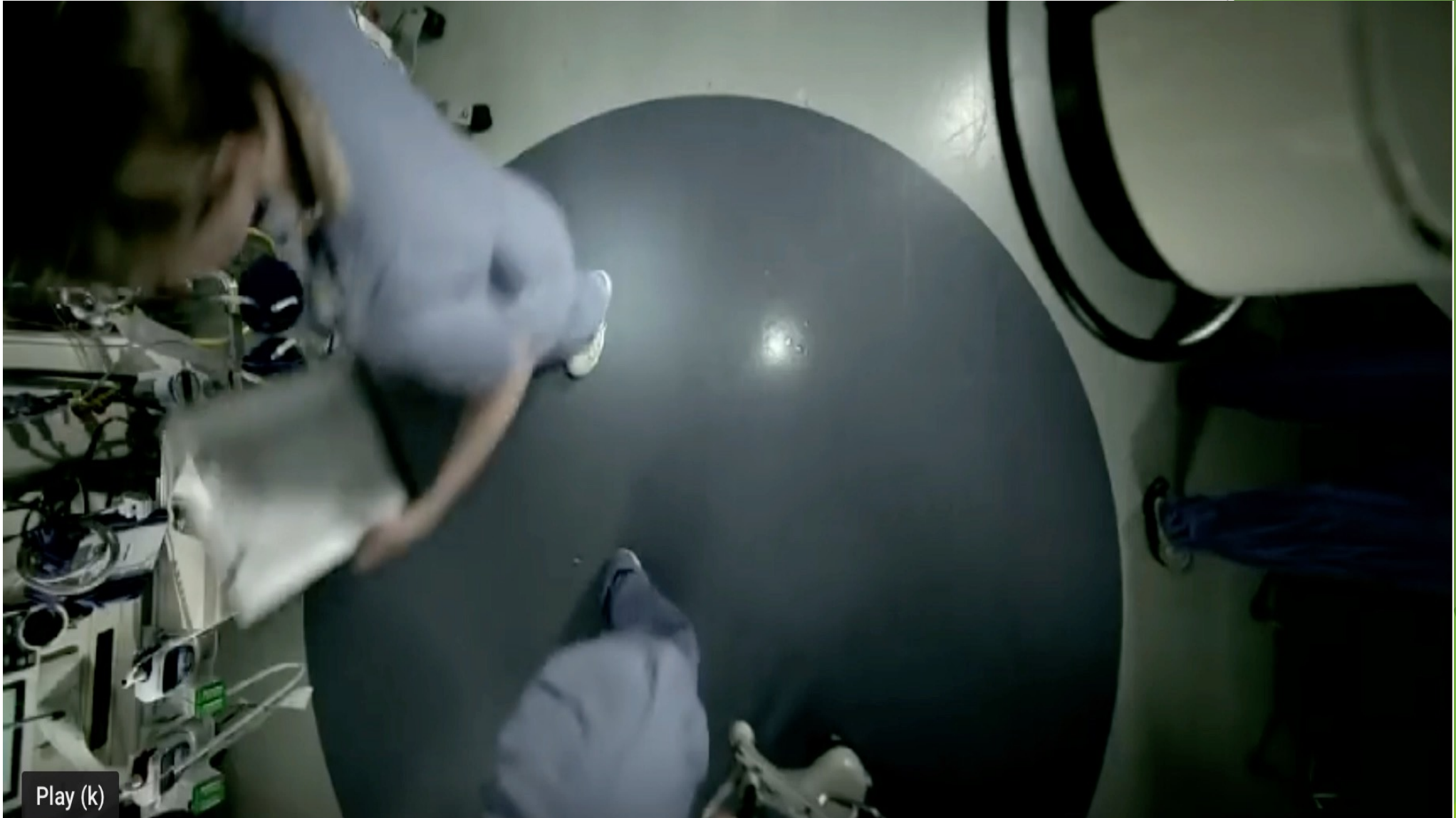


# Behavior Change: the Solution to Chronic Disease

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Play (k)

We Are Getting Sicker...



