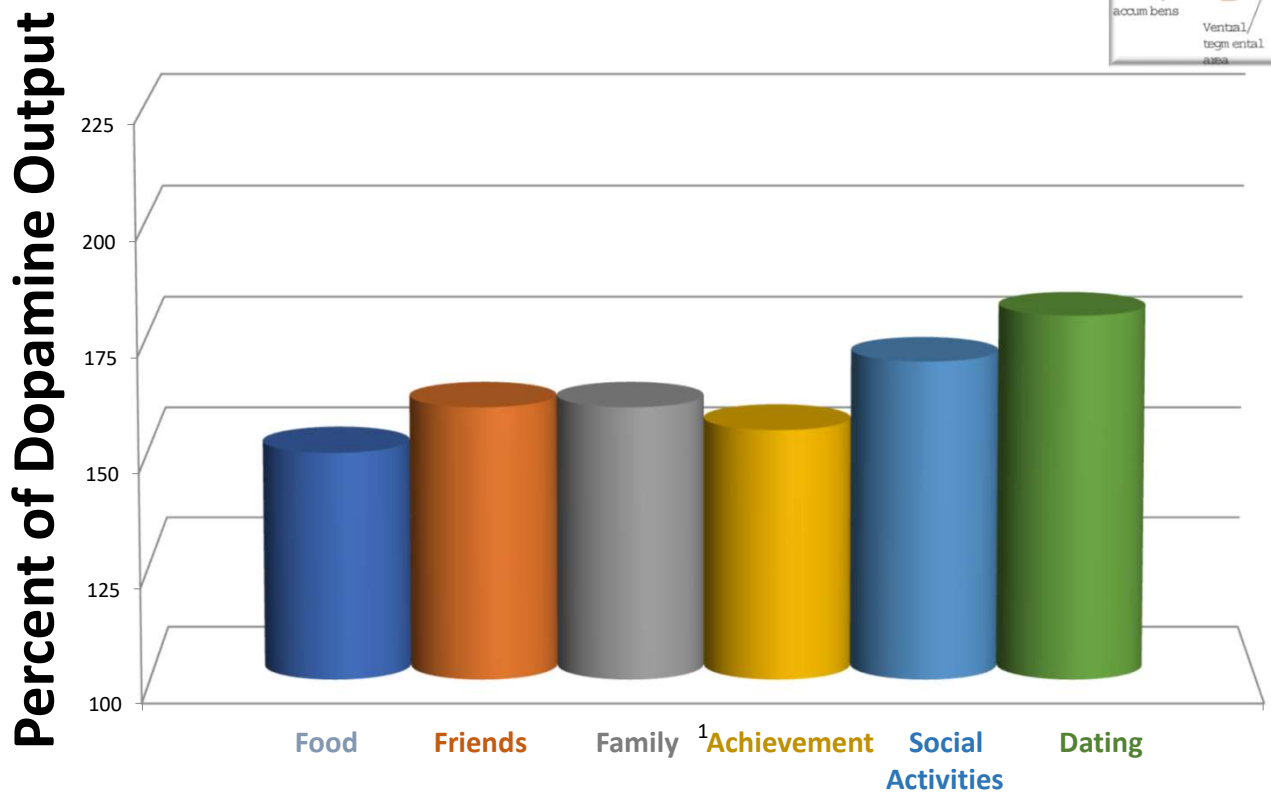
- **Younger Children**
  - Less control
- **Pre-teens**
  - Some control
- **Teens**
  - More regulated
- **Adults**
  - Ridged patterns



