

## Diabetes type 1 - juvenile diabetes

Around one in every 700 Australian children has diabetes, which makes it one of the most common serious diseases amongst children. Diabetes is a disorder of the endocrine system, characterised by the body's inability to use blood sugar (glucose).

There are two main types of diabetes: juvenile-onset and mature-onset. Juvenile diabetes can affect anyone of any age, but is more common in people under 30 years and tends to develop in childhood, hence its name. Other names for juvenile diabetes include diabetes and insulin dependent diabetes mellitus (IDDM).

Estimates vary, but approximately one in every five to 10 Australians with diabetes has IDDM. In fact, the incidence of IDDM in Australia is very high compared to other countries.

In order to use glucose for energy, the hormone insulin needs to be secreted by the pancreas, a gland of the endocrine system located in the abdomen. A person with IDDM is unable to produce insulin, after the insulin-producing cells in the pancreas are destroyed by the body's own immune system. Currently treatment includes closely monitoring the blood sugar levels, modifying the diet and taking daily injections of insulin until a cure is found.

### Symptoms

The symptoms of diabetes include:

- Excessive thirst
- Frequent urination
- Hunger
- Weight loss
- Fatigue
- Visual disturbances, such as blurred vision
- Itching skin, particularly around the genitals
- Nausea and vomiting.

### The role of the pancreas

The digestive system breaks down carbohydrates into glucose. This simple sugar is then transported to each cell via the bloodstream. The pancreas secretes the hormone insulin, which allows the glucose to migrate from the blood into the cells. Once inside a cell, the glucose is 'burned', along with oxygen, to produce energy. The pancreas of a person with IDDM doesn't make any insulin at all. Without insulin, the glucose remains in the bloodstream at high levels. The body recognises the dilemma and tries to provide the cells with other sources of fuel, such as stored fats. Extensive fat burning can release by-products called ketones, which are dangerous in high amounts.

### The cause is unknown

The exact cause of IDDM is unknown and there is no cure. It is thought that some kind of viral infection or other environmental factor induces the immune system to attack the insulin-producing cells of the pancreas in genetically susceptible individuals. The onset tends to be sudden.

### Complications of untreated diabetes

Untreated diabetes can severely damage many systems, organs and tissues of the body. Complications include:

- Kidney damage.
- Increased likelihood of infections such as thrush.
- Damage to the eyes (diabetic retinopathy).
- Poor blood circulation in the legs and feet - potentially leading to lower limb amputation.
- Damage to the nerves of the feet.

- Significantly increased likelihood of heart disease and stroke.
- Sexual impotence.

### **Diagnosis and treatment**

Diabetes is diagnosed with blood tests to check the glucose levels. There is no cure for IDDM, but the condition can be successfully managed. Treatment options include:

- Self-monitoring of blood sugar levels by regularly testing droplets of blood in a glucose meter, or comparing the colour of a test strip to a colour chart.
- Self-testing of urine to check for high levels of ketones, using a test strip.
- Taking insulin injections daily.
- Increasing the amount of 'slow' carbohydrates in the diet, such as beans and fruit, which take longer to be absorbed by the body.
- Regular exercise.
- Maintaining regular checks for diabetes complications.

### **Hypoglycaemia**

If a person with IDDM skips a meal, exercises heavily or takes too much insulin, their blood sugar levels may plummet. This leads to a 'hypo' (hypoglycaemia). The symptoms include dizziness, sweating, hunger, headache and change in mood. This can be remedied with a quick boost of sugar (such as jellybeans or glucose tablets), then something more substantial like fruit. A person with IDDM should ideally have lollies on hand at all times, just in case.

### **Where to get help**

- Your doctor
- Juvenile Diabetes Research Foundation Tel. (03) 9696 3866
- Diabetes Australia Victoria Tel. 1300 136 588
- International Diabetes Institute Tel. (03) 9258 5000

### **Things to remember**

- Other names for type 1 diabetes include juvenile diabetes and insulin dependent diabetes mellitus (IDDM).
- IDDM can occur at any age, but tends to develop in childhood.
- Around one in every 700 Australian children has diabetes.
- There is no cure, but the disorder can be successfully managed with medication, dietary modifications and exercise.

**This page has been produced in consultation with, and approved by:**

Juvenile Diabetes Research Foundation (JDRF)

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