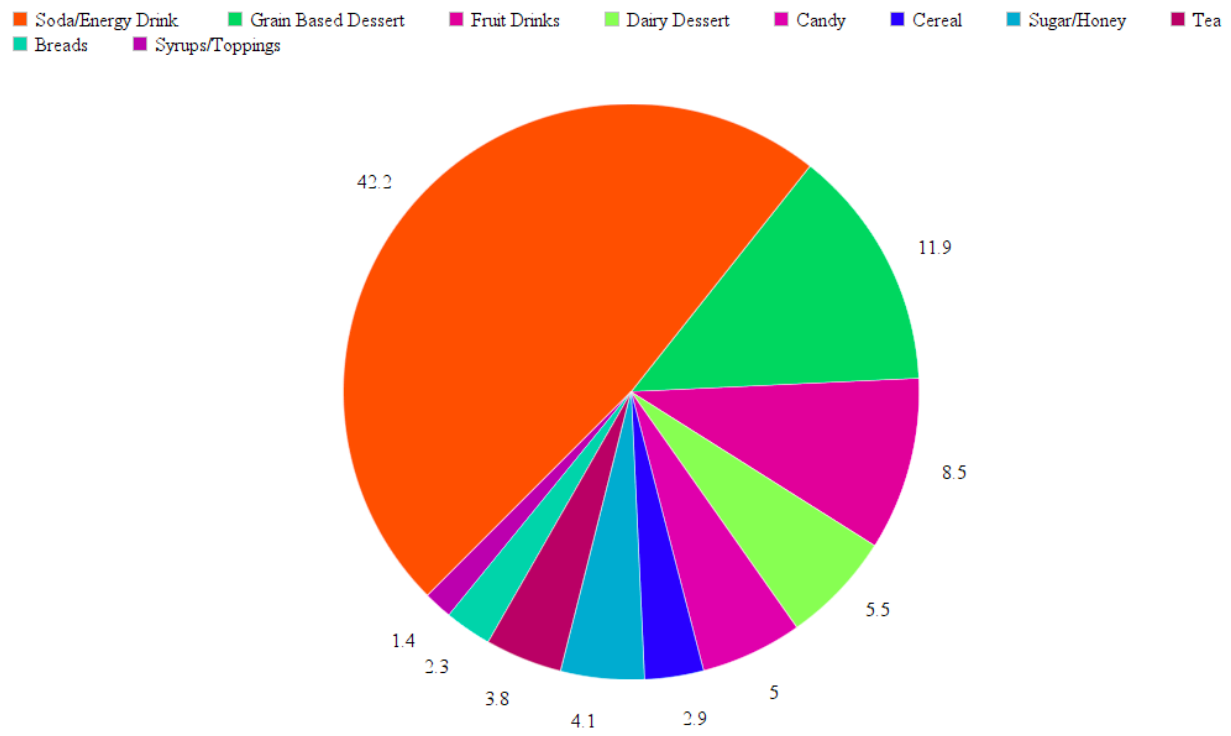
The sweet risk of sugar.

The role sugar plays on your hormonal health and the destruction it can cause to your body.

Within a society that's addicted to sugar and a society filled with sugary foods; most people don't take into consideration the harm it can bring to your health. Researching the dangers of our favorite sweets and the conditions that can follow them.

Sugars are found in most foods, usually anything we eat with carbohydrates; it can vary from bread, meat, drinks, even condiments and healthy snacks like protein bars. However, what it comes down to is added sugars within foods as natural sugars are often fine. Added sugars are added during the processing of the food in order to increase taste or flavor as well as increase shelf life of products. These sugars can include sucrose, dextrose, honey, syrups, or concentrates found in fruit juices to better the flavor. Researchers found that the average man consumes about 350 calories of added sugars a day, as there's no certain number for how much would be categorized as the "correct amount" but the American Heart Association recommended no more than 150 calories of added sugars per day. (harvard)



Attached above is a pie chart I made out of the numbers from Harvard Health of a CDC Exam Survey to observe “Where does your added sugar come from?” and compare the average diet to the listed.

So not only can sugar cause weight gain it causes hormonal health from headaches, fogginess, acne, cramps and digestive trouble. Scientists have conducted research within animal studies to find that sugars produce more symptoms than required to fall under an addictive substance, describing a sugar addiction to be just as bad as a cocaine addiction. They determined to understand the effects the added sugars were playing the same as effects within drug use, such as: cravings, tolerance, withdrawals, and more. “In both animals and humans, the evidence in the literature shows substantial parallels and overlap between drugs of abuse and sugar, from the standpoint of brain neurochemistry as well as behaviour” (bjsm).