Dopamine

Identifies Important Resources





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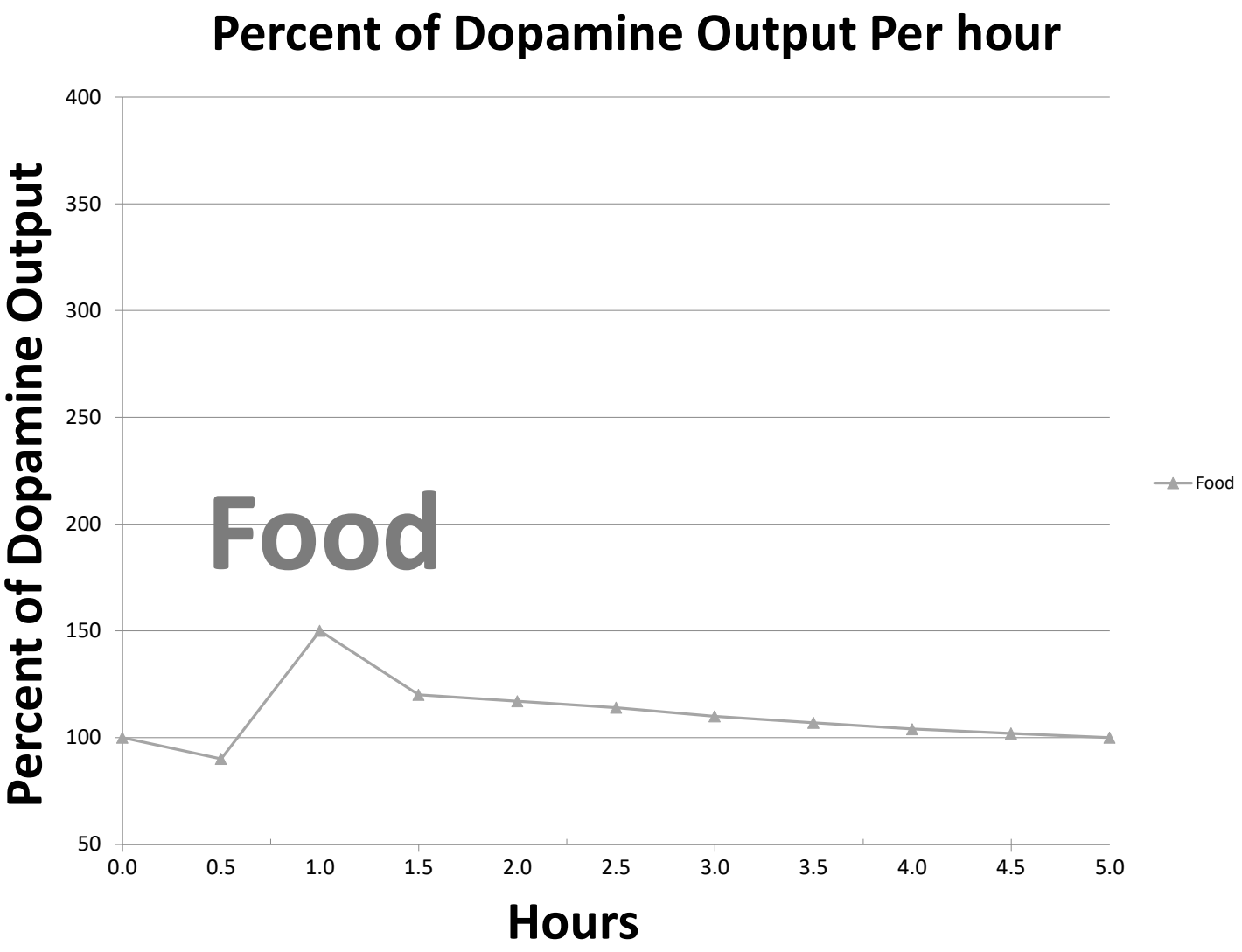
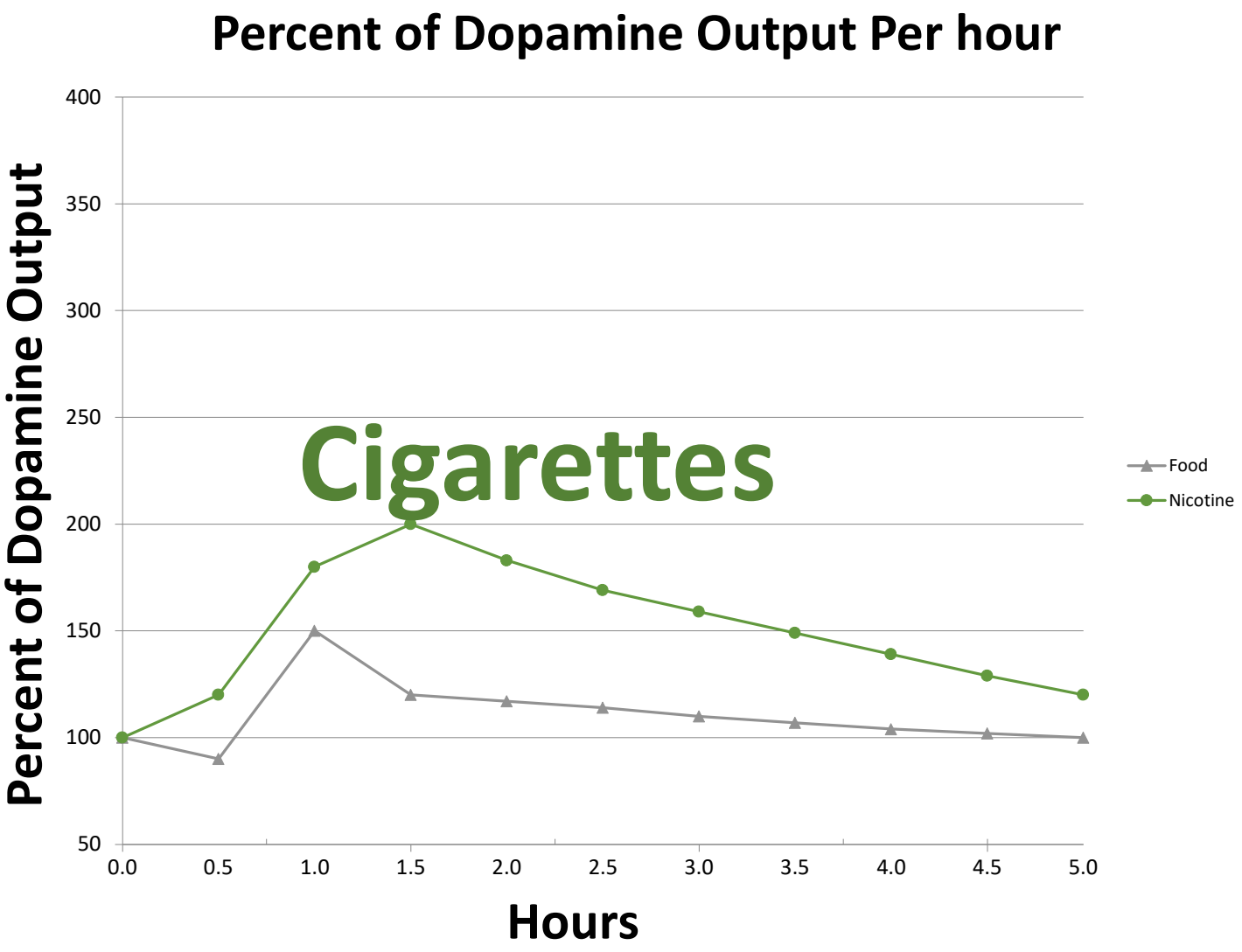
(Di Chiara & Imperato, 1988; Dindinger, 2014)



Di Chiara & Imperato, 1988; Dindinger, 2014; Newlifehabbits.com, 2010



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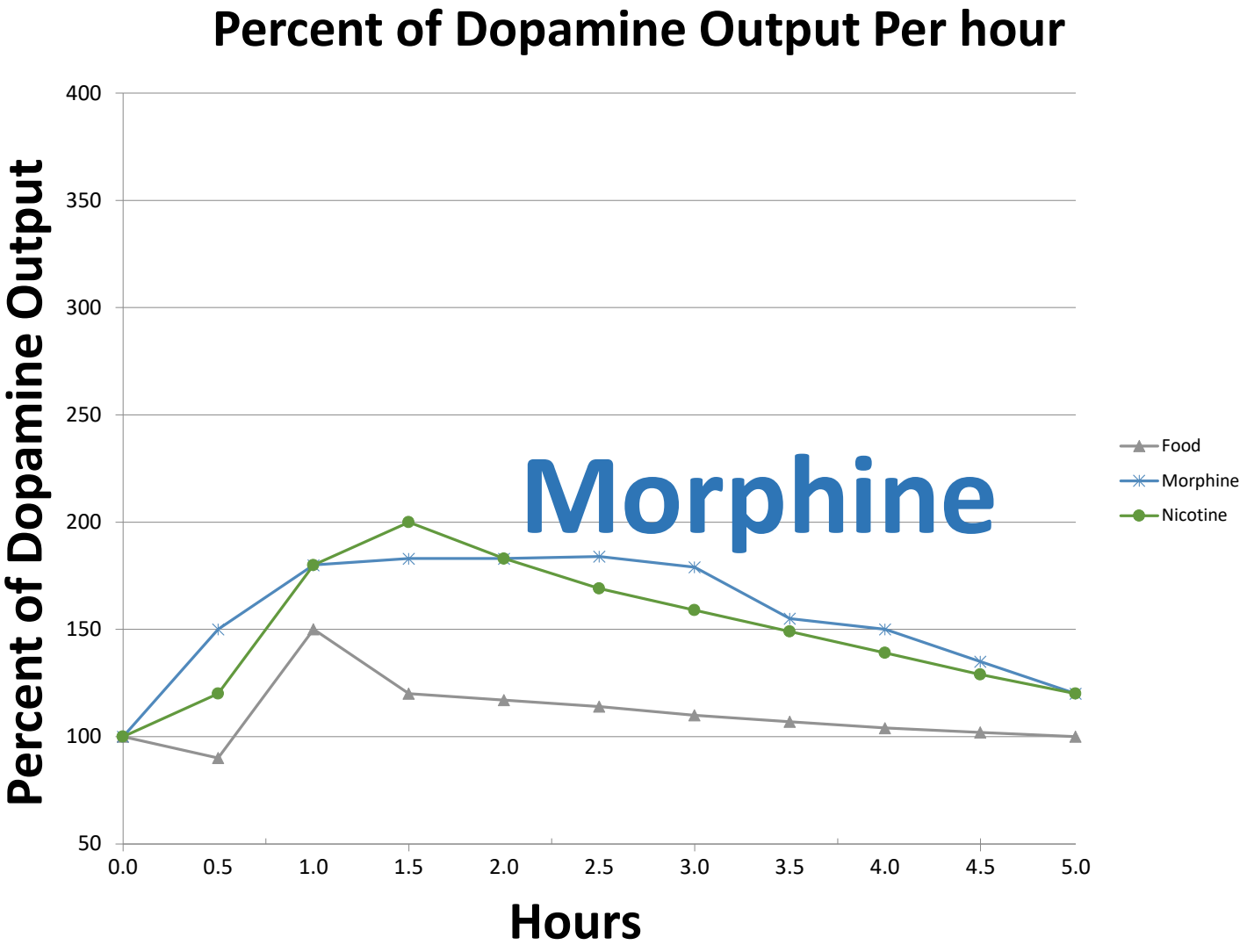

