

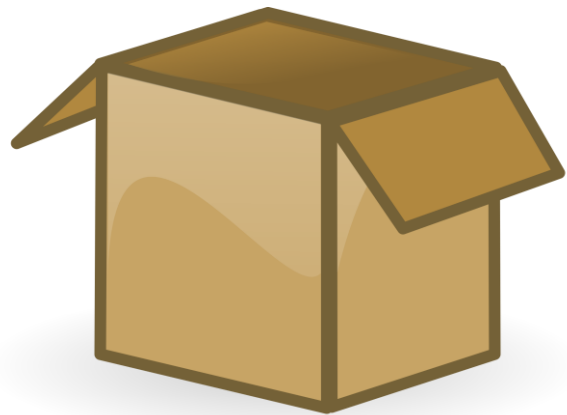


START NOW

How yo-yo dieting affects you 

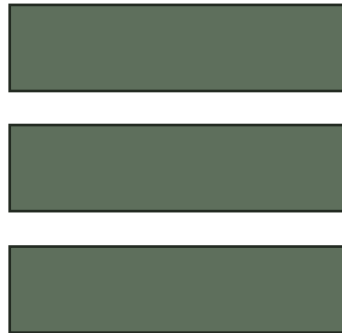
# Uncertainty makes you crave it more

- In 2003, the Cambridge neuroscientist Wolfram Schultz did an experiment in which monkeys were shown pictures that *might* or *might not* result in a reward of concentrated black- currant juice.
- He measured “dopamine activation” in the monkeys’ brains after each picture was presented.



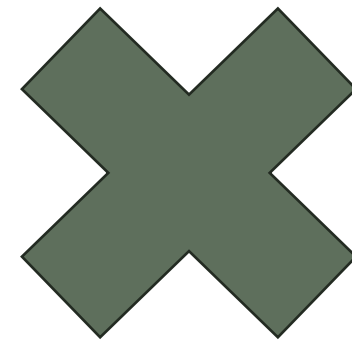
**Never** gets juice

**Lowest** surge of dopamine—  
it indicated **no reward**



**Always** gets juice

**Equally low dopamine** response!  
**A certain reward** was just  
as **unexciting** as no reward.



**Sometimes** gets juice

**Uncertainty triggered**  
**the largest**  
**surge in dopamine!**



# Uncertainty makes you crave it more

- A scientist at the University of Stockholm performed an experiment in which he placed eight gerbils in a “superabundant” food environment.



**Bowl 1**

**More than 1000 seeds**



**Bowl 2**

**200 seeds mixed with sand**



# Uncertainty makes you crave it more

- Halfway through the experiment the situation changed.
- Then the conditions kept changing. One day there were more seeds, the next there were fewer.
- And the bowls were never in the same spot.
- The gerbils' "food environment" had gone from being certain to uncertain.



**Bowl 1**

**Only sand**



**Bowl 2**

**150 seeds mixed with sand**



# Certain food situation

- When food was superabundant, the gerbils ignored the big bowl. They seemed to derive some satisfaction from pulling seeds out of the sand, even though doing so took more time and effort—not what you'd expect from creatures “wired to get fat.”



**Bowl 1**

**More than 1000 seeds**



**Bowl 2**

**200 seeds mixed with sand**



# Uncertainty food situation

- The gerbils went into a kind of panic and headed for whichever bowl was more “profitable”.
- **When food became unpredictable, the gerbils also ate more!!!**
- The gerbils never faced anything close to an actual food shortage. During “uncertainty,” there were fewer seeds available and they were always mixed with sand, **but there was still much more food than the gerbils were capable of eating.**
- *Eat, because tomorrow you might lose.*



**Bowl 1**

**Only sand**



**Bowl 2**

**150 seeds mixed with sand**



# Uncertainty food situation because of poverty

Does the mere thought of not having enough food make us eat beyond our needs?

- Boston doctor named William Dietz in 1993 treating a **7 year old girl who weighed 175 pounds.**
- He had advised her to eat more fruits and vegetables.
- The girl's mother explained that their **family lived on welfare and food stamps**, often leaving little money for food after rent was paid.
- **During tight times, the mother served her daughter rich, filling meals** and often added extra butter or oil to pasta.
- Dietz's theory suggests **that when people face food insecurity, they might overconsume whenever food is available.**
- This pattern is supported by data showing that the poorest states and regions, both in the U.S. and abroad, have the highest rates of obesity.



# Uncertainty food situation because of restrictions

Poverty is no guarantee of obesity. It just raises the risk.

