

Diabetes is a disorder where the body can't control its glucose concentration. Glucose is the main energy source for all the cells of the body, so it's kind of important to keep its concentration right. It's produced from the digestion of carbohydrates. So every time you eat something it's absorbed into the bloodstream. The blood is always carrying glucose. So it's available for cells as and when they need it. The amount of glucose going into your body and the amount that you're using changes through the day. So the concentration of glucose or blood sugar changes all the time. But if the concentration gets too high, the glucose becomes dangerous and starts damaging cells, tissues and organs. And if it gets too low, your cells can't function properly. So there has to be a glucose control system and that's where insulin comes in.

Insulin is a protein hormone made in the pancreas and carried around the body in the blood. The pancreas cells are sensitive to the blood sugar concentration, so as soon as it starts rising, they release more insulin into the blood. That insulin acts like a switch, allowing cells to absorb more glucose. The insulin also affects your liver cells. Liver cells convert excess soluble glucose to an insoluble carbohydrate called glycogen, which is stored in the liver and the muscles. That's what happens when the blood glucose concentration rises. So what about when it drops?

Well, your pancreas releases less insulin, and your cells remove less glucose from the blood. Glycogen may be converted back into glucose within the liver cells and released into your blood. Or glycogen can be converted back into glucose in your muscle cells and they use it themselves. So the body's always maintaining a delicate balance, keeping glucose levels in a safe range. And if that balance goes wrong. That's diabetes.

There are two types of diabetes and they're called type one and type two. It's really original right. The symptoms are similar, but the causes are different. Type one diabetes is when the body's immune system attacks the pancreas, destroying the cells which produce insulin. Now, if somebody has type one diabetes, they have to inject themselves with insulin to replace the insulin that their body can't make. And if it is untreated, the blood glucose levels just keep on rising. They have to monitor their blood glucose concentration regularly. Be aware of what and how much they've eaten and how much exercise they've done. Type one affects a relatively small percentage of the population. Often, young people and researchers don't yet fully understand the causes.

Type two diabetes is much more common. It's caused by the effects of cells in the body becoming resistant to insulin, so much so that the pancreas can't compensate however much insulin it makes. Someone is more likely to develop type two if other members of their family have it. Other factors increase the risk too, such as age, and there's also weight. A lack of exercise and an unhealthy diet are therefore major risk factors. The good news, though, is that by losing weight, eating carefully, and exercising, many people can completely reverse the problem. In the most severe cases, insulin injections are needed.

Understanding diabetes really is important because the numbers of people affected by it are rising at an alarming rate. But hopefully, if we encourage people to eat well and exercise more, we can get it under control.