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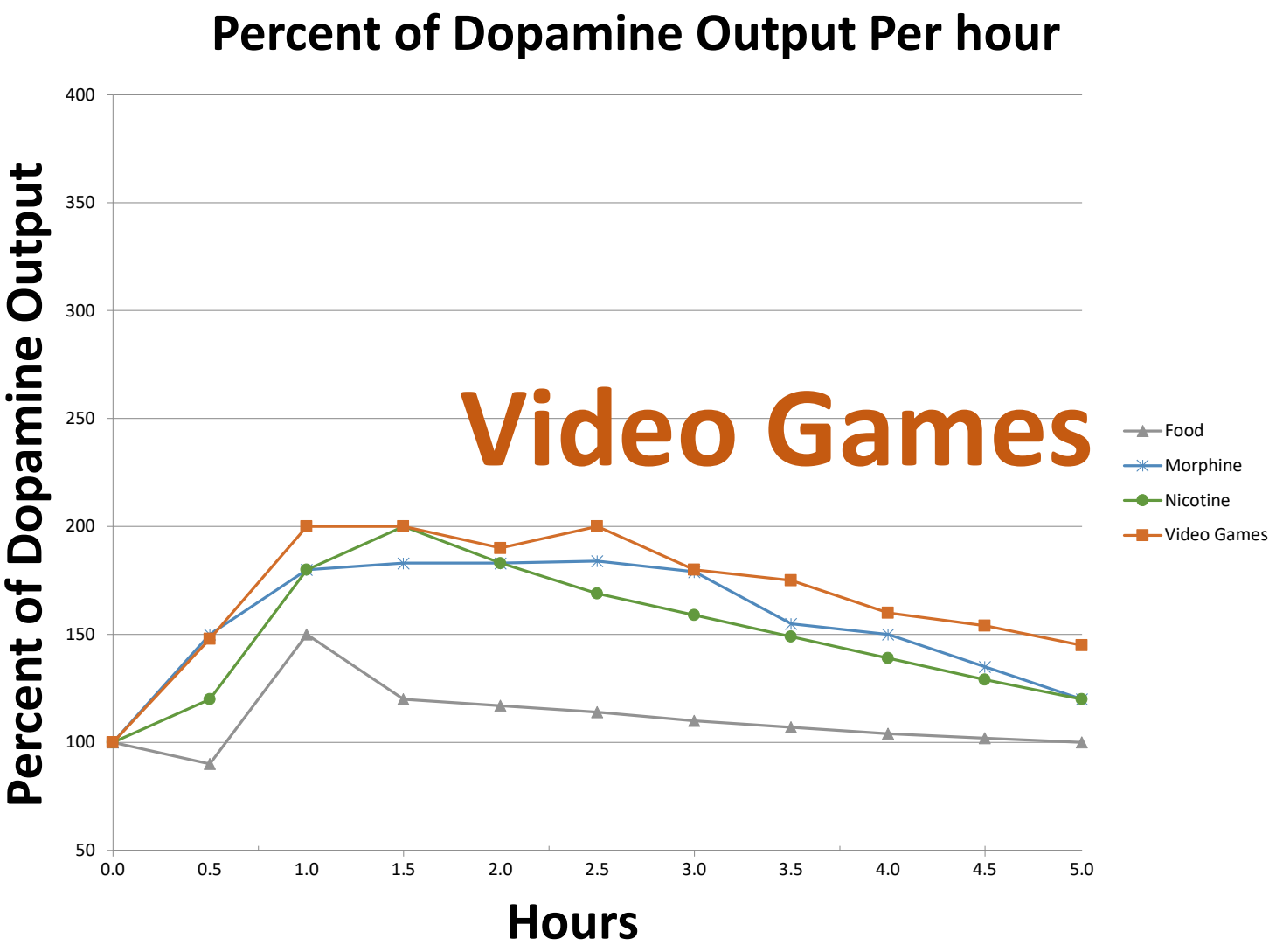

