

Patient information factsheet

Impaired glucose tolerance (IGT) in cystic fibrosis

This factsheet is about impaired glucose tolerance (IGT) in people with cystic fibrosis (CF). We hope it will help to answer some of the questions you may have. If you need further information or advice, please ask your CF team.

What are impaired glucose tolerance and impaired fasting glycaemia?

Impaired glucose tolerance (IGT) and impaired fasting glycaemia (IFG) happen when the body's blood sugar levels are higher than normal, but not as high as they would be in someone with diabetes.

How are IGT and IFG diagnosed?

We diagnose IGT and IFG with an oral glucose tolerance test (OGTT). This test is designed to see how the pancreas copes with a glucose load. The test measures your blood sugars after an overnight fast. We will then ask you to drink a glucose solution (similar to the amount often consumed in the form of regular fizzy drinks). We will measure your blood sugars again two hours afterwards.

We will usually do an OGTT test during your annual review and then yearly after that. See the table below for diagnostic ranges:

OGTT	Normal	IGT or IFG	CF-related diabetes
Fasting blood glucose level (BGL)	4 to 6mmol/L	More than 6 to 7mmol/L	More than 7mmol/L
Two hours after glucose solution BGL	Less than 7.8mmol/L	More than or equal to 7.8 to less than 11.1mmol/L	More than or equal to 11.1mmol/L

What are the symptoms of IGT?

There are no symptoms associated with IGT.

Why do people develop IGT?

Blood sugars levels are controlled by a hormone called insulin, which is made in the pancreas. CF causes a build-up of thick secretions in the pancreas and these secretions damage the cells that produce insulin. If too little insulin is made, your body is unable to use the glucose (sugar) found in the food you eat normally. As a result, blood sugar levels rise above the normal ranges. In addition, your body can struggle to produce enough insulin during chest infections or when steroids are given because the amount of insulin needed by your body goes up at this time.

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How is IGT monitored?

If you have been diagnosed with IGT, we will give you a blood glucose meter and teach you how to use this to keep an eye on your glucose levels at home. We will ask you to check your glucose levels at least seven times per month. This could be done all in one day or the tests could be done at different times on different days within the month. We suggest checking your glucose levels when you wake up (before breakfast), before bed, before food and two hours after food. If you experience unexplained weight loss or sudden, significant drops in lung function, we recommend testing your glucose levels more often.

What is a normal blood glucose level?

The normal range for blood glucose levels is between 4.0 to 7.8mmol/L. If your blood glucose levels are raised for prolonged periods, please contact our CF specialist dietitian or nurse for support and advice.

Why is it important to monitor IGT?

It is important to check that your glucose levels are within the normal range because increased glucose can lead to weight loss and decreased lung function. Good blood glucose control may reduce your number of chest infections and therefore potentially reduce your number of hospital admissions. It is also important to know whether the IGT has developed into diabetes.

How is IGT treated?

The first steps to help treat and effectively manage IGT involve making changes to your diet and increasing physical activity.

We may occasionally suggest using insulin if you are losing a lot of weight without any other explanation.

Managing your diet with IGT

Keeping your body weight healthy is extremely important for people with CF.

People with CF and IGT often (although not always) still need a high-calorie, high-protein and high-fat diet. Fat and protein affect glucose levels less than carbohydrates.

Carbohydrates can be split into sugary carbohydrates and starchy carbohydrates.

Sugary carbohydrates (simple sugars) are absorbed quickly and cause blood glucose levels to rise quickly. This rapid rise in glucose may be followed by a sudden drop to below normal glucose levels, an effect called reactive hypoglycaemia.

Examples of sugary carbohydrates:

- sugary drinks
- syrup
- honey
- jelly sweets

Starchy carbohydrates (complex carbohydrates) are absorbed from the gut more slowly and cause a gentler rise in blood sugar levels.

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Examples of starchy carbohydrates:

- rice
- pasta
- potato
- bread
- non-sugary breakfast cereals

People with IGT should have regular starchy carbohydrates with every meal to help keep their blood glucose levels stable. They should limit the amount of sugary carbohydrates, mainly those in the form of sugary drinks, because of the effect on blood glucose levels.

Your CF dietitian will help you identify the types of food and drink that have high sugar levels in your diet and work with you to make small and gradual dietary changes.

Will avoiding sugary foods prevent me from developing IGT?

We don't know, but studies in people without CF have shown that a healthy diet reduces the risk of developing diabetes.

Will exercise help me manage my IGT?

Yes. It is important to be physically active. Regular exercise will help reduce your blood glucose levels by moving sugar from your blood to your muscles and this helps to keep your sugars within the normal range. Ideally you should exercise for 20 to 30 minutes a day.

Is IGT for life?

No. Some people notice that blood glucose levels return to normal when they are infection free or as result of exercising regularly and/or reducing simple sugars in their diet. We will do an OGTT test every year to review your diagnosis.

Who do I contact if I need help with my IGT?

If you need more information on IGT and how to manage it, contact your CF dietitians or CF specialist nurse. They will be happy to answer your questions over the telephone or book you into the clinic to cover things in more detail.

What happens when I get ill?

Blood glucose levels can rise or fall when you are unwell. It is therefore important to monitor your blood sugar levels regularly (ideally every four to six hours).

Frequently asked questions

1. Can I still drink high-calorie supplements?

Yes. However, we recommend that you choose milk-based rather than juice-based supplements as they are less sugary. These are best taken at the end of meals when they will affect your blood sugar levels less, rather than as a snack between meals. Speak to your dietitian for further advice.

2. IGT and overnight feeds

Overnight feeds are given over a number of hours and therefore the glucose tends to be absorbed over a prolonged period. We will monitor your blood sugar levels to assess whether you will need treatment to cover the nutrition given during that time.

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3. Do I get free prescriptions?

No. People with IGT are not entitled to free prescriptions.

4. Do I get free eye tests?

No. People with IGT are not entitled to free NHS sight tests.

5. Do I get free dental treatment?

No. People with IGT do not automatically qualify for free dental treatment.

Contact us

CF dietitians

Telephone: **023 8120 6801**

Department of dietetics/speech and language therapy
University Hospital Southampton NHS Foundation Trust

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