Refined sugars that contain little to no nutrients can cause a huge spike in blood sugar balance. Since the nutrients would naturally help slow down digestion. Insulin, a hormone produced in the pancreas to regulate the amount of glucose in our blood, then goes into overdrive to clean up the bloodstream and take the blood sugar level to or below a healthy baseline. Producing a craving for more sugar to balance things out again, however continuing to consume sugars on an empty stomach just worsens improvement and continues on an up and down roller coaster. Lack of insulin can lead to diabetes.

Refined Sugars are also famous for stress. They eliminate B vitamins within our body, stresses adrenal glands and as Cortisol levels rise when blood sugar levels are increased, stress starts to get out of control and unmanageable. They also disrupt your thyroid (maintaining your metabolism, cognitive function and body temperature), on top of feeling exhausted, depressed, and anxious and possibly develop insomnia.
Sugar was used as an energy booster a long time ago when it was primarily found in fruit and berries. Now too much of it can start to drag you down. Glucagon is a pancreatic hormone that serves the opposite role of insulin. After going a long period of time without eating and your body knows you're hungry you begin to crash, get hangry; your pancreas releases glucagon. This process then signals the liver to apply stored glycogen to glucose (sugar) to run through the bloodstream and play as an energy source until you feed your body food.

A female's risk when consuming too much sugars can vary immensely for hormones, reproduction, and menopause. Sugar is essentially linked to estrogen, the primary of the two main sex hormones a woman has. Estrogen has many roles in the female body from regulating the menstrual cycle to playing an effect on the reproductive tract, urinary tract, heart and blood vessels, bones, breasts, skin, hair, mucous membranes, pelvic muscles, and the brain; It advances the insulin process. An imbalance of Insulin can unbalance your reproductive

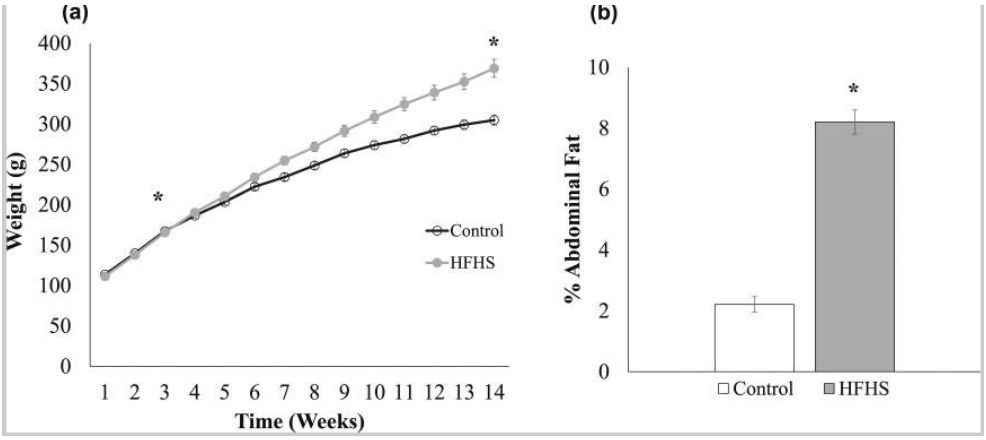
hormones also known as PCOS (polycystic ovary syndrome). PCOS is a condition in which ovaries are producing an exceptional amount of androgens. This can lead up to worser illnesses such as: type 2 diabetes, high blood pressure, problems with the heart and blood vessels, and uterine cancer. The production of sexual hormones begins to decline and women become more likely to experience fertility issues.

When it comes to menopause especially, a woman is already experiencing an imbalance of hormones and more symptoms, adding more sugars to that will only cause it to be more harmful or uncomfortable. In the process of perimenopause, the time around menopause when your body begins to naturally transition estrogen levels will tend to fluctuate intensely. However once you reach menopause your estrogen levels will significantly drop leading to average menopause symptoms such as: hot flashes, mood changes, menstrual irregularity, and more. During this time women are suggested to eat foods that are rich in phytoestrogens such as soy or flaxseed. Phytoestrogens reduce menopausal symptoms, as well as promote cardiovascular health, bone and breast health. Amid menopause, the body changes from gynoid (distribution in body fat where the fat is concentrated in the hips and buttocks) or some may say pear-shape to an apple-shape (android - where the fat is concentrated in the arms and chest). Experts believe this build up of fat may raise risk of insulin resistance and any other diseases or complications. With a large shift of body fat and transitions taking place during menopause, high levels of cortisol can be especially aggravating. It’s suggested during menopause to limit caffeine and alcohol consumption as they have been known to cause increases in cortisol level flow.

