How to lower Insulin Levels to prevent and cure obesity

"Of all the above three hormones, Insulin hormone plays a key role in causing obesity as well as Type2 diabetes."

Excess demand for Insulin placed on the body by the modern unnatural foods and unbalanced lifestyle is at the root of obesity, Type2 diabetes and all the related diseases such as high blood pressure, heart disease, stroke, cancer, and more. The high insulin levels in the body lead to a phenomenon called insulin resistance. Understanding Insulin resistance, requires one to know the following:

1. What is glucose, what does it do in the body?

2. What is Insulin, what does it do in the body?

3. What is Insulin resistance, how does it develop and how it leads to obesity and

diabetes?

1. **What is Glucose, what does it do in the body?**

The body has trillions of the cells which require energy to function. The primary source of energy in the body is glucose. Carbohydrates in the food are broken down into the glucose in the digestive tract. If enough glucose is not available in the body for energy, the body breaks down fats and protein. During fasting stored body fats get used first before muscle proteins.

Based on the speed at which carbohydrates are broken down into glucose in the digestive tract, the carbohydrate foods are assigned into two groups:

a. **Low glycemic carbohydrates** – The traditional plant-based holistic foods such as fruits, vegetables, whole grains, lentils, legumes, seeds, and nuts contain complex, unrefined, low glycemic carbohydrates. By complex and unrefined means these carbohydrates are broken down slowly in the digestive tract. The slow breakdown means, the glucose gets released in a slow and sustained manner. The low glycemic means the glucose blood levels after eating these foods are lower. So, when one eats these natural holistic foods, the glucose blood levels are low and are sustained for 5-6 hours. Sustained low blood glucose levels from low glycemic foods keep appetite under control and the demand for insulin low. The low glucose and low insulin levels in the body are the keys to preventing both obesity and diabetes.

Low Glycemic Carbohydrate Foods

b. **High glycemic foods** – The modern synthetic, processed foods are high glycemic foods. These include- refined sugar products (sweets, fast junk foods, fruit juices, sodas, and all sweet beverages), and refined wheat flour products (milled wheat flour chapatis, baked good including bread, pasta, pizza, cakes, pastries). These are broken down to glucose rapidly Low Glycemic Carbohydrate Foods in the digestive tract. That leads to high blood glucose levels in the blood. High blood glucose levels mean, increased demand for hormone insulin. The high insulin levels use up blood glucose rapidly within 1-2 hours of consuming high glycemic foods. That lowers the blood glucose levels quickly, causing excessive hunger, food cravings, and overeating. High Insulin levels in the body also cause more fat storage and weight gain.
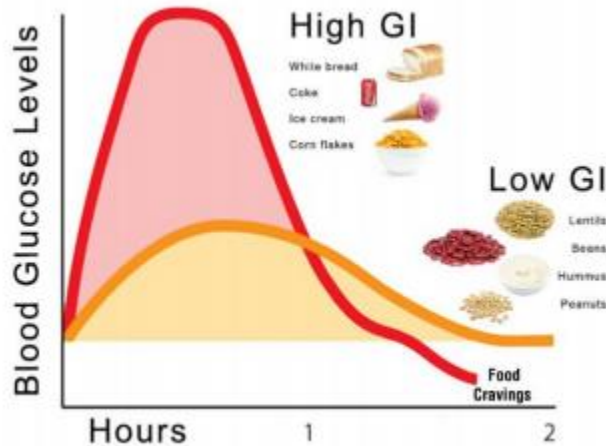
2. **What is Insulin, what does it do in the body?**

Insulin is the critical hormone for energy balance in the body. Without Insulin humans cannot survive for more than few days. Insulin is essential for glucose utilization in the body. The glucose is the primary source of energy. In addition to assisting with producing energy for immediate use, insulin converts excess unused glucose in the blood into the reserve energy. Two reserve energy sources are glycogen and fat. The reserve energy sources get used during regular fasting periods (at night and between the meals) and prolonged fasting periods such as during starvation.

Insulin is produced in the body by beta cells of the pancreas gland which lies in the abdomen behind the stomach. Insulin helps glucose enter the cells for energy synthesis. It does so by attaching to the cell membrane like a key fits into the lock. When the lock is opened by insulin, the glucose can enter the cells. Once inside the cell, glucose is broken down to produce energy with the help of oxygen and essential micronutrients.