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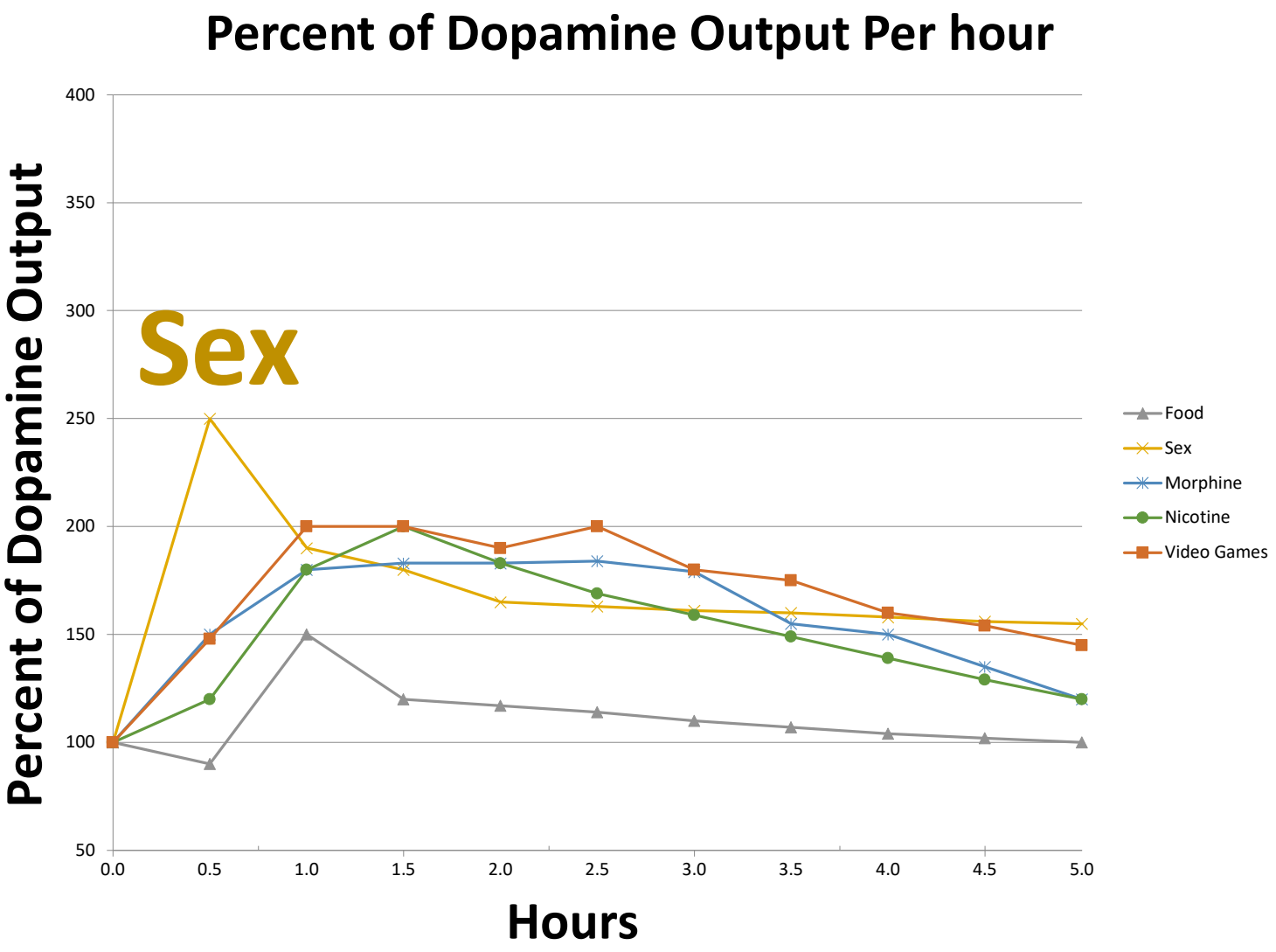

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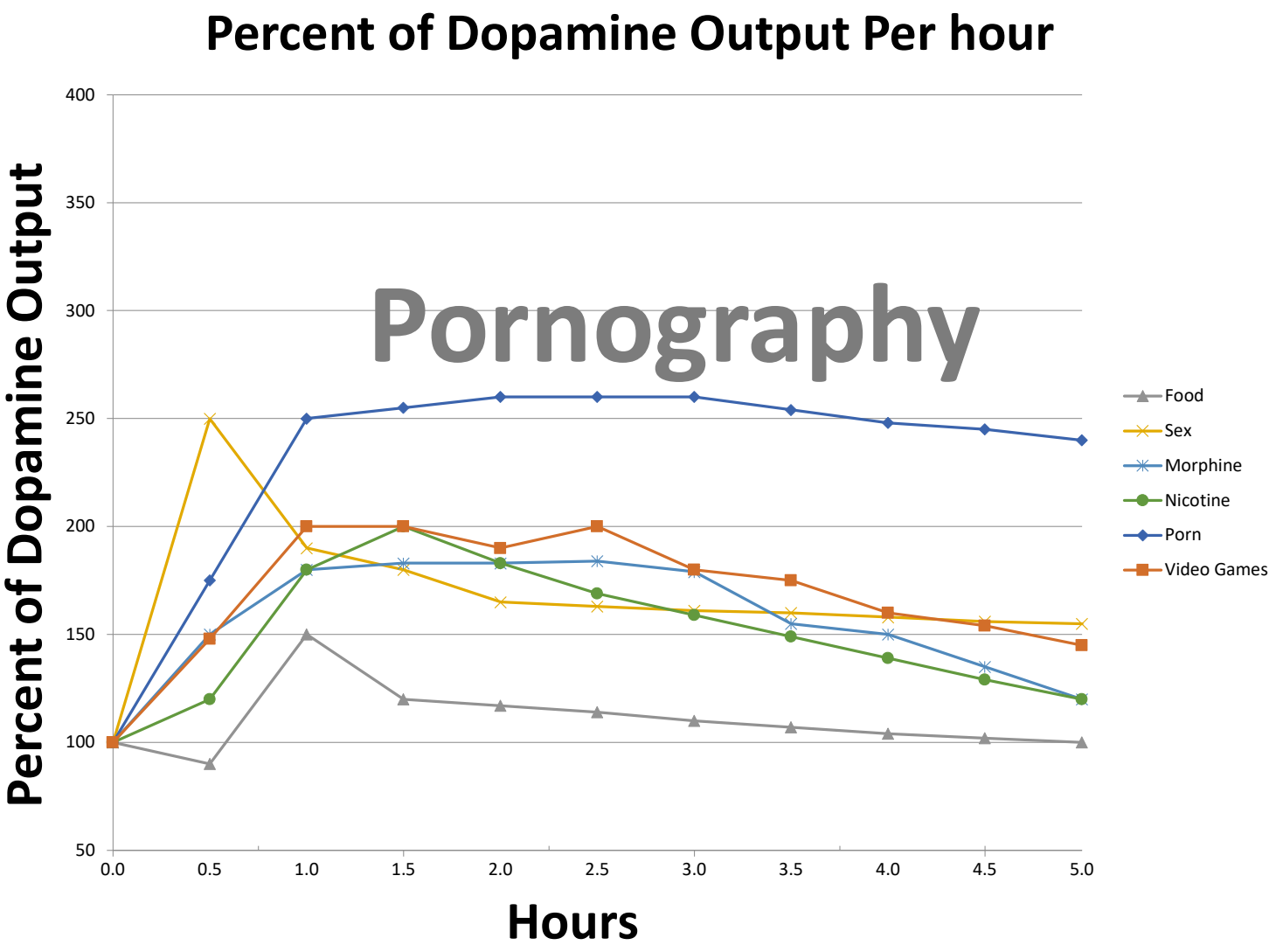

