PYT WEEKLY

# THE NEUROSCIENCE OF EATING BEHAVIORS

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# Quick Notes

- Behavioral Neuroscience
- Hyperpalatable foods affect our brains like drugs
  - In animal models, long-term access to palatable food results in compulsive-like habit formation, which results in negative emotion-like states and which is resistant to aversive consequences.
- Eating less/cleaner will lower your happiness temporarily
  - Dopamine decreases
  - Restricted dopamine increases seeking behavior
- Anticipation-Consumption-Consequence
  - We have more wiring for anticipation than consumption
  - Reframe as the consequence
- The reward is primarily chemical

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# The Evolution Of Your Brain

- The human brain evolved over more than 500 million years ago
- Evolutionary mismatch: a situation in which once useful traits become harmful in an unfamiliar environment
- Opportunistic Voracity- we're hardwired to overeat
  - Story of hunter/gatherer
- 2 Brain Processes
- System1processes fast, effortless, intuitive and non conscious
- System 2 processes are slow, effortful, rational and conscious
- Information alone isn't enough to substantially change behavior because it doesn't target the primary brain circuits that are in charge of calorie intake

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# Neuroscience of Habits

- Habits emerge because our brains are always looking for ways to save energy
- Brain scans show increase in brain activity when first learning, but almost none once we know something
- Brain activity spikes at beginning and end of habit

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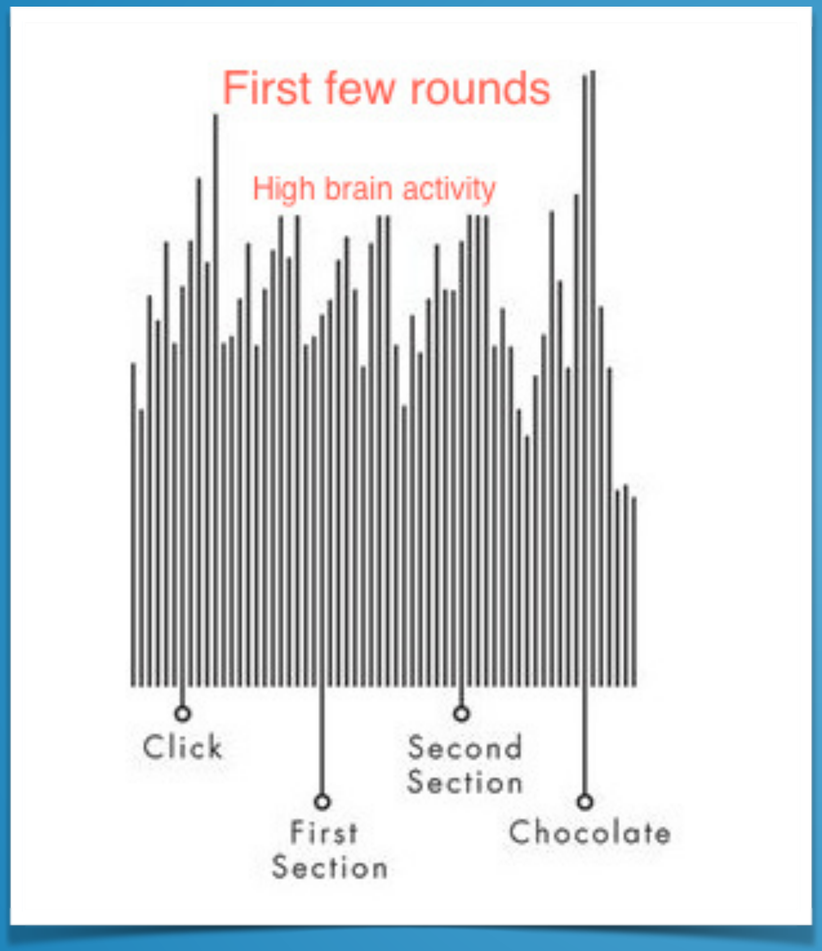
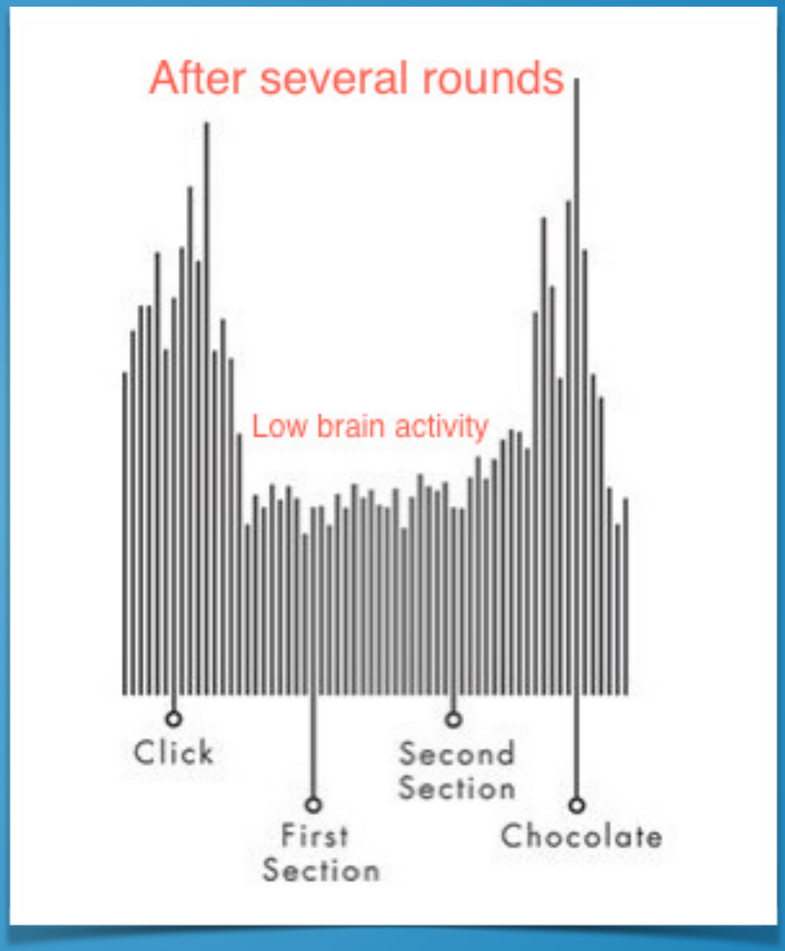
# Brain Scans Of Mice In A Maze

