



Metabolic Disharmony

What does type 2 diabetes look like on the inside?

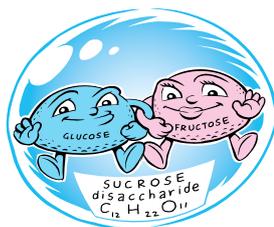
What is Metabolism?

Metabolism is a collective word to describe the many biochemical processes in our body that convert food into energy.

Food contains three macronutrients: *Carbohydrates, Proteins and Fats*. All the macronutrients bring in energy, however the biochemical process is different for each one.

Carbohydrate is our primary energy source. Carbohydrate foods contain many types of energy molecules, but the main players are *Glucose* and *Fructose* (when they travel together they are called *Sucrose*).

The biochemical process for Carbohydrate foods is called *Glucose metabolism*.



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Dreaded Diabetes?

Diabetes is a complex and chronic (incurable) medical condition caused by a collection of physiological issues that interrupt Glucose metabolism.

There are four types of diabetes:

- **Type 1 diabetes** - develops spontaneously when the Beta Cells in the Pancreas stop producing Insulin due to a malfunction of the immune system.
- **Type 2 diabetes** - develops over time as a result of weight gain and physical inactivity.
- **Gestational (Type 3) diabetes** - develops during pregnancy (usually temporarily) due to hormonal changes.
- **Type 4 diabetes** - develops in elderly people when the effectiveness of their Insulin reduces with age.



Spotlight on Type 2

The inherited risk factors for type 2 diabetes are particularly potent. Genetic characteristics, which contribute to development of the condition, are passed down through your family.

Carrying excess weight and lack of exercise can trigger type 2 diabetes in adults, teenagers and children who have a family history of the condition.

An interim condition known as *Insulin Resistance* may progress over many years without symptoms, then culminate in a diagnosis of type 2 diabetes. A simple blood test can pick up Insulin Resistance before it becomes serious.

Silent Progress

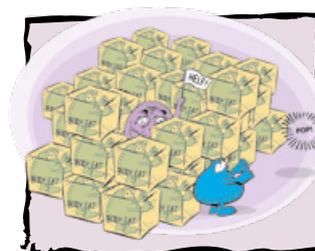
When Glucose metabolism is functioning normally, Insulin is released by your Pancreas to unlock your muscle and body cells so Glucose (travelling in the blood) can convert to energy inside the cell.

When there is excess body fat (e.g. abdomen), the process of converting Glucose into energy becomes increasingly more difficult.

Insulin becomes less effective so Glucose stays in the blood and eventually converts to long-term stored energy (body fat), which further compounds the problem.



Glucose and Insulin are not able to reach the Muscle Cell because of excess body fat.



Unused Insulin is flushed out of the body. Glucose remains in the blood.



Unprocessed Glucose is eventually stored as body fat and the Muscle Cell receives no energy.

Lifestyle-related disease is preventable in the majority of cases.

If there is a history of type 2 diabetes in your family, maintaining healthy food and exercise habits is essential.

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