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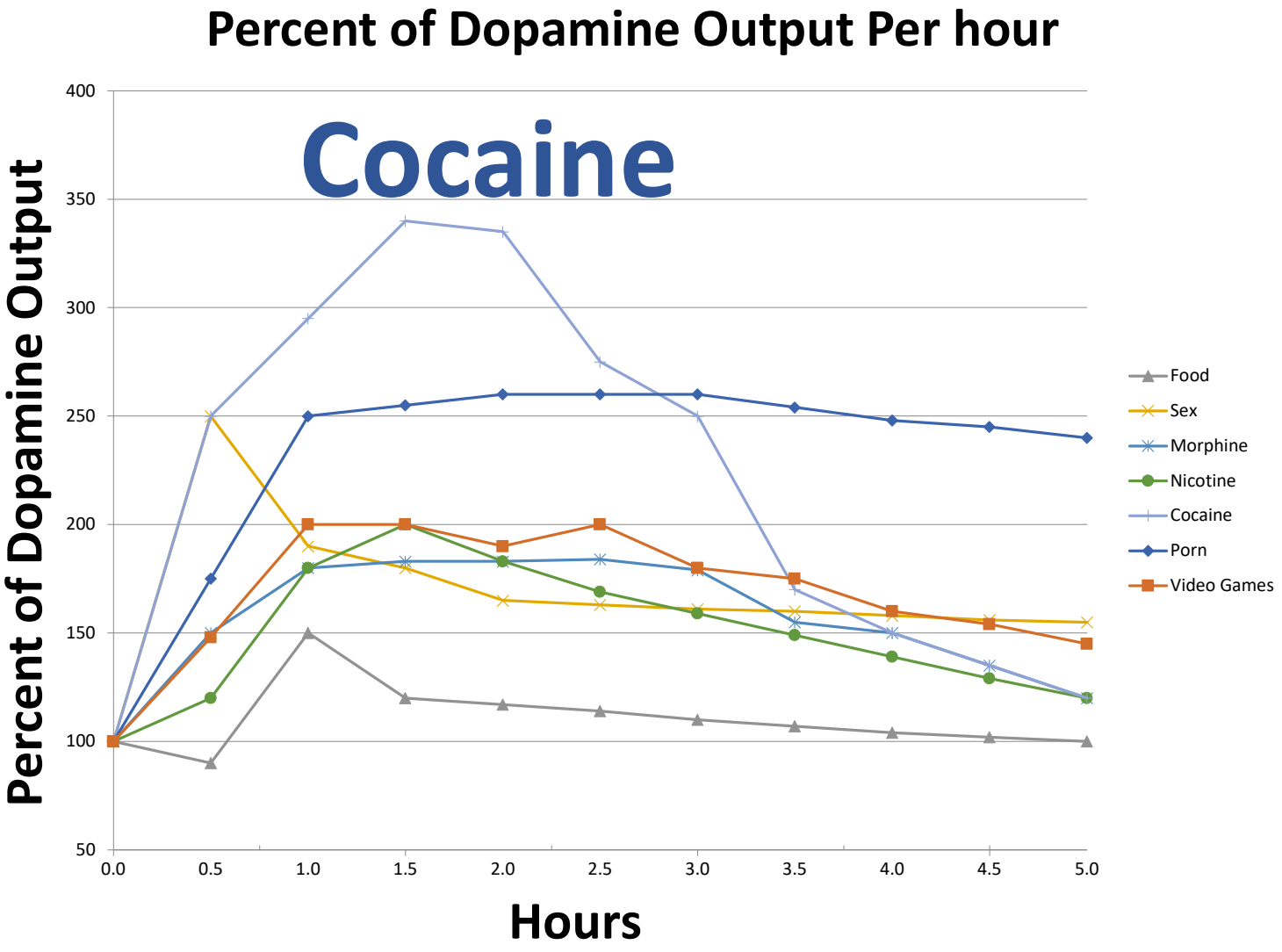
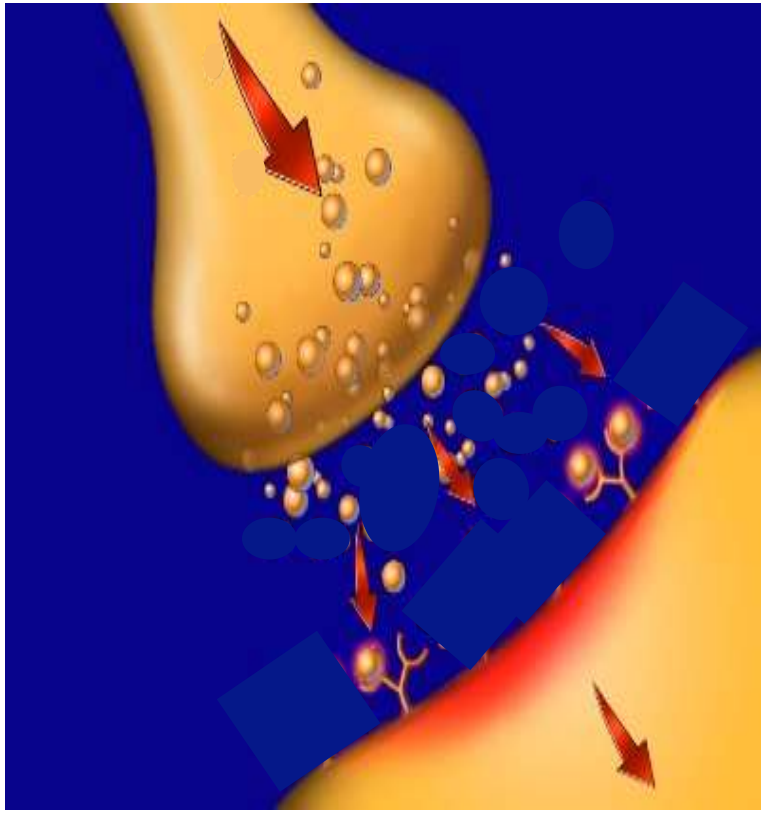


Di Chiara & Imperato, 1988; Dindinger, 2014; Newlifehabbits.com, 2010

Desensitization

Rewiring the Brain

Activities that promote the release of an excessive amounts of dopamine result in a reduction of dopamine receptors.