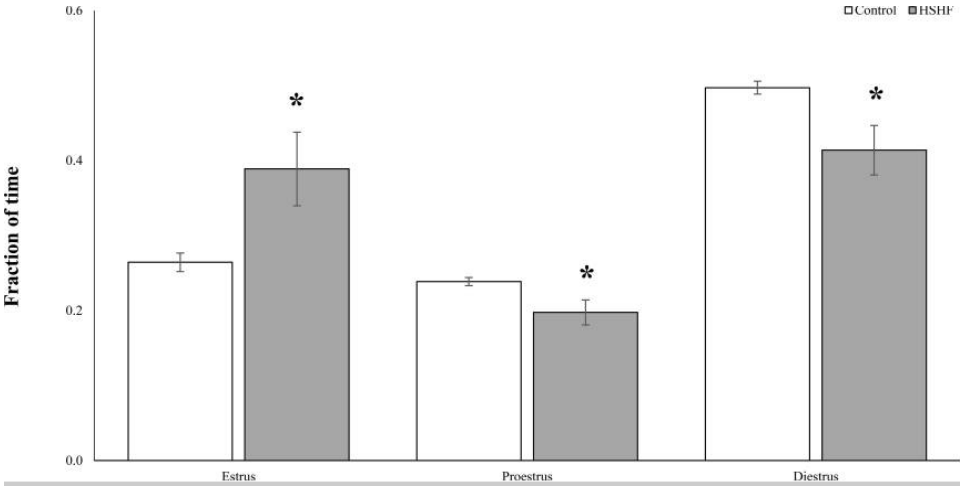
Studies were conducted within A high-fat, high-sugar diet that led to disrupted preovulatory and basal hormone levels and induced cystic ovaries in a rodent model of diet-induced obesity. The experimented rats were born and cared for equally until weaning off the mother and being placed into randomly assigned to a specific diet of HFHS diet or controlled diet. A considerable

difference in weight gain visually appeared between the two groups by the third week of being exposed to the different diets. The HFHS rats progressed and gained a significant amount of weight compared to the controlled group and then for the rest of the study period. While also discovering an imbalance in basal steroid hormones then corresponding strongly with ovarian cyst formation and the HFHS diet would bring out obesity within the female rodent model to determine the changes and differences of critical reproductive hormones that contribute to the development of irregular estrous cycling and reproductive cycle termination (ncbi).

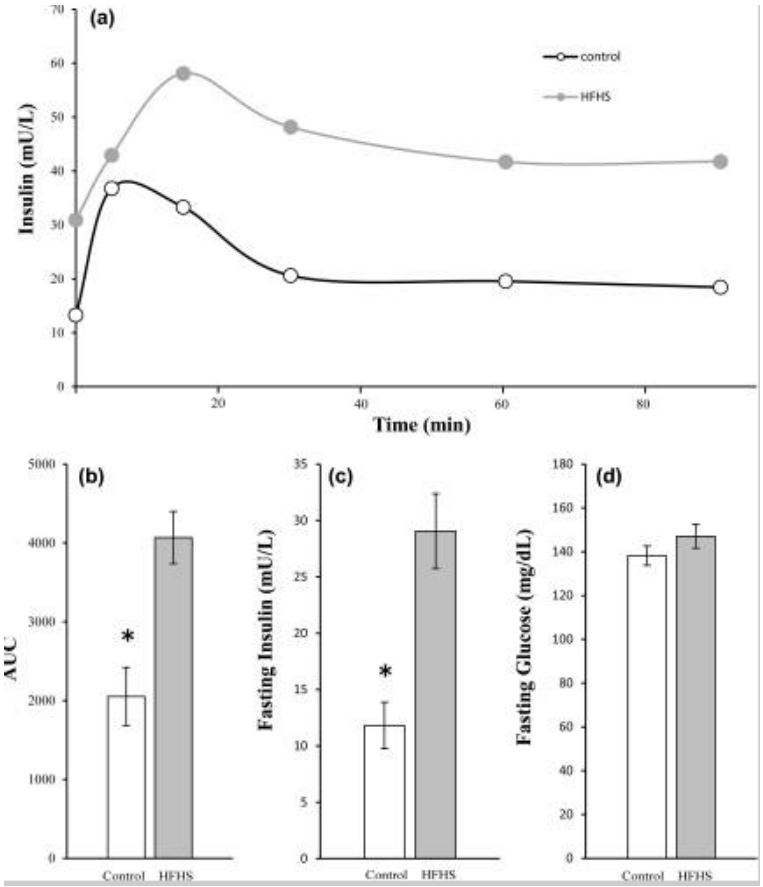
The following is quantitative data conducted in a study of female rodent models to determine different characteristics and ovulatory hormones from high sugars.



