

Stress, sleep deprivation and social jet lag: the 3 Ss of how cortisol leads to weight gain

In December, 2015, I gave a webinar on the hormonal effects on obesity, that was one of my most popular webinars. Everybody wants to learn about how hormones are related to body weight and food intake. I talked a lot about how cortisol is involved in weight gain. I would like to explore the topic further by writing about the three Ss of obesity that are all cortisol mediated. These are **stress, sleep deprivation and social jet lag**.

Stress definitely have negative effects on health, and it seems like everybody is stressed. Stress is defined as anything that is a threat either "real" or "imaginary" to homeostasis. Homeostasis is your hormonal balance. A real stress would be seeing a tiger escaping from the zoo and about to eat you. An imaginary stress would be giving a talk about a topic you are not familiar with. Both of these stresses are harmful. Several studies have shown that stress is correlated with weight gain, and one of the main mechanisms is that stress activates the hypothalamic-pituitary-adrenal axis that gives a higher level of cortisol. The high cortisol leads to weight gain predominantly in the abdominal area. However, stress also causes increased food intake even when people are not necessarily hungry. A study was done where they fed people until they were no longer hungry, then had them do a stressful task and then gave them a tray of snacks. They ate more if they were stressed even though they were not hungry, so there is something about stress that leads to overeating, especially comfort foods. These are foods that your mother used to make for you and includes mashed potatoes and macaroni and cheese.

The second area that is leading to the obesity epidemic is lack of **sleep**. Over the past 50 years, we went from sleeping about 8-1/2 hours a night to 7 hours or less. This happened about the same time as the obesity epidemic has blossomed and now more people are staying up later using their electronics. Studies have shown that people who sleep less than 7 hours a night have higher levels of cortisol and are more likely to be overweight and get diabetes than those who sleep at least 8 hours. In addition to sleep quantity, sleep quality is also important; therefore, a good night's sleep is essential for proper cortisol levels and to prevent weight gain. There are apps that can track how many hours a night you sleep and how many times you wake up, and these apps can be quite helpful in determining your quality of sleep.

The third area is called **social jet lag**. Social jet lag is a term meaning that your circadian rhythm (body's own clock) is different from what the real world expects from you (society's social clock). Some people are nighttime persons and some people are morning persons. If a nighttime person had his choice, he might go to bed at 6 in the morning and sleep until 3 in the afternoon; however, society forces him to go to bed around 10 or 11 at night and wake up around 6 in the morning to get to work at 8 in the morning. This is called social jet lag when there is a disconnect between the body's own circadian rhythm and what society imposes on the person. Social jet lag seems also to raise cortisol levels and leads to obesity. When the person who is a night owl but goes to bed at a regular time during the week followed by the weekend, when he resumes his normal circadian rhythm and can go to bed much later, his body shifts to a different circadian rhythm on the weekend. Then on Monday, when he has to return back to work, he has mini jet lag and is suffering from social jet lag. These patients have activation of the hypothalamic-pituitary-adrenal axis.

You may think that there is not that much to do to overcome these physiological effects leading to weight gain--stress, sleep and social jet lag. However, although nobody has a stress-free life, the trick is not to let stress effect you. Be one of those people that have the stress just bounce off you. Also, avoid stressful situations. In terms of sleep, try to get both a good quality and a good

quantity of sleep and try to avoid alcohol and caffeine at night as well. Finally, for the social jet lag, you may need to get a job that can accommodate your circadian rhythm. You can try to adjust your circadian rhythm in that if you are a night owl you can try to be exposed to sunlight in the morning and avoid sunlight in the evening. Trying to tackle the three Ss and controlling your cortisol level is the key to good hormone health.

For more information about Dr. Friedman's practice or to schedule an appointment, go to www.goodhormonehealth.com or email us at mail@goodhormonehealth.com.