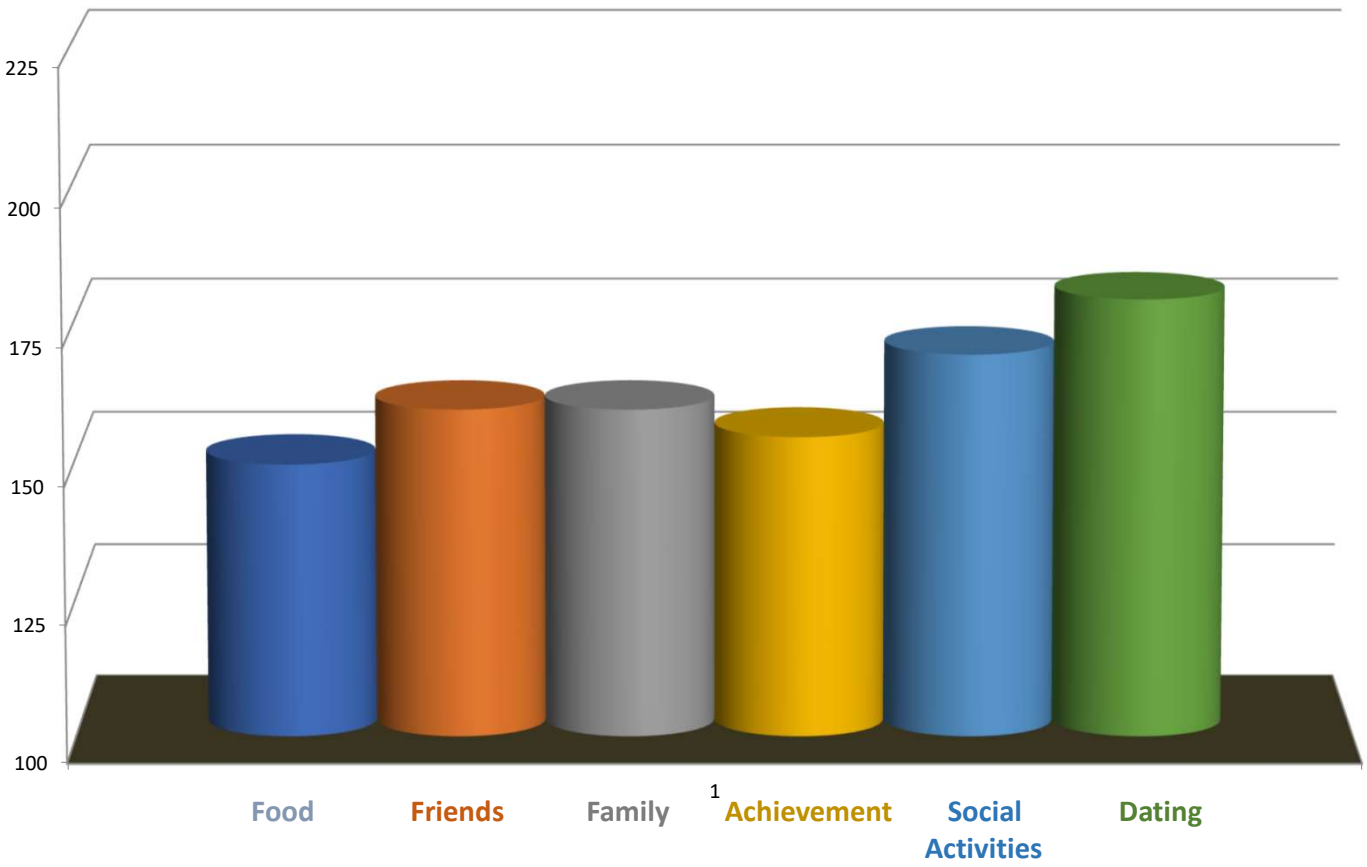
Desensitization

Getting rid of the old sources of pleasure

- Desensitization refers to a general dialing down of responsiveness to all pleasure.
- **The result is: "I can't get no satisfaction!!!"**
  - People tend to stop doing the things that they used to enjoy.
  - The value of old feel goods decline
    - Church friends, Activities, Family, etc…

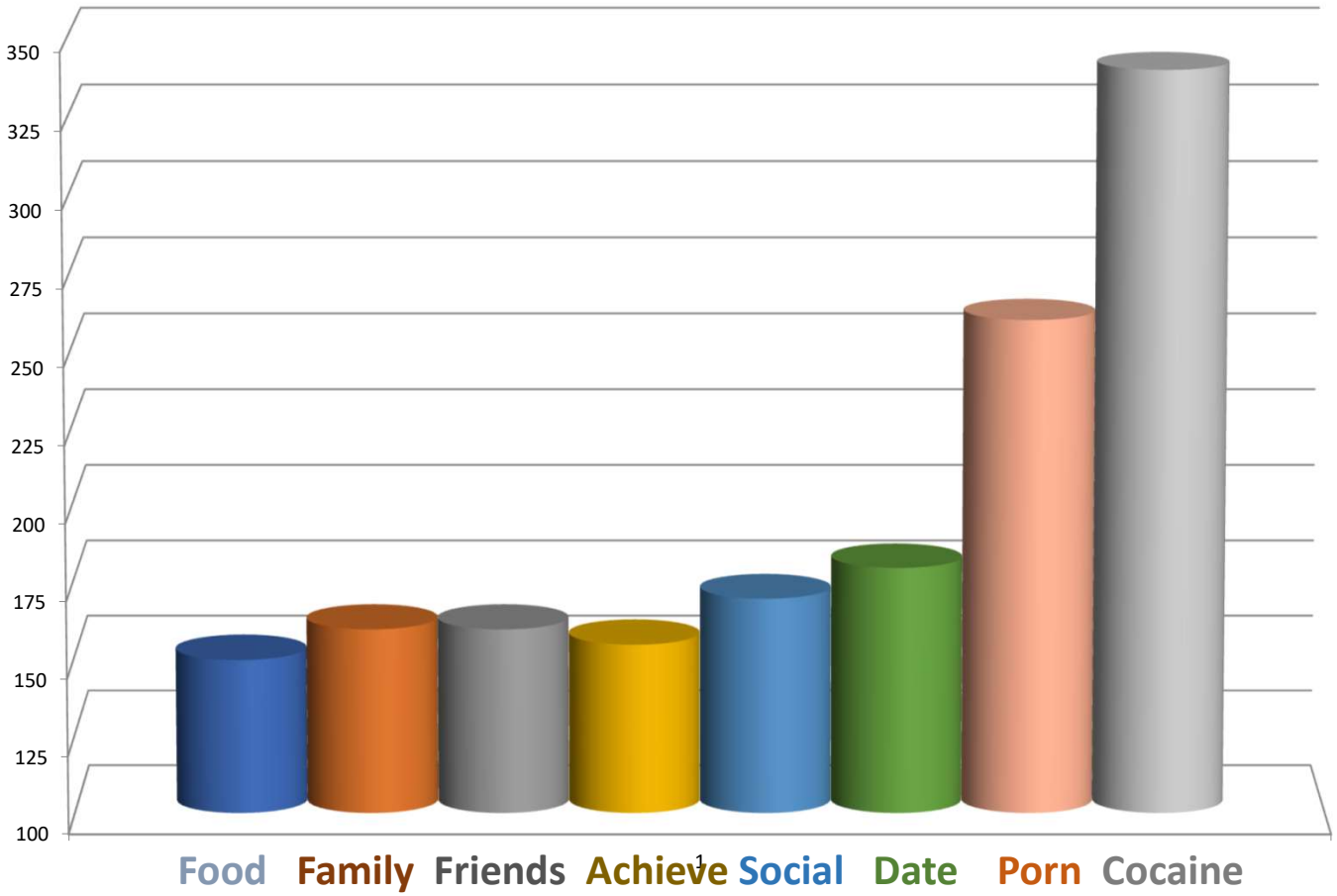
- It is a baseline change

Dopamine Set Point



(Di Chiara & Imperato, 1988; Dindinger, 2014)