**What's more important is "food insecurity"—not knowing where the next meal is coming from, or if there is even going to be a next meal.**

**Like yo-yo dieting!!!**

**And restrictions!!!**

Parents often restrict access to unhealthy foods, such as cookies.

Studies have found that this strategy often backfires, bringing about the opposite result.

**Restricting food elevates its allure. Cookies become a fixation.**

Restricted children are more likely to eat even when they are not hungry.

**None of these children face anything close to the threat of starvation or even missing dinner. An unreliable cookie supply results in exaggerated cookie desire.**



## Uncertainty and scarcity

With yo-yo dieting and restricting - binging we create this uncertain situation for our bodies and brains.

One day we get too little calories, the next day we get too much. The brain doesn't know when it gets enough calories and it crank up dopamine to want food and binge and gain weight!!!

But there is another factor too: mismatch between the taste and calorie content of food we eat when we eat diet foods.



# Calorie mismatch, not sugar addiction

What we call “sweetness” is information, a data about one of nature’s oldest forms of calories.

We changed that with artificial sweeteners. We took a reliable predictor of calories and turned it into a “maybe.”

We now live in a world where sweetness ***sometimes*** indicates lots of calories, ***sometimes*** indicates some calories, and ***sometimes*** none at all.

Sweet taste has become like a slot machine.



# Fake sweetness is one way to create uncertainty

- A scientist at Purdue University named Susie Swithers presented this very condition to laboratory rats.
- All of them were fed a sweet-tasting rat chow along with yogurt.
- **One day, the yogurt tasted sweet, and the next it did not.**
- But the yogurt wasn't sweetened the same way for all the rats.
- For half, the yogurt was sweetened with saccharin, and for the other half it was sweetened with ordinary sugar.



**Group 1**

Saccharin

**Ate more food.**



**Group 2**

Sugar

Ate less food.



# Fake fat is another way to create uncertainty

- One group of rats only ever ate potato chips fried in full-fat vegetable oil, while another group got regular chips one day and olestra chips the next, thus experiencing caloric uncertainty. The rats that got the full-calorie chips ate less and gained less.



Uncertainty



**Group 1**

Fake fat one day, real oil next day

**Ate more food, gained more weight.**

Certainty



**Group 2**

Full fat vegetable oil



Ate less food, gained less weight.

# Fake fat is another way to create uncertainty – human experiment

- One group of men ate regular biscuits made with full-fat fat, while another group of men ate biscuits made with olestra, and a third group ate biscuits made with even more olestra for breakfast.
- After breakfast, the men given the most olestra had consumed 316 fewer calories.



**Group 1**

Full fat fat.



**Group 2**

Fake fat.



**Group 3**

More fake fat.

- **But after lunch, dinner, a snack, and breakfast the following morning, that gap had dwindled to almost nothing. They compensated by eating more carbohydrates as the fat supply was uncertain!!!**



# Conclusions

With yo-yo dieting and restricting - binging we create an uncertain situation for our bodies and brains.

If there is a mismatch between the taste of (diet) food and calorie content, it also increases uncertainty and wanting/craving more food leading to overeating or binging.



# Solutions

- Eat regularly – Let your body trust that food will always come.
- Eat “normal” amount regularly to avoid uncertainty instead of eating too little for a while followed by a binge.
- Eat **mostly** whole foods, NOT diet foods containing fake sugar and fake fat and other additives. (But don't obsess about this. Key word is mostly. Don't need to be a perfectionist!!!)
- Eat them slowly and enjoy them. Eat good quality, delicious food, not diet food that you don't enjoy.

French and Italian people don't get fat because they appreciate their food and really make an effort to cook delicious, good quality food, not fast food. It doesn't have to be complicated, simple food can taste very good too if the ingredients are good quality.

Also, they eat them at the table, not in the car or at the computer and they often eat it with other people.

- Eat a really good quality, decadent, small dessert after your main meal if you crave it. Eat it slowly, with tiny bites and enjoy every morsel of it.



# Give Up Black and White Thinking

- Black and white thinking is when you have an all or nothing (perfectionist) attitude. You are either good or bad, right or wrong.
- **But almost everything in this type of lifestyle journey is in that gray area between black and white.**
- You eat healthy, but also allow treats.
- You exercise, but not too much.
- You change your lifestyle but aren't so rigid about it.



# If you keep getting caught up in the all or nothing thinking, remember

- Nobody is perfect all the time. You are a human being.
- This thinking leads to feelings of negativity, guilt, shame, and frustration.
- It leads to yo-yo dieting and disordered eating.
- It's not only damaging to your mental health, but your physical health as well.
- You are either on a restrictive diet, or you are overeating/binging to the point of being sick.
- One cookie leads to a dozen.
- See the problem?



