

Blood Sugar: Controlling Diabetes



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“Diabetes, the disease that has been known for thousands of years; in 1923 a young physiology professor, Dr. Frederick G. Banting once believed in doing extra homework. In his spare time he isolated islet cells from the pancreas of dogs, and with the help of a medical student by the name of Charles Best, they succeeded in producing “Insulin”, saving the lives of those who were affected by Diabetes.

Diabetic lives that were cut short for far too long”. (Hume, 1961)

Insulin deficiencies, otherwise known as Type 1 (Juvenile diabetes) and Type II (Adult onset Diabetes) is the cause for great concern. In this article I will explain the differences in these two types of Insulin deficiencies, and what new developments that are on the horizon to

correct them. In essence, I will unveil results of ongoing research, in efforts of controlling diabetes, and discuss them in detail.

Type I Diabetes

Usually, occurs in the younger generation and as late as early adulthood. It is considered to be an autoimmune malfunction, and sometimes of a genetic origin. It is when the pancreas no longer has functional Islet cells, and therefore, does not secrete the hormone insulin. This is dangerous, and can only be treated with administration of injectable insulin. Vigilant monitoring of blood sugar levels and administration of the insulin in a timely fashion, are paramount.

There are many famous people who have that have Type I diabetes. Diabetes does not discriminate. The total effect of the disease process occurs behind the scenes, within the body's organs and blood vessels, if the blood sugar is not well managed, it can manifest as:

- Peripheral artery disease
- Heart disease
- Foot ulcers/gangrene
- Blindness
- Kidney Failure
- High Blood Pressure

It was stated in the Juvenile Diabetes Research Foundation (2006)

"...while insulin keeps a diabetic alive, it does not cure the disease, nor does it prevent its eventual and devastating effects, including kidney

failure, blindness, nerve damage, amputations, heart attack, and stroke."



Perform Regular Foot Checks

Look for open sores or red areas, tell your doctor, if you see any these!

Currently, a procedure noted in the June 2000 issue of the New England Journal of Medicine,

"... researchers at the University of Alberta in Edmonton, Canada, have continued to use and refine a procedure called the Edmonton protocol to transplant pancreatic islets (beta cells) into selected patients with type 1 diabetes that is difficult to control. The 5 year follow up study proved that a small percentage had normal blood sugar control, and the rest had a decreased need in supplemental insulin, better control overall compared to not receiving the pancreatic islets."

With advancing technology, stem cell research is on the cutting edge of refining procedures that follow this line of thought; replacing missing

and dysfunctional islet cells with stem cells, or at least making islet cells from stem cells and then transplanting these in to the diabetic.

The downside to any transplant is the need to take *immunosuppressive* drugs for the rest of the person's life or your transplanted cells will be rejected. You will need to take the *immunosuppressive* drugs to prevent your immune system from attacking the transplanted cells for the life of the transplant.

There is host of problems that can evolve from long term use of *immunosuppressive* drugs. Since the immune system recognizes viruses, bacteria, tissue, and foreign invaders of the body, the drugs decrease the immune systems function, so that the transplanted cells are not rejected. Long-term use of these drugs can cause cancers, and other diseases related to immune suppression. Following up with all your doctor visits, and having screening tests done as ordered by your primary physician, should alert your provider to any abnormal growths or disease processes that may be occurring, early enough to treat it. As time goes on, and technology advances further, there will be the possibility of making the transplantable cells from your own matching stem cells, with a combination method done in the laboratory.

As stated in the JDRF:

"...Researchers are investigating alternative methods for producing ESCs (Embryonic stem cells). One technique, somatic cell nuclear transfer (SCNT), is sometimes called therapeutic cloning. Scientists remove the nucleus of an unfertilized egg and replace it with the nucleus of an adult cell. After the egg is stimulated to divide, researchers can derive from it new embryonic stem cell lines that are genetically identical to the patient. Though there has been success in

using this process with animal cells, SCNT has not yet produced human ESCs.”

Type II Diabetes

Is generally known as Adult onset diabetes. Occurring as we get older, and mostly developing as a side effect of a sedentary lifestyle, mixed with obesity, and or a family history of diabetes. It is the most common form of insulin deficiency. Either the body doesn't make enough of the hormone insulin, or the body doesn't utilize the insulin correctly even if it does produce some of the hormone. Therefore, your body then develops very high blood sugars, and your cells become malnourished.

Symptoms of high blood sugar are:

- Shakiness
- sweaty feeling
- lightheadedness
- heart palpitations
- symptoms of a panic attack

These are the same symptoms as a Type I Diabetic would have when they are not in good control of their diabetes. Long-term, both Type I and Type II will develop heart disease, nerve destruction (peripheral neuropathy), blurry vision, possible blindness, kidney disease (due to the vascular consequences) and hypertension (for the same reasons), the possible need for amputation of the lower limbs, from poor blood circulation may occur if diabetes in both cases is poorly controlled

Some people can control their type II diabetes with diet and exercise, and sometimes oral glycemics (medications that make use of the insulin that your body produces or helps to stimulate production of this

hormone.) There are a variety of different glycemic medications, such as metformin (glucophage), glyburide, and sometimes injectable insulin are required for type 2 diabetics that are highly resistant your doctor may have you take oral glycemics along with several daily injections of insulin. You want to work with your primary care provider to know what is going to be best in your particular case. It is individual, as no two people are exactly the same, and therefore, their treatment is not going to be exactly the same people with Type I or Type II Diabetes, can and do live very long and productive lives, as long as they keep their blood sugar well controlled, and not subject their organs and blood vessels to large swings of high and low blood sugar levels causing the malnutrition that leads to endothelial damage, atherosclerosis (plaque buildup on the walls of the arteries).

As you can see, science is making great strides in finding cures, and improving treatments that will improve the health of your body, and make these devastating conditions a thing of the past. Chronic diseases will be ongoing but less of a death sentence that they once were for an individual with Diabetes.

Working with your primary care doctor, and keeping your weight in a reasonable range, and eating a healthy diet, and good exercise plans as you work with you physician to arrange what medications if any and the type of diet and exercise that is best suited for you, again, each individual is just that. There is no “one size fits all.”