# What is Chronic Disease?

- ▶ One lasting 3 months or more, by the definition of the U.S. National Center for Health Statistics.
- ▶ Chronic diseases generally cannot be
  - ▶ prevented by vaccines
  - ▶ cured by medication
  - ▶ nor do they just disappear

# What Chronic Diseases Do We Suffer from?

- ▶ Heart Disease
- ▶ Stroke
- ▶ Diabetes
- ▶ Cancer
- ▶ Obesity
- ▶ Arthritis

# What is the Cause of Chronic Disease?

Many chronic diseases are caused by a short list of risk behaviors:

- ▶ Tobacco use and exposure to secondhand smoke
- ▶ Poor nutrition, including diets low in fruits and vegetables and high in sodium and saturated fats
- ▶ Lack of physical activity
- ▶ Excessive alcohol use

# Just the Facts...

- The CDC 60% of U.S. adults have one or more chronic medical conditions
  - Accounts for 90% of \$3.3 trillion in annual U.S. healthcare costs
- Obesity-associated comorbidities account for 45% of all cases of hypertension, 18% of hypercholesterolemia, 35% of heart disease, and 85% of type 2 diabetes.

## More SAD facts...

- 71.6% of adults aged 20 and older are overweight or obese
- This also affects our children
  - 20.6% of adolescents aged 12-19 years are obese
  - 18.4% of children aged 6-11 years are obese
  - 13.9% of children aged 2-5 years are obese



# Americans Poor Eating Habits...

- ▶ Federal guidelines recommend that adults eat at least **1½ to 2 cups per day of fruit** and **2 to 3 cups per day of vegetables**.
- ▶ Just **1 in 10** adults meet the federal fruit or vegetable recommendations!
- ▶ **REMEMBER...** 7 of the top 10 leading causes of death in the United States are from chronic diseases!

# Other Healthy Habit Facts...

- ▶ What is percentage of adults aged 18 and over who met the Physical Activity Guidelines for aerobic physical activity?
  - ▶ **53.3%**
  - ▶ This increases as education increases.
- ▶ What is the percentage of adults aged 18 and over who met the Physical Activity Guidelines for both aerobic and muscle-strengthening activity?
  - ▶ **23.2%**

# Heart Disease

- ▶ About **610,000** people die of heart disease in the United States every year-that's **1 in every 4 deaths**.
- ▶ Heart disease is the leading cause of death for both men and women.
- ▶ Every year about **735,000 Americans** have a heart attack. Of these, 525,000 are a first heart attack and 210,000 happen in people who have already had a heart attack.

# Diabetes

- ▶ More than 30 million people in the United States have diabetes, and 1 in 4 of them don't know they have it.
- ▶ More than 84 million US adults—over a third—have prediabetes, and 90% of them don't know they have it.
- ▶ 7<sup>th</sup> leading cause of death in the United States
- ▶ In the last 20 years, the number of adults diagnosed with diabetes has more than tripled

# Cancer Stats

- ▶ Estimated numbers of new cancer cases and deaths in 2022 (In 2022, there will be an estimated 1.9 million new cancer cases diagnosed and **609,360 cancer deaths** in the United States.)
- ▶ In early 2018, the American Cancer Society reported on the largest analysis of the trend so far in the *Journal of the National Cancer Institute*.
- ▶ They found people born in 1990 have double the risk of colon cancer and quadruple the risk of rectal cancer compared to people born around 1950.

