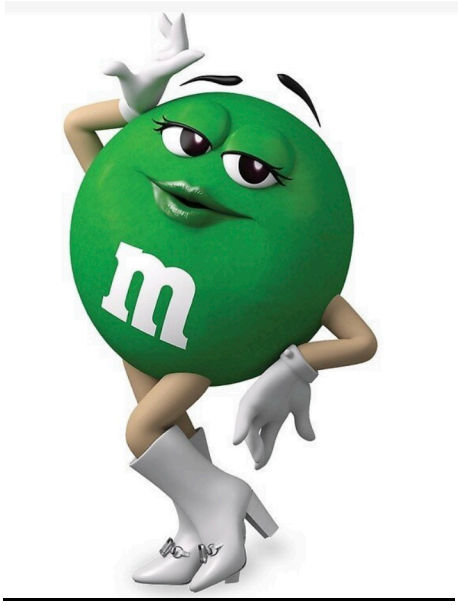
CHAPTER FOUR

In OA, we learn that a lack of willpower isn't what makes us compulsive eaters. – *OA 12 & 12*

The Starvation Response



Let's look at the way the insulin-leptin feedback loop shows up in our lives, how we experience it and how we might be able to better deal with it. We've already seen that appetite and adiposity (fat accumulation) are biological phenomena that are regulated by NONCONSCIOUS parts of our brains. No matter what people say, our disease is NOT the result of conscious, voluntary decisions.

Let's say you've figured out an abstinence and food plan that seem to work well for you. You survive the initial withdrawal. Then you blissfully land on a pink cloud for a while. We begin to think this whole "abstinence thing" might not be so difficult after all. You start losing weight and feeling better. Then BAM!!!

All hell breaks loose. YOU ARE STARVING! What happened to your pink cloud? The food is singing really loudly to you all the time. You feel like you are going crazy. Like you are going to die if you don't eat everything in the refrigerator right now. This is called the starvation response. It is a biochemical process that drives us back into the food after we have been abstinent for a while. We go back to the food because of the starvation response – not because we lack willpower.

Five-Alarm Fires

Early in my abstinence, I used to experience what I called my five-alarm fires. I would be sitting on the couch, minding my own business, watching something on Netflix. Seemingly out of nowhere my anxiety would skyrocket. I would feel twitchy – like something was very wrong and I needed to do something about it right away or the world was going to end. These episodes would last anywhere from a couple of minutes to as long as 20 minutes. What the hell was going on?

The inability of our brains to "see" or register the leptin secreted from our fat stores (combined with losing some weight) leads to the starvation response. When our brains can't see our leptin

(because we are resistant), it believes that we have absolutely NO fat stores on our body at all. It believes we are literally starving to death. In terms of our survival, the brain believes we are in the middle of a dire EMERGENCY. When you've been abstinent a while and you ACTUALLY start losing weight – the brain thinks it's a freaking catastrophe!

Leptin resistance and weight loss trigger a powerful suite of biological and psychological responses that work together to restore lost fat. The whole purpose of the starvation response is to get us to eat again and regain any weight we've lost. To do this, the brain makes two important major changes. First, it decreases our energy expenditure and second, it ramps up our hunger and appetite. Let's go over these two changes one at a time.

<u>Decreasing Energy Expenditure</u>

The brain decreases our overall energy expenditure (meaning calories burned) by cutting our metabolic rate. Our metabolic rate is the rate of calories we burn for regular bodily maintenance. This includes things like digestion, body temperature, growing hair/nails, heartbeat, production of energy in our cells and replacing old and damaged cells.

The brain does this by decreasing sympathetic nervous system (SNS) activity. The sympathetic nervous system is a network that helps our body to activate its fight-or-flight response. The SNS's activity increases when you're stressed, in danger or just physically active. The brain also decreases our secretion of thyroid hormone. Both of these things slow our overall metabolic rate - the rate at which we burn calories. This means our brain decreases the number of calories burned per day from normal metabolism by around 20% or so. (Afterall, if we are starving, we need to conserve energy.)

The brain also cuts back the number of calories burned for a given muscle contraction. So, for example, you used to burn 100 calories on your daily walk. Now, you will only burn 80 calories for the exact same walk. This starvation response adaptation reduces the overall number of calories burned with physical activity.

Lastly, the brain tells the pancreas to increase insulin secretion (regardless of what we eat) so that more of whatever we ARE eating is stored as fat instead of burning it for immediate energy. **Remember, insulin is the fat storage hormone.** This excess insulin is secreted to drive nonstop fat gain and makes us regain any weight we've lost.

Ramping Up Hunger and Appetite

The second thing the brain does, as part of the starvation response, is increase our hunger and appetite. It forces us to unconsciously eat more. It does this in several different ways.

The brain increases the secretion of a hormone called neuropeptide Y. This hormone causes massive overeating. But it does more than just that. Neuropeptide Y also increases the storage of excess calories as fat. It also makes us feel really bad – really psychologically uncomfortable until we do eat. Life becomes very unpleasant until we give in and eat. This is where I think my five-alarm fires came from.

The brain also decreases the secretion of the hormone melanocortin. This hormone powerfully suppresses food intake. This means that a hormone that tells us to stop eating isn't working as effectively as it once was.

The starvation response also increases our susceptibility to food cues in our environment that involve highly palatable foods (our binge foods). All of a sudden, we start noticing all of the fast-food drive-thrus or the candy & chips in the checkout lane at the store. Very powerful and instinctive brain regions draw us toward concentrated, quick, easy calories. The food starts calling to you very loudly!

Lastly, the brain stem satiety circuits are shut down. It's not your imagination, this shutdown ensures that it takes more food to feel full at a meal than it did before you lost weight/fat. Your brain dampens your feelings of satiety (fullness) so you won't feel satisfied until you've eaten enough calories to start regaining fat.

The starvation response does NOT last forever!!! Mine lasted about 3 or 4 months.

***** We will go over strategies to help deal with the starvation response during the workshop session. *****