Desensitization Set Point Change



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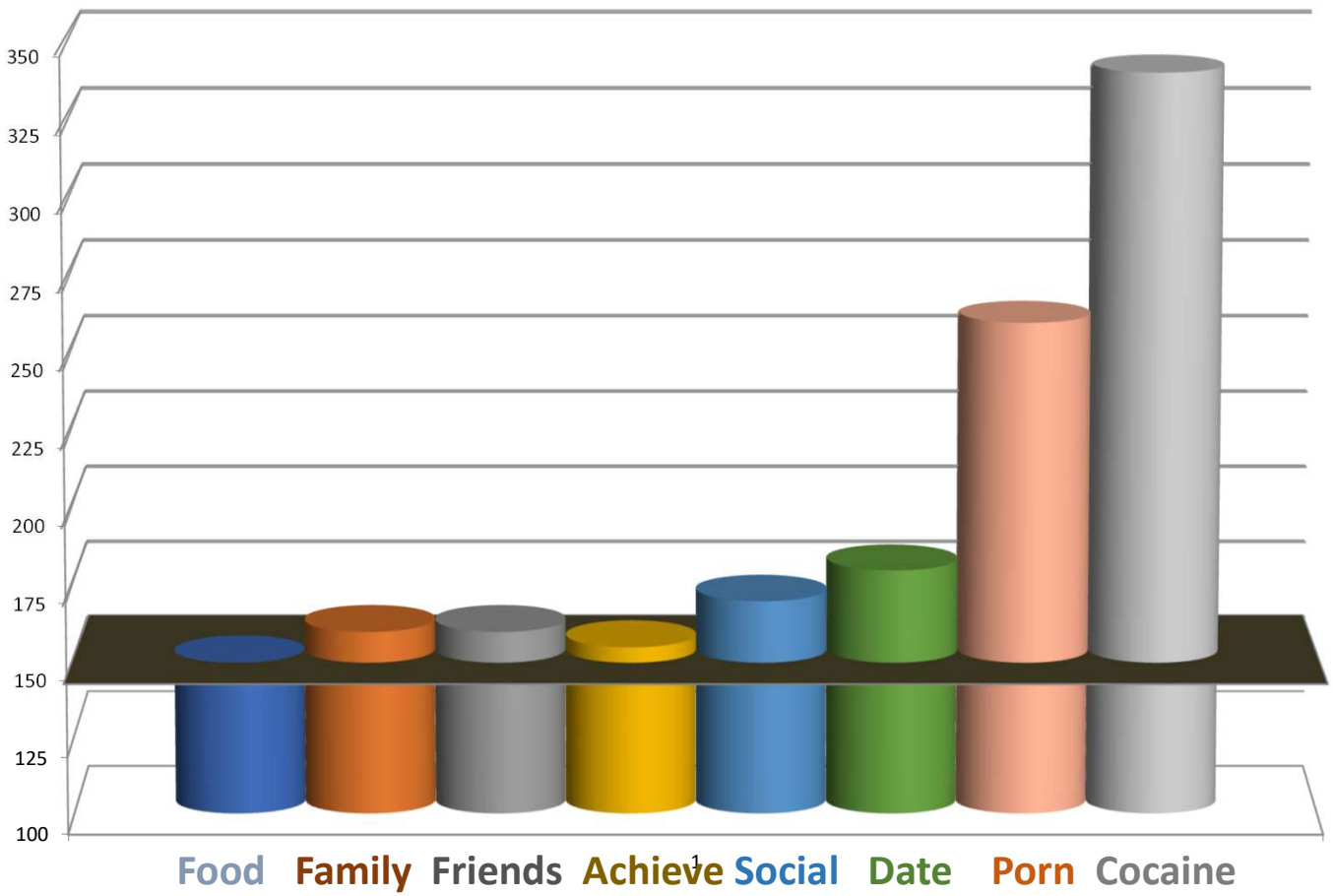
Desensitization Set Point Change



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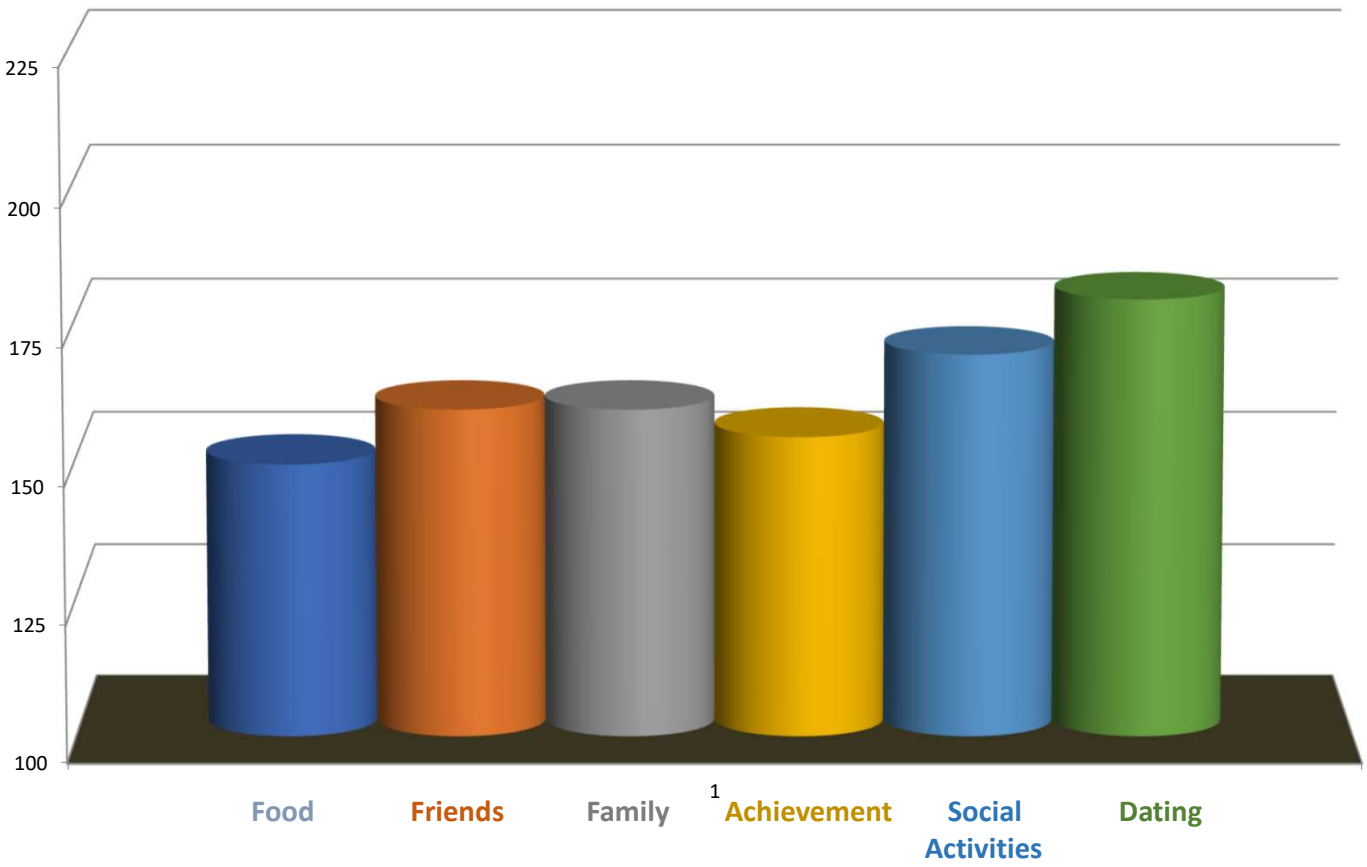
Dopamine Set Point