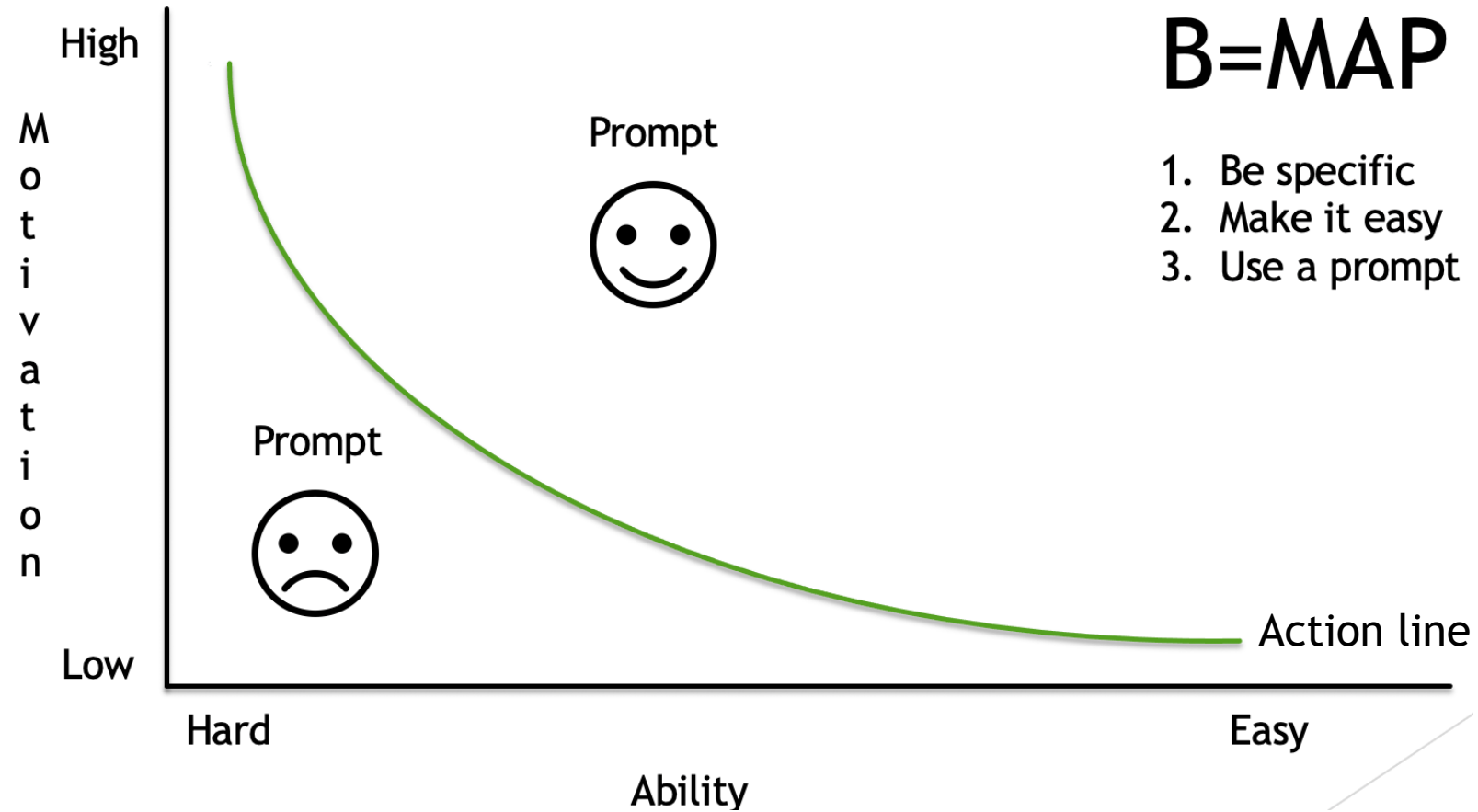
## In summary...

- ▶ Poor lifestyle choices lead to chronic disease.
- ▶ It is difficult to make healthy choices when the environment makes it tough to do so.
- ▶ Unhelpful habits are hard to break.
- ▶ Individuals often do not have social support for change.

# So, what is the solution?

- ▶ Behavior change.
  - ▶ But how and where do you begin?
  - ▶ When you understand the mechanisms behind behavior and habits there are opportunities to try new strategies.
- ▶ What behaviors do you change?
  - ▶ Lifestyle medicine pillars
    - ▶ Plant strong diet, movement, restorative sleep, stress management, community engagement, and avoidance of tobacco and excessive alcohol

