Diabetes

Business

When I was younger, I spent lots of time with my father.

My father and I had many fun experiences fishing, hunting, and simply being outside. After long periods of physical activity, though, the adventure would be put on hold. My father would appear very tired and groggy, and then he would then eat candy or something packed with sugar. In the mornings and at night, he would take pills and inject a clear fluid from a medical vial into his leg. My father, along with 25. 8 million other children and adults in the United States, had and still has to perform these procedures every day to live with diabetes.

Chances are you probably know someone with diabetes, but you may not actually know what the disease is. Diabetes mellitus, as it is medically named, is a condition of abnormally high or low sugar concentrations in the blood of a person. This is either caused by the lack of a chemical produced in the body called insulin, or because the body’s cells stop reacting to insulin the way they should. Without the insulin to keep the blood sugar levels in check, high blood sugar can cause a variety of problems from increased hunger, thirst, and excessive urination to high blood pressure. In more extreme cases, fever-like symptoms or even comas can be induced by high blood sugar. Over a long term, the high blood sugar levels can damage tissue in the eyes, heart, kidneys, and skin of the diagnosed.

Diabetes is not just one singular disease, though. It is a condition that can occur for multiple reasons; the most common are considered “ Type 1” and “ Type 2.” Type 1, also known as juvenile diabetes, occurs when the body’s pancreas and other abdominal-region organs stop producing insulin for the

body. Most people with type 1 diabetes find it emerging at a young age, usually between birth and their late teenage years, and it affects them chronically for the rest of their lives. Type 2 diabetes occurs when a human's cells become resistant to the effects of insulin and/or that person has less insulin in his or her body. Unlike type 1, type 2 diabetes usually emerges later in life due to initially high levels of blood sugar in the body.

Obesity is thought to be the most prominent cause of type 2 diabetes in individuals that are genetically disposed towards it. If diagnosed early, type 2 diabetes is easily controlled and even reversible if the correct steps are taken. Other forms of diabetes brought on by pregnancy, genetic defect, and steroid use exist, though they are much less common than the primary two types mentioned above. As previously mentioned, diabetes is a controllable disease and many people live with it every day. The first and primary step that nearly all of those diagnosed take is managing their diets.

This usually goes along with the close monitoring of their blood sugar levels as well. This is done with a device that draws a small droplet of blood from the user and then electronically determines the concentration of the sugar in the blood from it. If the blood registers dangerously low or high, the machine issues a warning beep. If a person is at high or normal levels of blood sugar, they should restrict their diet to eating foods that are low in sugar and fats. If it is low, they would need to eat foods with more sugar in them. Dangerously low blood sugar levels are treated with high sugar foods, such as hard candy.

In addition, pharmaceuticals sell glucose paste tubes that are used for quickly raising blood sugar. In early stages of type 2, exercise is another

important treatment method. Some people, through diet management and physical activity alone, can properly control their diabetes. Other, more severe cases call for increased measures, like the prescription of oral medication and/or the injection of insulin, similarly to type 1. Another step that those with type 1 take to manage their diabetes is the direct injection of insulin.

The insulin allows those who are diagnosed to lower their blood sugar levels, something that is usually done naturally in the human body. Around 1920, biologists discovered that insulin could be extracted from animals and then used in human beings. Dogs were the first animals to have been successfully extracted from, then farm animals like ox and cows. Later on, pigs showed to have the closest insulin structure to that of humans, reducing to a minimum the severe allergic reactions that some type 1 diabetic patients experienced when injecting the fluid. By the 1980s, synthetic insulin was able to be produced in labs through modified bacteria. Most men and women with the disease today inject this synthetically produced variant.

Because of some of the symptoms can cause other problems in the body as well, many people with diabetes eventually have to resort to additional methods to sustain their bodies. High blood pressure and extra blood vessel growth can occur with high blood sugar levels, so many people need to take medications to lower the chances of such effects. Sometimes the afflicted may have surgery performed to remove the excess blood vessels. People may even go farther as to have additional, more drastic surgeries and procedures done in an attempt to fix these problems. Like with many diseases, people are looking to find a cure for diabetes. Scientists have been

working for years to find a permanent solution, but unfortunately finding a “ cure” in the sense of a vaccine or pill has turned up little success.

As mentioned earlier, type 2 diabetes is reversible in early stages by changes in diet and exercise. Doctors as early as the 1930s have thought that lessening or removing carbohydrates from a diagnosed person’s diet would eventually lead to the body lowering its tolerance to insulin and cause the type 2 diabetes to be reversed. For later cases, particularly for patients who are considered morbidly obese, gastric bypass surgery has been proven to eventually cure the disease. For type 1 diabetes things are a bit more difficult. Unlike type 2, type 1 stems from the lack of function in the human pancreas.

Once a person’s pancreas stops functioning, they cannot produce insulin at the needed amount. The simple solution, it would seem, would be to replace the damaged pancreas with one that is functional. Pancreas transplants have shown some minor signs of success in the past in curing type 1 diabetes, but as with all organ transplants, those that have the procedure done have to worry about the risk of organ rejection, infection, and other consequential complications. A combination of these risks, along with the astronomical costs that go along with such a medical procedure and lack of available donors, have prevented the vast majority of those with type 1 from seeking this solution as a cure. Another similar solution that is being researched currently is the use of stem cells to grow “ clones” of human organs, such as the pancreas, that the body could recognize as native and not reject.

Ideas like this are still in early stages though, and will most likely not be seen as viable cures for some time yet. Until a reliable cure is found, the many of those who carry the burden of diabetes will have to manage it the way the have been for years. But, even if a cure is out of reach, we can take action now to help prevent type 2 diabetes in the future. Unfortunately, the amount of Americans developing diabetes is increasing while the average age people develop it is becoming lower and lower. Data from the 2011 National Diabetes Fact Sheet shows that even now about 1 in every 400 children and adolescents has diabetes. In fact, as of 2011 8.

3% of the population has diabetes. That’s men and women, children and adults. A simple poll I took from my peers in the classroom showed that more than 75% of the students are related to someone with diabetes, and 100% know someone with the condition. Diabetes dramatically increases one’s chances for heart disease and stroke, kidney disease, and other life threatening conditions. Though burdened at times, my father lives a relatively happy and healthy life with type 1 diabetes through the miracles of modern medicine. Though type 1 diabetes is unavoidable, the ever-growing problem of type 2 diabetes is something we can prevent all together.

If we hope to stop or even reverse the deadly curve of diabetes progression that is currently set, we have to start taking better care of ourselves now. Eating more vegetables and less sugar and fat now, along with simply getting outside for a while each day, much like your old health teacher said, can do a lot more for your own future that it might seem.