

**Patient
Information**

Testing for ketones

Introduction

You have been given this leaflet because you have Type 1 Diabetes. If you are ill you will need to test yourself for ketones. This leaflet gives you information about ketones and tells you when and how to test for them.

What are ketones?

Ketones are created when there is a severe lack of insulin, meaning that the body cannot use glucose for energy and starts to break down other body tissue for energy. Ketones are the by-product of this process. Ketones are poisonous chemicals which build up and, if left unchecked, will cause the body to become acidic.

Why is it important to spot ketones?

Ketones are acids which build up if you become unwell or have an infection. This may result in a condition called 'diabetes ketoacidosis'. Higher insulin doses and drinking plenty of fluids will be needed to bring down the level of ketones. Vomiting may limit your intake of carbohydrate, so you must contact a health care professional if you are vomiting. Checking for ketones when you are ill will alert you to what could be a dangerous situation.

Testing your urine for ketones

You can test your urine for ketones by dipping a test strip into a urine sample; your nurse will teach you how to do this.

The pad on the test strip will change colour and display + symbols if there are ketones present in the urine.

The colour of the test strip pad and/or + symbol can then be matched to the chart which comes with the test strips.

Urine should normally be clear of ketones

Reference No.

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Diabetes

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+ urine ketones	Drink more fluids and take a correction dose of rapid insulin. If you are not sure how much insulin to take to reduce your blood glucose, please contact your health care professional and or review the sick day leaflet.
++ urine ketones	Treat as above but discuss your urine ketone result with a health care professional.
+++ urine ketones	Drink more fluids and take a correction dose of rapid insulin. If the level of urine ketones are not dropping after 1 to 2 hours attend A&E as you are at risk of developing diabetes ketoacidosis.

Testing blood for ketones

You can test your blood for ketones by using a blood ketone meter. Your nurse will give you a meter if it is needed.

If you have Type 1 Diabetes it is important to test for ketones if your blood glucose levels are over 13.9mmol/L and not dropping over the following 2 hours or when you are ill.

When should you check for ketones?

You need to check your urine or blood for ketones when you:

- are unwell
- have high blood glucose levels
- are vomiting or have diarrhoea

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You will need to test urine ketones every 1 to 2 hours if blood glucose is above 13.9mmol/L.

If you have ketones, you are likely to have high blood glucose levels, but sometimes they can be fairly normal. Do not ignore the presence of ketones.

You should also have a copy of our leaflet GHPI1144 'Sick day rules'. This gives you important information about managing your diabetes during illness. If you do not have a copy of this leaflet please ask a member of the team.

Why you should test for blood ketones?

It gives you an instant result, so you can take action to bring your diabetes under control. It also gives a result by numbers not by matching colours, which can be more accurate and easier to read.

What do the blood ketone results mean?

< 0.6 mmol/L	Acceptable level
0.6 – 1.5 mmol/L	Drink more fluids and take a higher insulin dose depending on blood glucose level and/or have an insulin correction dose to reduce the blood glucose and ketone levels. It is important that the sick day rules are followed and that you re-check blood ketone levels again in 1 to 2 hours
> 1.5 mmol/L	This shows a risk of diabetes ketoacidosis. Patients must seek medical help straightaway .

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Contact information

Diabetes Nurses

Cheltenham General Hospital
Tel: 0300 422 4266

Gloucestershire Royal Hospital
Tel: 0300 422 8613

These are answer machines. Please leave your name and contact number when prompted.

Alternately you can email the diabetes nurses:

Email: ghn-tr.diabetesnurses@nhs.net

Further information

Diabetes UK

Website: www.diabetes.org.uk

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