Healthy Individual
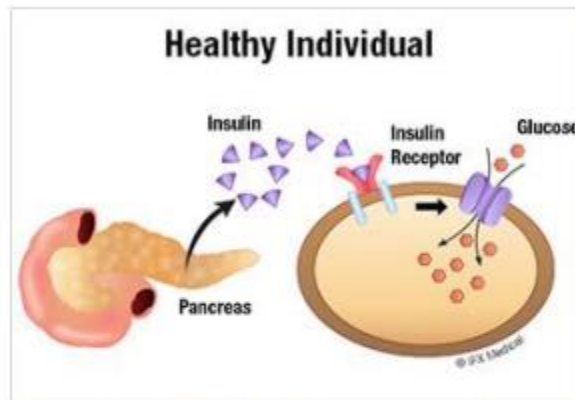
There are two critical functions of Insulin hormone in the body:
* Transports glucose inside the cell to produce energy for immediate use.
* Converts excess blood glucose into reserve energy: Glycogen and fat

3. **What is Insulin resistance and how does it lead to obesity?**

The high blood glucose levels from consuming high glycemic foods (refined sugar, refined flours, sugar beverages including fruit juices), stimulate pancreatic beta cells to produce excessive insulin. High blood glucose and high insulin levels mean more glucose gets forced into the cells. The excess glucose is very damaging to the cells because it makes the cells work to the point of exhaustion. To minimize glucose-induced damage to cells, the body's defense mechanism of insulin resistance kicks in.

Insulin resistance means the insulin receptors (the lock) on the cell membrane has shut down. The insulin key cannot open the lock, and the glucose cannot enter the cell. This protective mechanism of shutting down the glucose entry into the cells helps to save the cells from excess glucose damage. The insulin resistance has two effects:
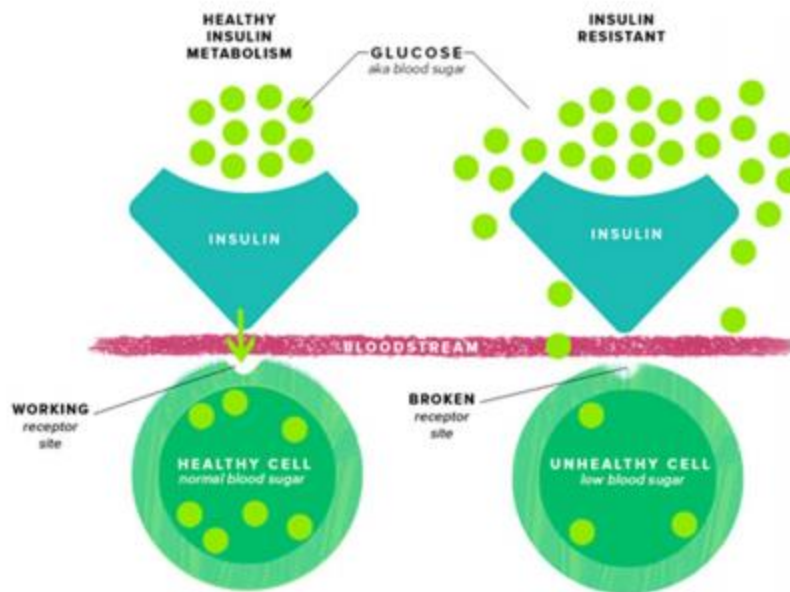
∗ It puts the cells into a starvation mode-Less glucose in the cells means cells are starving for glucose. When the brain cells are in starvation mode, there is food craving and excessive appetite.
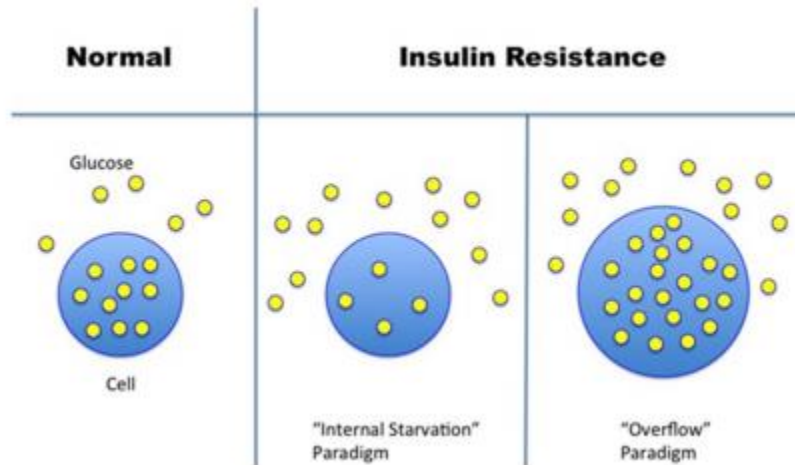
∗ Excess of fat synthesis- Less glucose entering into the cells mean more glucose left over in the blood. The high blood glucose along with high insulin levels leads to excessive fat storage and obesity.