# First, what is behavior?



**B=MAP**

1. Be specific
2. Make it easy
3. Use a prompt

Fogg Behavior Model



# What is a habit?

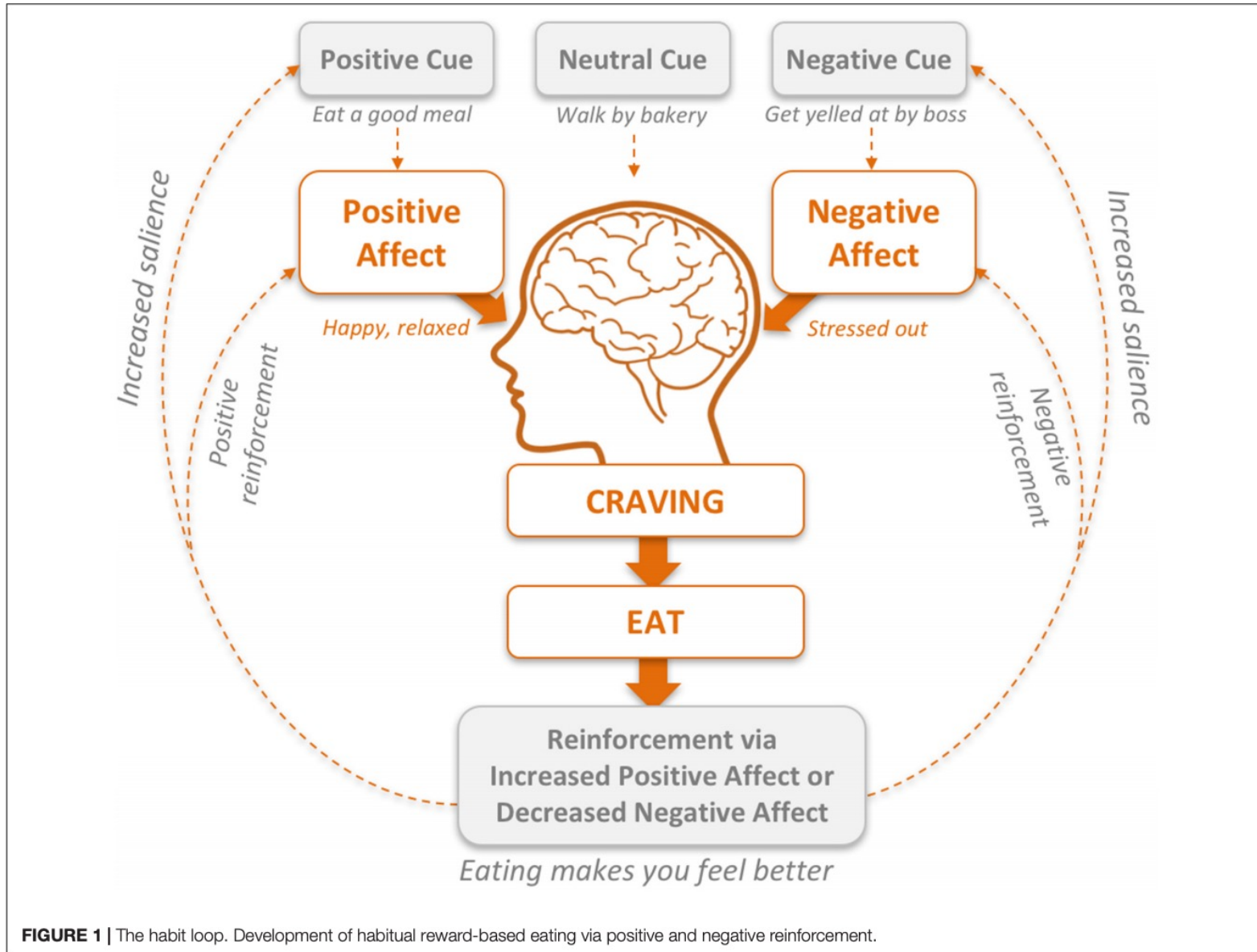


FIGURE 1 | The habit loop. Development of habitual reward-based eating via positive and negative reinforcement.

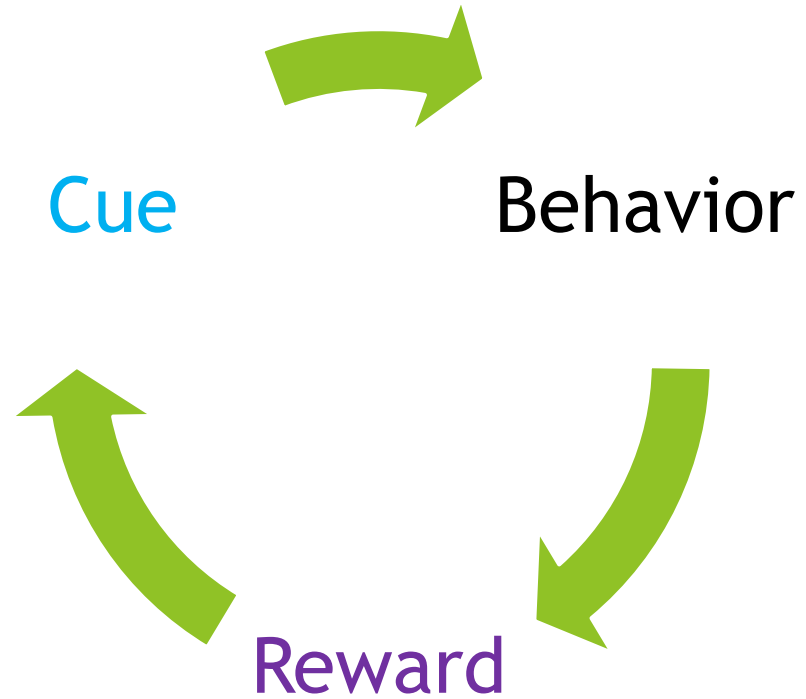
## The Habit Loop

Brewer JA, et al. Can Mindfulness Address Maladaptive Eating Behaviors? Why Traditional Diet Plans Fail and How New Mechanistic Insights May Lead to Novel Interventions. *Front. Psychol.* 9:1418. doi: 10.3389/fpsyg.2018.01418.