# How dieting harms your body

The reason you see terms like ‘health at every size’ and ‘anti-diet’ is because of how harmful dieting is for your body and your mind.

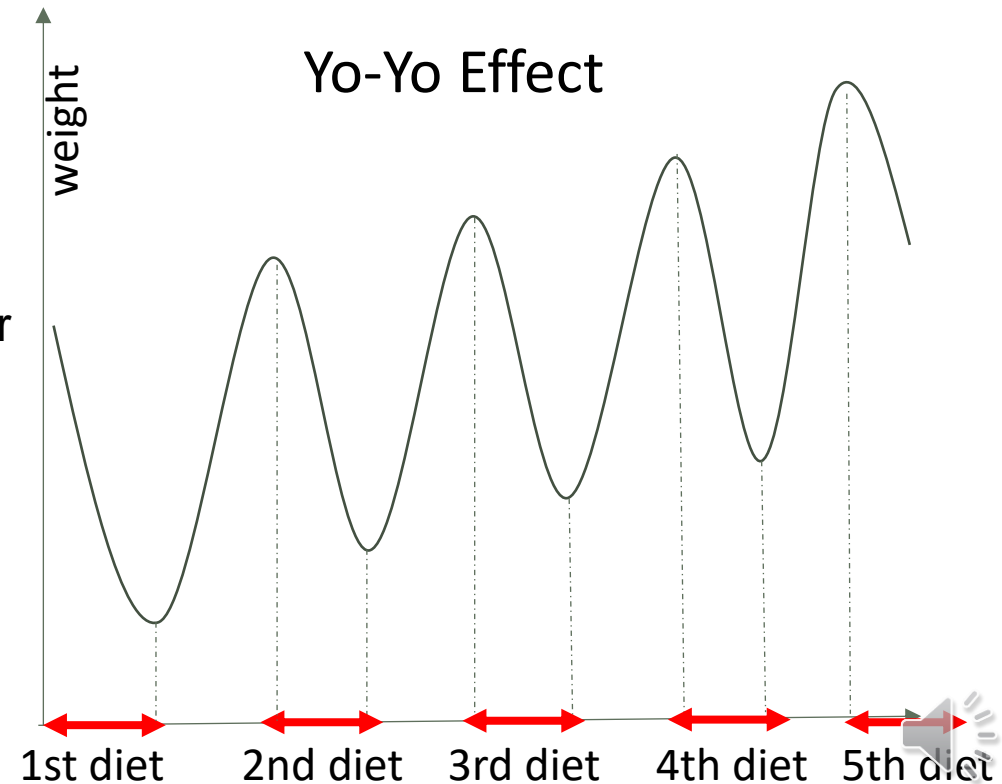
People are under the misconception that the smaller your body, the healthier it is, and the larger your body, the unhealthier it is. But this is not necessarily true.

Chronic dieting can actually be much more harmful to your body and your overall health than if you stayed at the weight, you were before you started these yo-yo diet patterns.



# You Might End Up Gaining Weight

- Believe it or not, having a history of dieting can actually cause you to gain weight, instead of losing it.
- You might lose a few pounds in the short-term, but most diets fail, and many people end up putting the weight back on.
- A lot of those people gain even more weight than when they started, due to the binging period after restricting.
- Your body is going to hold on to all that food in fear of another famine period, and this can lead to many issues with overeating and not understanding when your body is full.



# Nutrient Deficiencies Are Common

People who are on diets will often have nutritional deficiencies, even though they feel like their meals are balanced.

The less you eat, the less nutrients you are consuming. If you are in a severe caloric deficit, you are probably missing out on vitamins and minerals.

Binging on unhealthy food after restricting them till breaking point will not replenish the missing nutrients.



# Unhealthy Habits Replace Healthy Food

- When you are on a diet, you start engaging in unhealthy habits not related to food.
- For example, you pick up smoking since it helps to stave off cravings, or you start drinking calorie-free energy drinks or Diet sodas instead of snacks, because it temporarily makes you feel full.
- How much healthier would it be just to have a snack?



# The Stress is Damaging to Your Body and Mental Health

- You are putting your body and brain through a lot of undue stress when you go on a strict diet.
- There are so many different emotions you go through on this rollercoaster of restricting your food, having guilt or shame over indulging in something that was off limits, and over-exercising to burn as many calories as possible.
- If you find that every time you start a diet, you have a short high, followed by a period of depression or anxiety, guess what? That is not your lack of willpower – that is your HUNGER.



# Minnesota starvation experiment



Rita May  
@stopeatingyourfeelings

During World War II, a group of conscientious objectors volunteered for a unique experiment known as the Minnesota Starvation Experiment.