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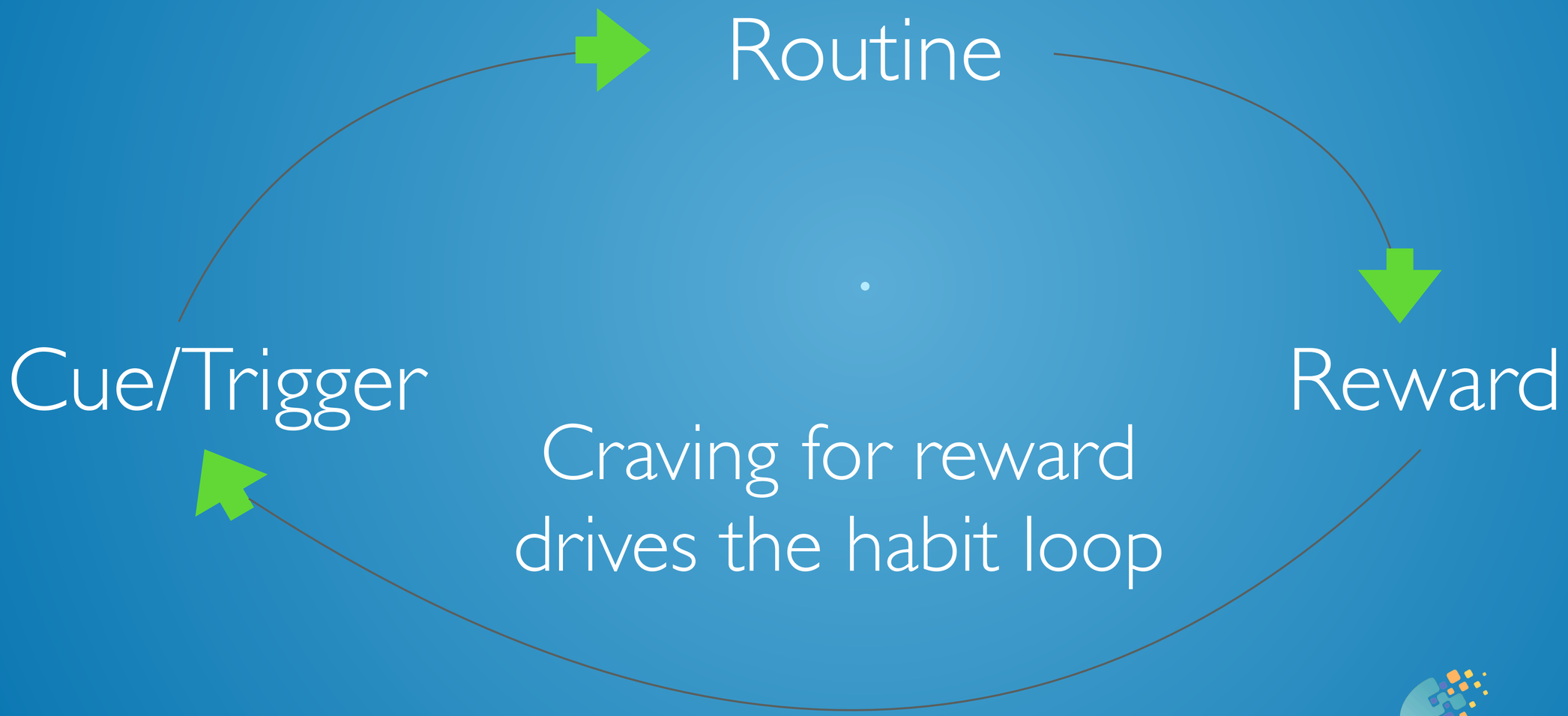
# The Habit Loop




