Hyperglycaemia

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Summary

- Hyperglycaemia means too much glucose is circulating in the blood and, when it is persistently high, it means the person has diabetes.
- Most people with hyperglycaemia have type 1 or type 2 diabetes. Occasionally, it is ‘secondary’ to another illness.
- Treatment is usually diet and oral hypoglycaemic tablets in type 2 diabetes, although eventually some people require insulin. In type 1 diabetes, insulin is always required.

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 move from the blood into the cells. Once inside a cell, the glucose is ‘burned’ along with oxygen to produce energy.

Generally, blood glucose is very tightly regulated by insulin according to the person’s eating habits and activity levels. Hyperglycaemia means too much glucose is circulating in the blood. A measurement of over 11mmol/L is usually considered a diagnosis of hyperglycaemia if the measurement is taken at any time or 7mmol/L if the test is done fasting. Consistently high measurements of blood glucose will mean you have diabetes (diabetes mellitus).

Some of the conditions that can cause diabetes include Cushing’s syndrome and liver disease but, in most cases, there is no associated disease and people are said to have either type 1 or type 2 diabetes. Without treatment, diabetes can damage organs, including the kidneys, eyes and nerves. It is also an important risk factor for coronary artery disease and other vascular diseases.

Symptoms of hyperglycaemia

The symptoms of hyperglycaemia (and diabetes) include:

- Excessive thirst
- Frequent urination
- Fatigue
- Unexplained weight loss
- Vision problems, such as blurring
- Increased susceptibility to infections such as thrush.

Different types of diabetes

Diabetes is characterised by the body’s inability to use glucose. There are different types of diabetes including:

- Type 1 diabetes – due to a lack of insulin
- Type 2 diabetes – due to a complex mix of insulin not working properly and insufficient insulin
- Gestational diabetes – a form of diabetes that some women develop during their pregnancy. Pregnancy blocks the action of insulin and can bring out a tendency to diabetes. Mothers with gestational diabetes are at increased risk of developing diabetes in subsequent pregnancies and in later life.

Causes of hyperglycaemia

There are some conditions and medications that can cause hyperglycaemia (and diabetes). These include:

- Cushing’s syndrome – a collection of hormonal disorders characterized by high levels of the steroid hormones that act like cortisol, which is normally produced by the adrenal gland. Causes include tumours of the pituitary and adrenal glands, certain tumours in other areas of the body, and steroid drug therapy for inflammatory disorders
- Pancreatitis – the pancreas makes the hormone insulin. Pancreatitis is inflammation of the pancreas, which can be either acute or chronic. Alcoholics are one group at risk of developing pancreatitis. Other causes of diabetes with chronic pancreatitis include the inherited conditions cystic fibrosis and haemochromatosis
- Acromegaly – excess growth hormone secretion
- Certain medications – including some diuretics (drugs that remove water from the body) and steroids
- Liver disease – such as cirrhosis of the liver.

Diagnosis and monitoring of hyperglycaemia
Blood glucose levels can be tested and monitored in a variety of ways including:

- **Random blood glucose test** – a blood test that checks the blood glucose level, regardless of when the person last ate.
- **Fasting blood glucose test** – the person fasts (has nothing to eat or drink beforehand) so that a ‘baseline’ blood glucose level can be established by blood test. This is the most common way a diagnosis of diabetes is made.
- **Oral glucose tolerance test** – the person drinks a special preparation that contains glucose. A blood test is taken two hours later to check the blood glucose level.
- **Glycosylated haemoglobin test** – this test is a guide to the average level of blood glucose over the previous three months. The glycosylated haemoglobin test is typically used as a way to monitor the treatment of a person with diagnosed diabetes.
- **Home blood glucose monitoring test** – a person with diagnosed diabetes can test their blood glucose at home with a special kit. A drop of blood is placed on a strip of paper, which is then fed into a blood glucometer.

**Treatment for hyperglycaemia**

Treatment varies depending on what form of diabetes is diagnosed. For example, type 2 diabetes can often be managed with diet alone, or tablets may be prescribed. Type 1 diabetes requires regular insulin injections. Gestational diabetes usually resolves soon after childbirth when the pregnancy hormones are no longer present in the mother’s body.

**Hypoglycaemia means low blood glucose levels**

An abnormally low glucose level in the blood is called hypoglycaemia. Some of the conditions that can cause hypoglycaemia include:

- **Taking insulin and oral hypoglycaemic medication** – usually for diabetes. Hypoglycaemia is a common result of treatment for diabetes, especially when the diabetes is well controlled. Occasionally, oral hypoglycaemic tablets are prescribed or given by mistake to people who do not have diabetes – this causes hypoglycaemia.
- **Insulinoma** – a tumour of the pancreas that triggers the overproduction of insulin.
- **Liver failure** – loss of the liver’s capacity to produce glucose can cause hypoglycaemia.