For six months, these brave volunteers were provided only about half of the calories they needed to maintain their weight. As a result, they experienced dramatic weight loss, many experienced anemia, fatigue, apathy, extreme weakness, irritability, neurological deficits, and lower extremity oedema.



Rita May  
@stopeatingyourfeelings

"As semistarvation progressed, the enthusiasm of the participants waned; the men became **increasingly irritable and impatient** with one another.

Carlyle Frederick remembered "... **noticing what's wrong with everybody else**, even your best friend. Their idiosyncrasies became great big deals ... little things that wouldn't bother me before or after would really make me upset."



Rita May  
@stopeatingyourfeelings

They also **became obsessively preoccupied with food**.

"... **eating became a ritual** ... Some people diluted their food with water to make it seem like more. Others would put each little bite and hold it in their mouth for a long time to savour it. So eating took a long time."

Carlyle Frederick was one of several men who **collected cookbooks and recipes**; he reported **owning nearly 100 by the time the experiment was over**."



# Minnesota starvation experiment



Rita May  
@stopeatingyourfeelings

"All interest in women and dating was lost: "I can tell you, **the sex drive disappeared**. There was none."

The men reported **decreased tolerance for cold temperatures** and requested additional blankets even in the middle of summer.

They experienced **dizziness, extreme tiredness, muscle soreness, hair loss, reduced coordination, and ringing in their ears**.

Several were forced to **withdraw from their university classes** because they simply **didn't have the energy or motivation to attend and concentrate**."



Rita May  
@stopeatingyourfeelings

Harold Blickenstaff recalled the frustration of constantly thinking about food:

"I don't know many other things in my life that I looked forward to being over with any more than this experiment. And it wasn't so much ... because of the physical discomfort, but because **it made food the most important thing in one's life ...**

And life is pretty dull if that's the only thing. I mean, **if you went to a movie, you weren't particularly interested in the love scenes, but you noticed every time they ate and what they ate.**



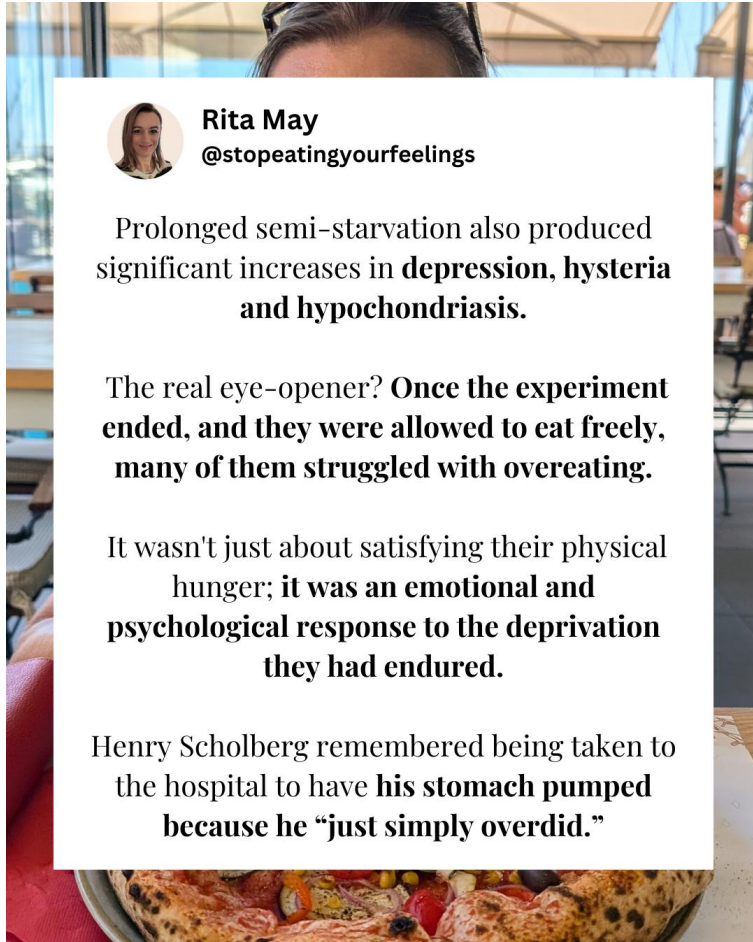
Rita May  
@stopeatingyourfeelings

"**We were tired and weak**. ... a kid came along on a bicycle, and he was really moving, pumping away ... And I looked at him and said, "Wow, look at that boy. He's really whizzing." And then I said to myself, "**I know where he's going. He's going home for supper. And I'm not.**"

And then for a very brief, I hope it was brief, moment ... **I suddenly hated the boy** ... I hate at this point to tell you this, because it doesn't speak very well for me. But I remember ... with ... horror that I could feel such a thing. So utterly irrational, but there it was."