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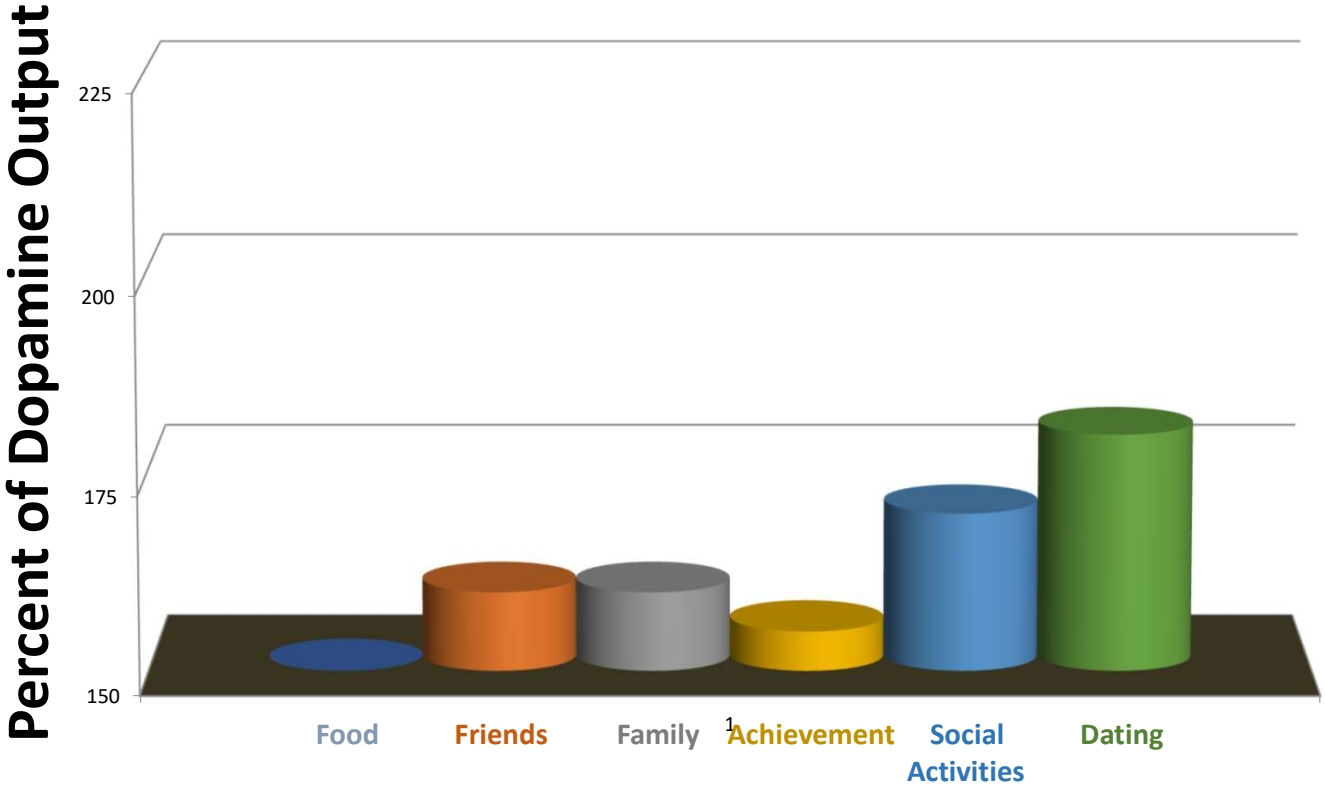
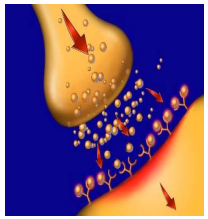
Desensitizatoin



Symptoms associated with low Dopamine

- Attention deficits
- Anxiety
- Depersonalization
- Depression
- Fatigue
- Lack of motivation
- Social withdrawal
- Learning problems
- Monotone speech
- Writing difficulties
- Tremors
- Less interest in food



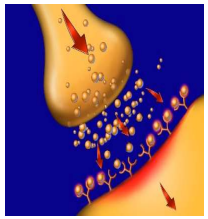
Improving Dopamine Regulation

Good Nutrition

Eat a balanced diet

Foods rich in the amino acid Tyrosine help your brain produce healthy levels of dopamine.

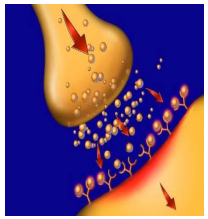
- Avocados, apples, almonds, bananas, watermelon, beets, cherries, eggs and pumpkin seeds.



Improving Dopamine Regulation

Foods to avoid

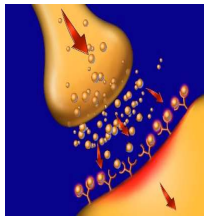
- Sugary foods
- High empty carbs
- Bad Fats
- Caffeine – Energy drinks!!!



Improving Dopamine Regulation

Exercise!!!

Research shows that just 30 minutes of aerobic exercise will not only improve dopamine regulation but improve the responses of dopamine receptors.



Improving Dopamine Regulation

Get a good sleep routine

Developing a good sleep pattern improves dopamine synthesis and protects against the depletion of dopamine receptors that results from a lack of sleep.