

Pre-diabetes

Nearly one in four adults over the age of 25 years has either diabetes or a condition known as pre-diabetes (impaired glucose metabolism). There are two conditions that fit into this category. One is called Impaired Fasting Glucose (IFG) and the other is Impaired Glucose Tolerance (IGT).

There is still a lot more to be learned about pre-diabetes. Without treatment, not everyone with Impaired Fasting Glucose will progress to Impaired Glucose Tolerance or type 2 diabetes. Likewise, not everyone with Impaired Glucose Tolerance will progress to type 2 diabetes.

This information sheet explains the differences, how they are treated and how they can be avoided in the first place.

The condition	The cause
IMPAIRED FASTING GLUCOSE	
Impaired Fasting Glucose is a pre-diabetes condition in which blood glucose levels are higher than normal but not high enough to be diagnosed as type 2 diabetes.	Impaired Fasting Glucose occurs when too much glucose is released into the bloodstream from the liver overnight. The liver is mainly responsible for keeping a proper supply of glucose in the blood and to the body when we have not eaten for several hours (after food has been absorbed). In IFG the liver does not respond normally to insulin and this is called 'hepatic insulin resistance' ('hepatic' means 'liver').
IMPAIRED GLUCOSE TOLERANCE	
Impaired Glucose Tolerance is also a condition in which blood glucose levels are higher than normal but still not high enough to be diagnosed as type 2 diabetes.	The risk factors for developing Impaired Glucose Tolerance are similar (and probably identical) to those for developing type 2 diabetes (refer to <i>What is Diabetes?</i> information sheet).

So what is the difference?

IMPAIRED FASTING GLUCOSE	IMPAIRED GLUCOSE TOLERANCE
Diagnosed when the fasting* blood glucose level is higher than the normal or non-diabetic range, but does not rise abnormally after having a sweet glucose drink. (OGTT – see page 2)	Diagnosed when the blood glucose level at 2 hours during an OGGT (see page 2) is abnormal but not high enough to diagnose diabetes.

* 'Fasting' means having nothing to eat for 8 hours before the test.

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How do you know you have either of these conditions?

Any glucose test, fasting or not, that shows higher than normal blood glucose levels, needs to be checked further. The doctor may therefore order an Oral Glucose Tolerance Test (OGTT) to find out more about the patient's glucose metabolism.

The results of this laboratory test show four possible diagnoses:

1. Normal glucose levels
2. Impaired Fasting Glucose
3. Impaired Glucose Tolerance
4. Type 2 diabetes

How it is tested	How it is diagnosed
IMPAIRED FASTING GLUCOSE	
<p>An Oral Glucose Tolerance Test (OGTT) is done at the pathologists. This involves:</p> <ul style="list-style-type: none"> • Taking adequate carbohydrate (150g) for 3 days prior to the test. • After not eating for 8 hours, a blood sample is taken from a vein, usually in the arm. • You are then given a sweet drink that contains 75g of glucose. • Blood glucose is checked, again by taking blood from the arm, 2 hours after having the glucose drink. 	<p>Impaired Fasting Glucose is diagnosed when results of the Oral Glucose Tolerance Test are as follows:</p> <p>Fasting blood glucose level is 6.1 mmol/L or more but less than 7mmol/L.</p> <p>AND</p> <p>Blood glucose level 2 hours after having the glucose drink is less than 7.8mmol/L.⁺⁺</p>
IMPAIRED GLUCOSE TOLERANCE	
<p>As with Impaired Fasting Glucose, an Oral Glucose Tolerance Test is done and involves the same steps:</p> <ul style="list-style-type: none"> • A diet high in starchy food for 3 days prior to the test is usually advised. • After not eating for 8 hours, a blood sample is taken from a vein, usually in the arm. • You are then given a sweet drink that has a lot of glucose in it. • Blood glucose is checked, again by taking blood from the arm, at 1 hour and again at 2 hours after having the glucose drink. 	<p>Impaired Glucose Tolerance is diagnosed when the results of the Oral Glucose Tolerance Test are as follows:</p> <p>Blood glucose level 2 hours after having the glucose drink is more than 7.8mmol/L but less than 11mmol/L.</p>

People with pre-diabetes are more likely to get type 2 diabetes and are at risk of heart disease. With treatment, these risks can be reduced and even prevented.

What is the treatment?

If pre-diabetes is detected during investigation for diabetes, the treatment involves the same lifestyle changes that are recommended for people diagnosed with diabetes. For most, this will include regular physical activity, healthy eating and if necessary, losing weight (see page 4).

Who is most likely to get pre-diabetes conditions?

Risk factors for pre-diabetes are similar to those for diabetes which are:

- Being overweight – especially those who have excess weight around the waistline (ie: more than 94cm for men and more than 80cm for women).
- Being physically inactive.
- Having high triglycerides and low HDL cholesterol and/or high total cholesterol.
- Having high blood pressure.
- Having a family history of type 2 diabetes and/or heart disease.

Other people at risk include:

- Women with Polycystic Ovarian Syndrome*.
- Women who have had diabetes in pregnancy (gestational diabetes) or given birth to a big baby (more than 4.5kg).
- Aborigines and Torres Strait Islanders.
- Those from certain ethnic backgrounds such as the Pacific Islands, Asia and the Indian sub-continent.

** For more information refer to the Polycystic Ovarian Syndrome and Diabetes information sheet.*

Can people with pre-diabetes avoid getting type 2 diabetes?

Evidence shows that people with pre-diabetes at high risk of progressing to type 2 diabetes can delay and reduce the risk of its development by adopting the lifestyle changes outlined above under ‘What is the treatment?’.



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Healthy eating

To eat healthily, your meals need to be:

- Lower in fat, particularly saturated fat.
- Based on high fibre carbohydrate foods such as wholegrain breads and cereals, beans, lentils, vegetables and fruits.

For more detailed information and to work out a meal plan that's right for you, talk to a dietitian or call Diabetes Australia.

Regular physical activity

Physical activity helps your body to use insulin better. **Aim for at least 30 minutes of physical activity on most, if not all, days of the week. This can be done in batches, such as 2 lots of 15 minutes or even 3 lots of 10 minutes.**

Starting a regular activity program – and sticking to it – can often be made a lot easier by joining up with a group to encourage you to keep going. Ask your local community health centre, library, dietitian, diabetes centre or gym. The Department of Sport and Recreation may also be able to help.

Even a group of motivated friends or neighbours is likely to work a lot better than if you try to go it alone.

Regular physical activity also helps you to feel fit and healthy, so be creative in finding as many ways as you can to be active.

Before starting any new type of physical activity, talk to your doctor to be sure it's okay for you and your health.

Would you like to join Australia's leading diabetes organisation?

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For more information phone 1300 136 588

Website: www.diabetesaustralia.com.au

Multilingual information: www.multilingualdiabetes.org.au

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