Insulin Resistance & Fat Storage cycle
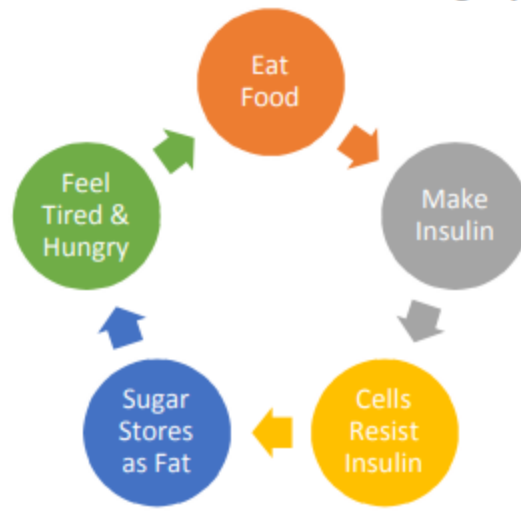
"The insulin resistance is the starting dysfunction, which eventually leads to excessive fat storage and obesity. Insulin is the fat storage hormone, and more of it means more appetite and more fat deposition in the body. Insulin resistance is also the starting dysfunction, which leads to high blood glucose and Type2 diabetes."

Signs and symptoms of Insulin resistance

"Insulin resistance occurs long before the actual obesity and Type2 diabetes become manifested as diseases. If insulin resistance gets identified early, both obesity and type2 diabetes can be prevented and reversed by food and lifestyle modification."

The early signs and symptoms of insulin resistance include:

∗ Lack of energy (vigor and vitality) – This occurs because insulin resistance prevents body cells from getting regular amounts of glucose for energy synthesis.

 ∗ Excessive appetite and food cravings – High insulin in itself constitute a significant driver of appetite and hunger. If someone feels hungry all the time or has food cravings – a feeling of urgency to eat, it means he/she has insulin resistance. This individual is at the risk of developing obesity as well as Type2 diabetes. Eat Food Make Insulin Cells Resist Insulin Sugar Stores as Fat Feel Tired & Hungry 27

∗ Abdominal obesity – Waistline larger than average normal is called abdominal obesity. It is the form of obesity, which increases the risk of diabetes, high blood pressure, and heart disease. Normal waistline should be Half the height in centimeters (cm) – 5 cm.

 ∗ High fasting blood glucose in the morning ∗ High fasting Insulin level in the morning

∗ Fatty liver on the ultrasound (this is a significant sign that the disease process of Type2 diabetes is starting).

Fatty Liver, obesity and Type2 diabetes

There are two causes of fatty liver:

1. Excessive alcohol consumption

2. Excessive sugar consumption

Interestingly, fatty liver from excessive sugar consumption has surpassed the alcoholic fatty liver disease. It is called nonalcoholic steatosis. It is currently the most common cause of liver scarring and liver failure. Good news is that the fatty liver of excessive sugar consumption is entirely reversible in its early stages, by food and lifestyle modifications.

Fatty liver and Type2 diabetes – Fat deposits in the body under the skin are not harmful; these only ruins the physical appearance. The fat in the liver, on the other hand, causes serious diseases such as obesity. Type2 diabetes, high blood pressure, and heart disease. Abdominal obesity (higher waist circumference) and fatty liver go hand in hand.

Fatty liver can be diagnosed easily by abdominal ultrasound. Once the fat accumulates in the liver in abnormal amounts, the body fights back by creating insulin resistance. Fatty liver, therefore, is the early sign that Insulin resistance is occurring. It may take 8 – 10 years between the start of fatty liver and diagnosis of frank Type 2 diabetes. The fatty liver then basically, is a warning sign that the disease process of Type2 diabetes is starting in the body. The great news is that this process can be stopped at the very outset by the food and lifestyle modifications.