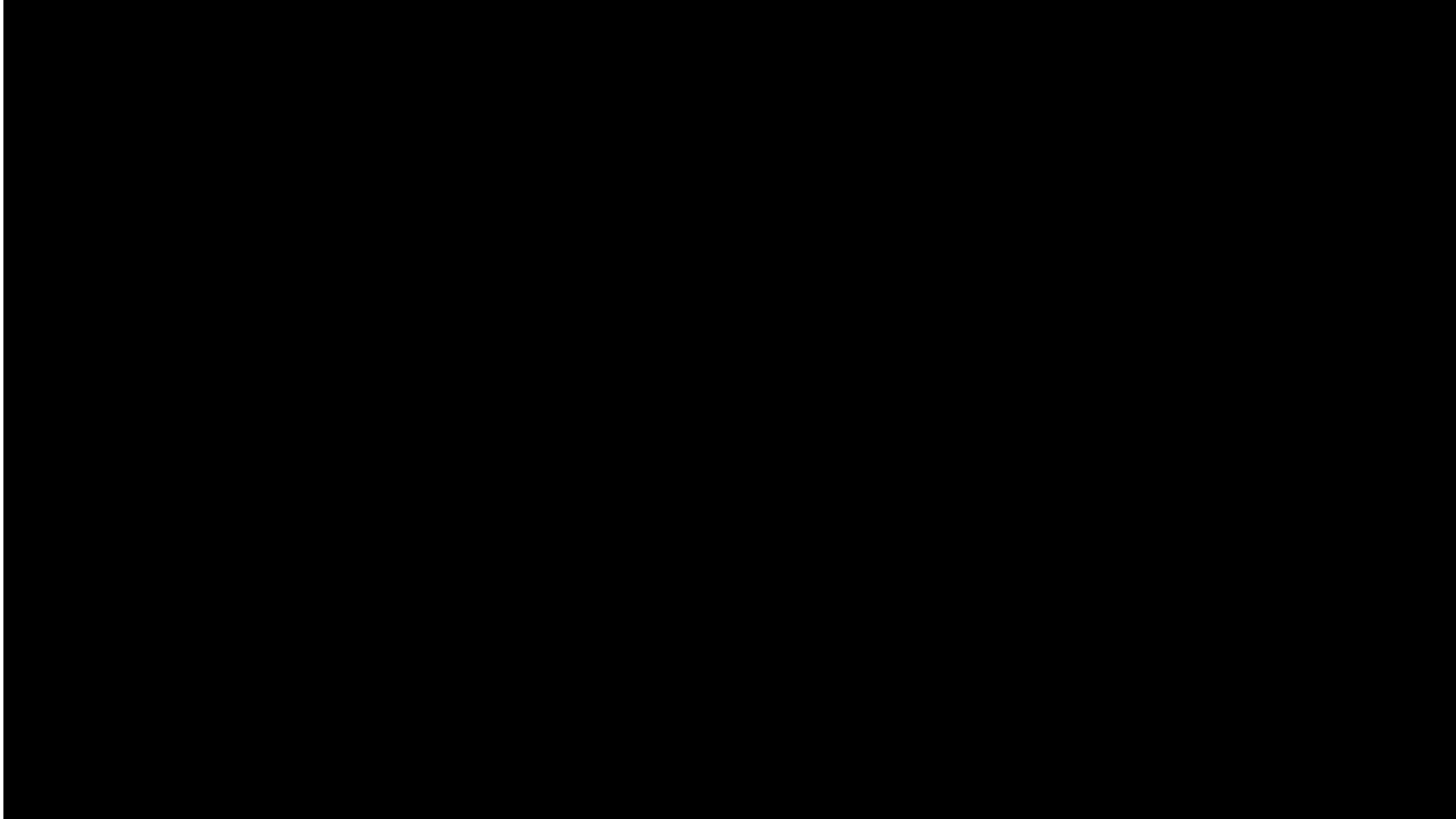
# The Habit Loop is a Result of Reward-Based Learning

- ▶ Our primitive caveman brain is built to help us survive.
  - ▶ See food, eat food, remember where and how to get food means living to see another day.
- ▶ How does our brain do this?
  - ▶ Operant conditioning is reinforcement or associative learning.
  - ▶ This involves negative and positive reinforcement ... removing pain or receiving a reward increases the likelihood of the behavior being repeated in the future.
  - ▶ The reward reinforces the behavior, and our brains attach an emotional memory to that reward yielding behavior, increasing the odds it will be performed again.