From The Power of Habits by Charles Duhigg

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# Habit Pattern

## Problem Phase

### Cue → Craving →

Time
Environment
Person
Mood

Every craving is linked to a desire to change your internal state

## Solution Phase

### Response → Reward

The habit (can be thought or action)

Serves 2 purposes:
1 to satisfy us
2 to teach us

From Atomic Habits by James Clear

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# Neuroscience of Overeating

- Supernormal Stimulus- when a species innate preferences are overstimulated by presenting a cue thats more powerful than what the species has evolved to expect
- Supermarket Diet- what researchers call the diet they use to fatten up lab rats the fastest consisting of “super palatable human foods”
- Food variety has a powerful influence on our calories intake and the more variety we encounter at a meal the more we eat
- Sensory-specific satiety- when we get full from one type of food but still want to eat a different kind
- The buffet effect- when we overeat because of different options

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# Food Reward and The Drive To Eat

- Food Reward is the unconscious value we place on different foods
- This reward is less about flavor and more about calorie content
- Dopamine is the “learning” chemical that reinforces desired behavior
- It increases when eating higher calorie foods with increased carbs, fats or sugar
- Our brains use 1/5 of our body’s energy even though it’s only 2% of our body weight
- When we’re hungry our bodies don’t want healthy food. Our brain motivates us toward concentrated, quick, easy calories.

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# Boosting Dopamine

- **Eat foods rich in tyrosine.** In order to make dopamine, your body needs tyrosine which can be found in almonds, bananas, avocados, eggs, beans, fish, and chicken.
- Eat less saturated fat
- Sunlight
- Exercise Regularly-increases the production of new brain cells, slows down brain cell aging, can increase levels of dopamine.
- Meditate- increases dopamine leading to increased focus and concentration
- Sleep- lack of sleep has been shown to reduce dopamine
- Massage
- Listen to music

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# Foods That Make You Feel Full

- The more palatable a food, the less filling it was. Palatable foods are those that the brain intuitively views as highly valuable and the brain is quite good at removing barriers to their consumption
- The more fat food contained the less filling it was per calorie. When high fat foods aren't calorie dense or highly palatable they provide the same level of satiety per calorie as high carb food
- The more fiber a food contained the more filling it was
- The protein content of a food was a major contributor to satiety

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