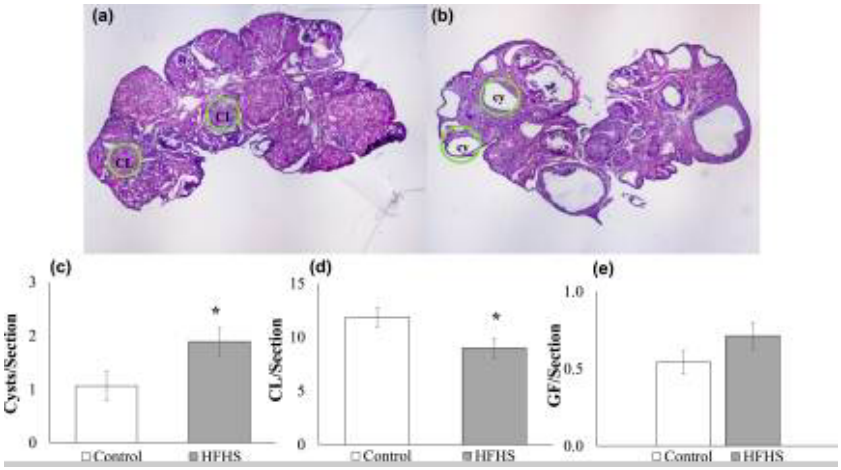
“Studies showing the increases and vary of body weight and fat between the High-fat high-sugar group compared to the control group.” (ncbi)



“Studies showed that the HFHS group on average spent a large portion of the time in estrus (heat), and less time in proestrus. One half of the HFHS rats has extended cycles and multiple periods.” (ncbi)



“Studies showed glucose tolerance testing revealed a statistically significant difference in the insulin area within the curve of the HFHS rats and control group” (ncbi)



“Studies showed the HFHS rats displayed significantly lower CL (corpora luteum) counts per ovary section and didn’t find any significant difference between the two groups. They did find that the great P4/T (progesterone/testosterone) ratio was associated with an increase in CL counts of the HFHS rats and weren’t as strong as the control rat group.” (ncbi)

Works Cited

Boyers, Lindsay. “How Your Diet Affects Your Hormones.” *Healthline*, Healthline Media, 1 Apr. 2019, www.healthline.com/health/menopause/diet-hormones#The-Importance-of-a-Well-Balanced-Diet.

DiNicolantonio, James J, et al. “Sugar Addiction: Is It Real? A Narrative Review.” *British Journal of Sports Medicine*, BMJ Publishing Group Ltd and British Association of Sport and Exercise Medicine, 1 July 2018, bjsm.bmj.com/content/52/14/910.

Forward, Jamie. “Sugar Is Wreaking Havoc on Your Hormonal Health.” *Observer*, Observer, 13 Feb. 2018, observer.com/2018/02/sugar-is-wreaking-havoc-on-your-hormonal-health/.

Gemino, Marilyn. “The Sneaky Way Sugar Can Lead to Hormone Imbalance.” *Garden of Life*, 4 Nov. 2020, www.gardenoflife.com/blog/sneaky-way-sugar-can-lead-hormone-imbalance.

“The Sweet Danger of Sugar.” *Harvard Health*, 5 Nov. 2019, www.health.harvard.edu/heart-health/the-sweet-danger-of-sugar.

Volk, Katrina M, et al. “High-Fat, High-Sugar Diet Disrupts the Preovulatory Hormone Surge and Induces Cystic Ovaries in Cycling Female Rats.” *Journal of the Endocrine Society*, Endocrine Society, 2 Nov. 2017, www.ncbi.nlm.nih.gov/pmc/articles/PMC5740526/.