# Simply Put a Habit Loop is...



Understanding the environment piece ...  
let some 4-year-olds teach us



## Stimulus control is...

- ▶ Situational control: Removing oneself from the stimulus or removing the stimulus from the environment.
- ▶ This allows for good habits to be formed.
- ▶ When people score high on self-control surveys it is not because they have more willpower or white knuckle through temptation.
  - ▶ They report having less temptations because they have designed their lives to have situational control which leads to good habits.

# Why Willpower Fails Us

- ▶ The use of willpower creates internal friction, because we **WANT** to consume a highly palatable food (caveman brain wants it now) in an environment that is continually targeting us **BUT** we have weight loss goals.
- ▶ Eventually we will be tired, mentally exhausted, anxious, lonely, and **we will give in** if given the opportunity.

## Instead, try this...

- ▶ Develop and maintain healthy habits and disrupt unhealthy habits by...
- ▶ Creating a personal environment that encourages the behavior that is sought
  - ▶ An environment that increases exposure to healthy eating and physical activity and encourages automatic responding to goal related cues
- ▶ For example:
  - ▶ What is the target behavior? (eating fruit for snack)
  - ▶ When and where? (at home at desk)
  - ▶ Place it around an anchor or event-based cue/trigger (after 10 AM morning meeting)

# Routines

- ▶ Develop predictable and sustainable routines
- ▶ Minimize disruption to routines
- ▶ Follow accomplishment of goal behavior with positive reinforcement (high five, gold star, check off list)
- ▶ Form implementation intentions where habit-related cues are linked to performance of healthy promoting behaviors (e.g. ‘If I am craving candy, then I will eat a piece of fruit instead’)



# Disruption of unhealthy habits

- ▶ Interrupt unhealthy habits by disrupting/changing established routines that support unhealthy habits
  - ▶ Make unhealthy behaviors less reinforcing (e.g. make sure unhealthy snacks require substantial preparation, time, and effort)
  - ▶ Identify/remove triggers for unhealthy habits
  - ▶ Form implementation intentions to perform healthy behaviors in response to cues that have historically signaled unhealthy behaviors (I will eat fruit instead cake after dinner.)
- ▶ Thoroughly evaluate all aspects of their personal environment and systematically modify the environment to encourage healthy behaviors and discourage unhealthy behaviors
- ▶ Each week follow and complete an Environmental Modification checklist to transform aspects of their environments.

# Environmental Modification Checklist

- ▶ “Success occurs when opportunity meets preparation” — Zig Ziglar
- ▶ We are designing our environment to create success. Make the easy choice the healthy choice.
- ▶ Let’s walk through an environmental survey for sleep.
  - ▶ Mr. Smith is struggling to sleep at night. He tosses and turns and wakes up feeling exhausted. He is not sure what to do.
  - ▶ Let’s peak into his evening routine.

# What do you see we could do to improve Mr. Smith's sleep?



# We move from mindless to MINDFUL

- ▶ Mr. Smith can begin to change his physical environment to promote better sleep quality.
- ▶ He can begin to disrupt the behaviors that promoted poor sleep.
  - ▶ Turning off the screens 1 hour before bed. Instead he may read.
  - ▶ Remove alcohol from house.
- ▶ He can begin to create the habits that promote sleep.
  - ▶ Going to bed at the same time.
  - ▶ Creating a wind down routine to promote relaxation.
- ▶ Celebrate every victory!

## In summary...

- ▶ Our health is a culmination of our daily habits.
- ▶ Habits can be created and broken but will require some work.
- ▶ We do not have to be a victims nor do you have to white knuckle through avoiding unwanted behaviors.
- ▶ Become the expert in your own life and use behavior design to create the habits you desire.
- ▶ You only regret the thing you don't do.
- ▶ Challenge you to incorporate one healthy habit this week and disrupt an unhealthy habit.

Questions?

