

Disarming Type II Diabetes

Type II Diabetes is not a single disease state as it follows a continuum from normal insulin sensitivity to insulin resistance and then finally diabetes. Not everyone with insulin resistance will become diabetic. Type II Diabetes is a condition where the body becomes resistant to the insulin it produces. This usually occurs over a period of 5-15 years with a combination of a genetic predisposition, poor eating habits, a lack of exercise, and environmental factors. There are so many exposures in our current environment working against us that it is not surprising that the obesity and diabetes rates are skyrocketing. We are exposed to high processed food with significantly larger amounts of sugar and simple carbohydrates, genetically modified food, chemicals in our food, pesticides, and pollutants. Consider that our food supply contains about 75% less nutrition than it did 30-40 years ago. That means that you need to eat 4 apples today to get the same nutrition of one apple 40 years ago.

In order to understand the progression of diabetes we need to understand the terminology. **Insulin sensitivity** (IS) is defined as when the cells of your body respond appropriate to insulin, this is the normal condition. **Insulin resistance** (IR) is defined as the condition when your cells do not respond appropriately to insulin: due to either direct insulin resistance at the cellular level or through the countering action of insulin by the counter-regulatory hormones, hormone drugs, or other medications that raise blood sugar. Insulin resistance is “damaged” metabolism, but is not necessarily Type II diabetes. **Type II Diabetes** is an insulin resistant condition with an additional component of relative *hypoinsulinemia* (not enough insulin). This is due to the fact that even though they produce a lot of insulin, they no longer produce enough to overcome the higher blood sugar. So consider diabetes a battle between insulin and the counter hormones that raise blood sugar and insulin is losing.

What do we mean by disarming diabetes? Most traditional treatment methods for Type II Diabetes consist of medications to control the blood sugar. This can be done with several different categories of prescription medications, most of which have their primary method of action being to increase insulin production. Diabetes is like a ticking time bomb, if you don't disarm it – it will eventually blow up and cause significant damage. The real goal of treating diabetes should be to disarm it and restore the normal function of the body before the point of no return. This utilizes a combination of blood sugar control through a low glycemic diet and lifestyle, nutritional optimization (so the body has everything necessary to process the glucose), and treatment of the insulin resistance, since it is the underlying condition, and hopefully controlled or complete reversal of the diabetes. In disarming diabetes we need to re-sensitize and restore the insulin receptors back to working order as soon as possible. Disarming should be started the moment there are signs of insulin resistance such as afternoon fatigue, not feeling full after eating, and signs of low blood sugar after meals, and middle weight gain.

Our bodies need certain macronutrients and micronutrients in order to function and make energy. Macronutrients consist of protein, fat, and carbohydrates. Micronutrients are our vitamins and minerals. Carbohydrates are the easiest for the body to turn into sugar for a rapid energy source. The problem is that our blood only carries approximately 1 teaspoon of sugar at any given time – this is a normal blood sugar level. Therefore, if we consume one soda, which is the equivalent of 10 teaspoons of sugar, what happens to the other 9 teaspoons? The average 140 pound person will utilize about 9 grams of glucose per hour, which is equal to about 2 tsp or 2 sugar packets.

Digestion of carbohydrates begins in the mouth, down to the stomach and ends in the small intestine. Glucose is absorbed into the portal vein (a blood bridge that connects the small intestine to the liver) and delivered directly to the liver where it is processed and stored as glycogen, oxidized for energy, or converted to fat, which can either remain in the liver or be transported to other tissues. Think of the liver as the processing plant and the insulin as the supervisor to the plant that tells it which of these methods to use. The glucose not processed in the liver passes through to the blood stream. In Type II Diabetes this process is damaged and most of the glucose is stored as fat or passed to the blood stream.

The importance of knowing the physiology and the working of this system is that you can find stages of disease much earlier and prevent diabetes all together. There are some subtle signs in blood work and specialty markers that can be evaluated to find where in this process a patient falls. Once diabetes has occurred, you can treat but never correct the process by increasing insulin production without treating the resistance to insulin.