



Diabetes

Avoiding diabetes - is it worth the effort?

Having Type 2 Diabetes can damage small blood vessels, large blood vessels and delicate nerves. This in turn can damage almost every organ of the body resulting in disability and early death. Although risk factors like age and genetic background cannot be changed, Type 2 Diabetes can often be prevented through weight loss and by maintaining a healthy weight if diagnosed and acted upon early.



Are you at risk of diabetes?

The risk of developing Type 2 Diabetes is increased in those people who:

- Are overweight
- Are physically inactive
- Have poor nutrition
- Smoke
- Have a family history of diabetes
- Have a genetic or ethnic pre-disposition

When talking about the management of Type 2 Diabetes it is helpful to have a general understanding of:

- **Carbohydrates**
- **Glycaemic Index**
- **How blood glucose is normally controlled in the body**
- **What goes wrong in Type 2 Diabetes**
- **Health problems associated with Type 2 Diabetes**
- **Relationship between overweight and Type 2 Diabetes**

Carbohydrates

Carbohydrates, an important food group, are the main source of energy for your body. When carbohydrate foods (eg. bread, pasta, rice) are eaten they are broken down by enzymes in the gut into millions of small molecules of glucose (sugar). These small glucose molecules are then taken up from the gut into the bloodstream.



For people with type 2 diabetes too much carbohydrate can cause high blood glucose levels and not enough can cause low blood glucose levels (especially if you take diabetes medication or use insulin).

Glycaemic Index (GI)

GI ranks carbohydrate foods based on how quickly they raise blood glucose levels on a scale of 0 to 100. Carbohydrate foods which raise the blood glucose levels quickly have a high GI value (score ≥ 70) and those that are broken down more slowly and give a more moderate rise in blood glucose have lower GI values.



People with diabetes are encouraged to incorporate low and medium GI foods into their daily meals and to consume fewer high GI items. This helps to give better control of blood glucose levels because glucose is released more evenly and consistently over time. Low GI foods may also help you to feel more satisfied in terms of hunger because they take longer to digest.

Tip: Irrespective of the GI ranking of food the portion size that is eaten is still very important. Just because a food has a low GI it does not mean that you can eat more of it.

Normal Blood Glucose Control

When the small glucose molecules (from carbohydrate) are taken up from the gut into the bloodstream the glucose concentration in the blood rises. When the blood glucose reaches a certain level the body triggers the release of a hormone called insulin from the pancreas.

Once released by the pancreas, insulin acts like a key that unlocks special doors in the cell wall which can then be opened to allow glucose to enter the cell. Once glucose has been moved out of the blood and into cells it can be used to provide energy for the cells to function.

Abnormal Glucose Control

In Type 2 Diabetes the body loses the ability to maintain normal levels of glucose circulating in the bloodstream because either:

- The cells of the body become resistant to the effect of insulin (ie the key doesn't unlock the cells anymore) OR
- The body (specifically the pancreas) doesn't produce enough insulin to enable enough glucose to move out of the blood and into the cells of the body.

If the glucose can't move to the inside of cells then the levels in the blood builds up to dangerous and damaging levels. This is called hyperglycaemia. When blood glucose levels regularly remain above the normal range it begins to cause damage to the blood vessels. It is this damage that can result in the development of the many different complicated health problems that are commonly associated with diabetes.

Type 2 Diabetes — Health Problems

Health problems or complications that can be associated with diabetes include:

- Heart attack and stroke which can lead to death and disability.
- Kidney damage which can lead to kidney failure.
- Damage to the eyes which can cause blindness.
- Impaired circulation that can lead to wounds that don't heal and possibly even leg amputation.

So as you can see, it is really worth the effort of trying to keep your blood glucose levels as close to normal as possible.

Effects of Overweight and Type 2 Diabetes

Being overweight complicates type 2 diabetes because excess fat is stored around our organs and muscles - a bit like insulation - causing a barrier to the movement of insulin and glucose resulting in more and more glucose building up in the blood causing more damage to the blood vessels.

Even a 5 - 7% loss in body weight can reduce this fat insulation enough to improve the actions of insulin and therefore result in fewer medical complications.