# Minnesota starvation experiment



**Rita May**  
@stopeatingyourfeelings

Prolonged semi-starvation also produced significant increases in **depression, hysteria and hypochondriasis.**

The real eye-opener? **Once the experiment ended, and they were allowed to eat freely, many of them struggled with overeating.**

It wasn't just about satisfying their physical hunger; **it was an emotional and psychological response to the deprivation they had endured.**

Henry Scholberg remembered being taken to the hospital to have **his stomach pumped because he "just simply overdid."**



**Rita May**  
@stopeatingyourfeelings

H. Blickenstaff found that he simply "... **couldn't satisfy [his] craving for food by filling up [his] stomach.**"

Many also reported **eating excessively** after they left Minnesota; J. Garner described it as a **"year-long cavity" that needed to be filled.**

Many, like R. Hinkle, put on substantial weight: **"Boy did I add weight. Well, that was flab. You don't have muscle yet. And get[ting] the muscle back again, boy that's no fun."**

Estimates for how long it took to **fully recover ranged from 2 mo to 2 y.**

**My takeaway is in the caption.**

So, what can we learn from the Minnesota Starvation Experiment?

It's clearly demonstrated that following overly restrictive diets can lead to an unhealthy relationship with food.

It triggers an obsession with food and, paradoxically, sets the stage for overindulgence once the constraints are lifted.

The **KEY TAKEAWAY** here is that instead of going on restrictive diets (that often do more harm than good) to compensate for the overeating periods, we should focus on understanding what triggers us to overeat to break free from overeating.

# Your Hormones Fluctuate Like Crazy

- When you diet, especially back and forth between eating and restricting, your hormones are completely out of control.
- The stress on the body caused by severe calorie restriction and yo-yo dieting can cause your cortisol levels to increase.
- Cortisol is a stress hormone, and can actually increase your risk for heart disease and diabetes!
- Cortisol also causes belly fat formation.



# You Might Have a Bigger Appetite and More Cravings

- It may seem like you are out of control, but this is not about willpower, it is actually from dieting itself.
- In your body, you have two different hunger hormones – leptin and ghrelin.
- Ghrelin is the hormone that increases your appetite, while leptin decreases your appetite, and can help you feel full.
- If you are dieting, the hormone leptin often decreases, while ghrelin increases, creating an imbalance.
- Feel like you are constantly starving? Your diet might be why, and not just because you aren't eating enough.



# You Lose All Sense of Hunger and Fullness Cues

- When you have pre-determined portions, types of food, and meal eating windows, you lose all sense of when you are actually hungry or full.
- When you are on a diet, you don't rely on your hunger, but instead on numbers. How many calories you can have, how many carbs, making sure your sugar is low and protein is high, watching your fiber.
- You might also get into timed meals, eating every 2-3 hours, or intermittent fasting.
- Of course, I'm not saying that you shouldn't eat healthy and nourishing food but obsessing too much about the perfect numbers and ratios and ignoring your body's signals damages your ability to know when you are hungry or full.



# Your Metabolism Slows Down

- Wonder why when you start a diet, you seem to hit a plateau quickly?
- This is probably the result of your metabolism slowing down because of all the feast and famine periods your body has gone through.
- Your body is very smart and knows what it's doing. Yo-yo diets slows your metabolism down.
- Stop undereating, give up the diets, and start to learn healthy habits to nourish your body.



# Homework

- Eat regularly – Let your body trust that food will always come.
- Eat “normal” amount regularly to avoid uncertainty instead of eating too little for a while followed by a binge.
- Eat mostly whole foods, NOT diet foods. (But don’t obsess about this. Key word is mostly. Don’t need to be a perfectionist!!!)
- Give up the perfectionist, black-and-white thinking.
- Eat slowly and enjoy your food. Eat good quality, delicious food, not diet food that you don’t enjoy.
- Challenge "I need to restrict" thoughts with neutral statements, e.g. "*My body needs food to function*". Reframe eating as an act of self-care, not a threat.
- Practice "*I can always have more later*" thinking to prevent restriction triggering a binge. "*There is plenty of food all around me. And there will be plenty more tomorrow and the day after. All is good. I’m safe.*"

# Homework

- Be open to try something new.

You have been dieting for years and it didn't work. Be open to try something else for at least 3 months. What can you lose? You can always go back to dieting after the 3 months if you still want to 😊

