

Sugar

Sugar is a type of carb, along with starch and fiber. There are different types of sugars:

- **Glucose:** Sugar made from food we eat. It is in the bloodstream and is used as the number one source of energy for the body
- **Fructose:** Found in fruits & high-fructose corn syrup. Fructose stimulates weight gain (it affects appetite and blocks fat burning), and changes body composition to increase body fat EVEN when on a caloric restriction.
- **Lactose:** Sugar in milk. Lactase is the enzyme used by our body to break down lactose so we can digest it. People who are lactose intolerant don't produce enough lactase, which is approximately 75% of adults.
- **Others**

NOTE: There is not enough fructose in fruits (4 to 8g per fruit) to cause Leptin resistance. The antioxidants, fiber and other healthy things in the fruit normally counters the effect of its fructose content.



Hormones

Two major hormones are involved in managing the sugar in your blood and your hunger:

1. Insulin

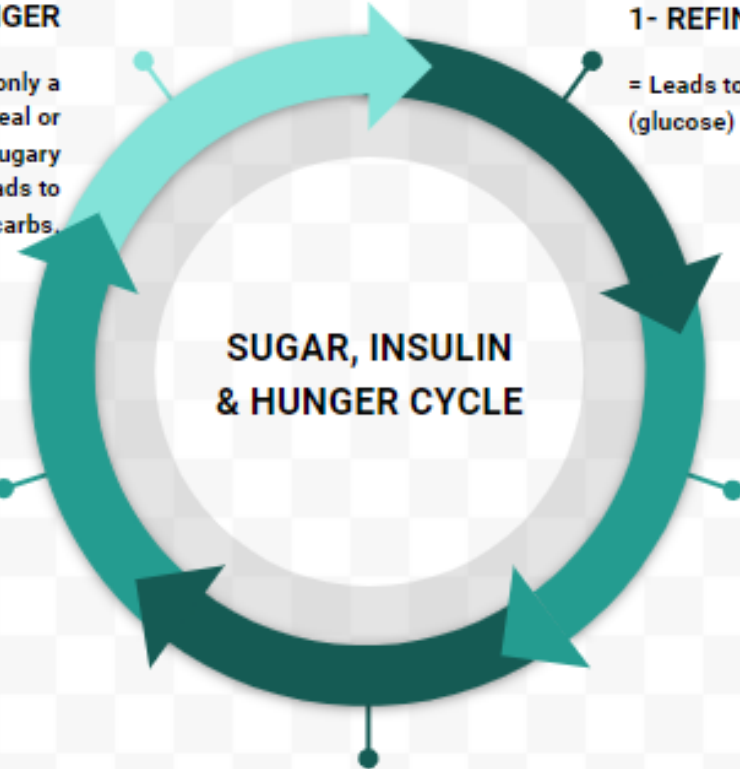
- Hormone produced in the pancreas
- Role: Regulates carbs and fat in the body. It causes the cells in the liver, muscles and fat tissue to absorb the glucose (sugar) that is in the blood and store it as fat.
- It stops the use of fat as energy by stopping the release of the hormone glucagon.
- Possible effect of Insulin on the human body:
 - a) Diabetes (when the body does not produce enough insulin)
 - b) Fat gain (when there is a spike of insulin in the blood)
 - c) Insulin resistant (when the body doesn't respond to insulin)

On the next page, you will see what the insulin release looks like when sugar is involved:



5. INCREASE HUNGER
= Hunger often increases only a couple of hours or less after meal or after consuming sweets, sugary drinks or fruit juices, which leads to consumption of more refined carbs.

4. BLOOD SUGAR DIP
= Pancreas pumps out more insulin because it senses too much sugar in the bloodstream. As a result, it lowers the blood sugar.



1- REFINED CARBS INTAKE
= Leads to the rise of blood sugar (glucose)

2- INSULIN SPIKE
= Leads to an increase of fat and swelling of fat cells

3. MITOSIS
= When one cell splits into 2. As a result, there is more fat in the body which interfere with insulin efficiency and glucose uptake in muscles and organs (insulin resistance in cells)

2. Leptin

- Hormone made by fat tissues
- Role: Regulates food intake and body weight. It helps regulate appetite and make you feel full.
- Insulin blocks Leptin and makes you hungry.
- Different outcomes of Leptin in the human body:
 - a) A lack of Leptin = Signals body to increase food intake
 - b) A rise of Leptin = Signals body that it's full and to stop eating
 - c) An overload of Leptin = Leptin resistant. The Body is de-sensitized to the high concentration of Leptin. It does not register the signal that it is full, which makes you eat more than you need.

*** In order to significantly gain weight, you must first become Leptin resistant.** Obese individuals usually have high concentration of Leptin. Very overweight individuals are Leptin resistant.

