



The Farmhouse Fact Sheet 3

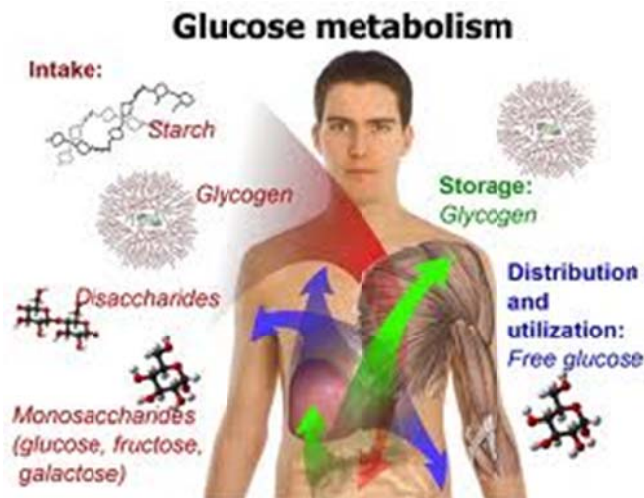
What are insulin and glucose and how are they connected?



Our body uses glucose as its main source of energy for all that we do – this includes our organs, brain, muscles and all the automatic processes that occur each and every waking and sleeping moment of your life. Many

people associate diabetes with “sugar” which is just one form of carbohydrate sugars. This is table sugar and in fact is digested more slowly by our body than glucose – and hence the use of glucose for our energy needs. There are other sugars such as lactose (found in milk) and fructose (in honey and fruits).

Glucose comes from foods that contain carbohydrates such as potatoes, bread, pasta and rice, fruit, starchy vegetables, legumes and milk. After food is digested, the glucose is released and absorbed into the bloodstream so it can be accessed throughout the body. Some of the glucose is stored by the liver and turned into Glycogen, to be used when we are fasting, at rest and need a boost of glucose. All of these things work in harmony with other hormones. Excess glucose not stored in the liver may be converted to fat and stored in other body tissues.



The glucose in the bloodstream needs to move into body tissues so that cells can use it for energy. Insulin is a hormone made by the pancreas, which is a gland located just below the stomach. Insulin is like a key that opens the doors (the glucose channels) that let glucose move from the blood into the body cells. This is part of a process known as glucose metabolism.



What happens in diabetes then?

- The pancreas can't make insulin anymore due to the autoimmune destruction of the islet cells which produce insulin (type 1 diabetes); or
- The cells don't respond to the insulin properly (insulin resistance) and/or the pancreas produces inadequate insulin for the body's increased needs (type 2 diabetes).

These are the two basic forms of diabetes.

Diabetes that occurs just in pregnancy is also increasing and is called **Gestational Diabetes**. This usually resolves after delivery of the baby, but the woman **and** her baby are at higher risk of type 2 diabetes in the future.

There are other less common forms, such as **type 1.5 or LADA** (latent autoimmune diabetes in adults) and **MODY** (mature onset diabetes in the young).

So if the insulin is unable to do its job, then the doors can not be opened so that the glucose can go via the channels into the blood stream. Glucose then builds up in the blood and spills out through the urine. High blood glucose levels are what cause the health problems linked to diabetes, often referred to as complications. These complications are also caused through high blood pressure in particular and high cholesterol – so all three things are very important to manage.