**Where to get help**

- Your doctor
- Juvenile Diabetes Research Foundation Australia Tel. (03) 9696 3866
- Diabetes Australia Victoria Tel. 13 RISK (13 7475)
- Baker IDI Heart and Diabetes Institute Tel. (03) 8532 1111

**Things to remember**

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- Most people with hyperglycaemia have type 1 or type 2 diabetes. Occasionally, it is ‘secondary’ to another illness.
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**References**

- Diabetes Australia Homepage, Diabetes Australia, ACT. More information here.

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Diabetes

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- Diabetes basics
- Types of diabetes
- Living with diabetes
- Complications with diabetes

Diabetes basics

- 10 tips to help prevent type 2 diabetes
  Lifestyle changes can prevent type 2 diabetes... 10 tips to help prevent type 2 diabetes...
- Diabetes
Diabetes and the build-up of glucose (sugar) in the blood can cause serious complications if left untreated.

- Diabetes and insulin
  It may take a while to find the right insulin dose to reduce your blood glucose to acceptable levels.

- Exercise and diabetes (video)
  Healthy exercise is important for everyone. This video from Diabetes Australia – Victoria explores the importance of exercise when you have diabetes.

- Health check
  This health assessment questionnaire will identify which zones of your lifestyle are contributing to your personal health risk and provide actions you can take to make positive change.

- Managing my diabetes (video)
  This video from Diabetes Australia – Victoria explores managing your diabetes.

- My feet and diabetes (video)
  When you have diabetes you need to take care of your feet every day. This video from Diabetes Australia – Victoria explores footcare and diabetes.

- Type 2 Diabetes - Pre Diabetes (video)
  For some people with a family history of type 2 diabetes, diagnosis in later life doesn’t come as a surprise. Others can go for years without realising that they are living with the condition.

Types of diabetes

- Diabetes - gestational
  Gestational diabetes is diabetes that occurs during pregnancy and usually disappears when the pregnancy is over.

- Diabetes insipidus
  Diabetes insipidus is characterised by extreme thirst and the passing of vast amounts of urine.

- Diabetes - pre-diabetes
  Pre-diabetes has no symptoms or warning signs, and is a risk factor for developing type 2 diabetes.

- Diabetes type 1
  Type 1 diabetes can affect anyone of any age, but is more common in people under 30 years.

- Diabetes type 2
  Type 2 diabetes may be prevented, but it cannot be cured.

- Managing my diabetes (video)
  This video from Diabetes Australia – Victoria explores managing your diabetes.

- Type 2 Diabetes - Pre Diabetes (video)
  For some people with a family history of type 2 diabetes, diagnosis in later life doesn’t come as a surprise. Others can go for years without realising that they are living with the condition.

Living with diabetes

- Diabetes and exercise
  Exercise is an important lifestyle choice for everyone. For people with diabetes or at risk of diabetes, exercise is still an important part of a healthy lifestyle.

- Diabetes and healthy eating (video)
  Healthy eating is important for everyone. This video from Diabetes Australia – Victoria explores healthy eating and food choices.

- Diabetes and oral health
  People with poorly controlled diabetes have a higher risk of tooth and gum problems.

- Diabetes - foot care
  Good foot care and regular check-ups can help people with diabetes avoid foot problems.

- Diabetes - issues for children and teenagers
  Many parents worry when their child with diabetes starts or returns to school.

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Diabetes - long-term effects

The risk of most diabetes-related complications can be reduced...

Exercise and diabetes (video)

Healthy exercise is important for everyone. This video from Diabetes Australia – Victoria explores the importance of exercise when you have diabetes...

Getting active - tucker talk tips

The main thing is to choose physical activities that you enjoy and that you can stick to in the long term...

Managing my diabetes (video)

This video from Diabetes Australia – Victoria explores managing your diabetes...

My feet and diabetes (video)

When you have diabetes you need to take care of your feet every day. This video from Diabetes Australia – Victoria explores footcare and diabetes...

Complications with diabetes

- Blood pressure (high) - hypertension
  Hypertension, or high blood pressure, can increase your risk of heart attack, kidney failure and stroke...

- Diabetes and erectile dysfunction
  Men with diabetes are more prone to problems with erectile dysfunction or impotence...

- Diabetes and kidney failure
  Kidney failure means the kidneys can no longer remove waste and maintain the level of fluid and salts that the body needs...

- Diabetic coma
  Diabetic coma is a medical emergency and needs prompt medical treatment...

- Diabetic neuropathy
  Diabetes is the most common cause of neuropathy...

- Diabetic retinopathy
  Without treatment, diabetic retinopathy can cause loss of vision and blindness...

- Heart disease - know your risk
  Risk factors for heart disease include smoking, diabetes, obesity, family history and age...

- Hyperglycaemia
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- Hypoglycaemia
  Hypoglycaemia refers to symptoms caused by low blood glucose. The most common reason for hypoglycaemia is diabetes medication...

- Kidney failure
  You can lose up to 90 per cent of kidney function before you even feel sick...

Related Information

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  Diabetes is the most common cause of neuropathy...

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Related information on other websites

- Diabetes Australia - Hyperglycaemia
- Life! Taking Action on Diabetes

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