

For people with type 1 diabetes, ketones are acids that build up in the bloodstream when there is not enough insulin. Ketones can develop due to missed insulin doses (especially long acting insulin) or insulin pump failure. They can also develop if insulin needs have increased due to illness. The bottom line is that ketones can make you very sick, so it's important to know when and how to test for ketones and what to do if you have them.

### Symptoms of Having Ketones

- Stomach pain
- Nausea
- Vomiting
- Confusion
- Deep or troubled breathing
- Dry mouth
- Breath that smells like nail polish remover
- Excessive thirst and urination

### When to Check for Ketones

Always check for ketones when the blood glucose on your meter is over 300 mg/dL two readings in a row if you are using injections, or over 250 mg/dL twice in a row if you are using an insulin pump.



### How to Check for Ketones

Ketones can be checked with a simple urine test or with a blood ketone meter. Urine ketone test strips can be purchased without a prescription at your local pharmacy or online for about \$10. Blood ketone test strips are very convenient, but they need a prescription and can be expensive since it may not be covered by your insurance plan. Always have ketone monitoring supplies on hand and be sure your supplies have not expired. If you are on a pump, speak with your doctor about using a blood ketone meter as it can identify a site

failure faster and more accurately than urine or even blood glucose monitoring. In addition, if you have a very young child with diabetes blood ketone monitoring is much easier than trying to get urine.

### Performing a Urine Test to Check for Ketones

1. Pee into a clean cup then dip the ketone test strip into the urine. You may want to tap the strip to shake off any extra urine. Read the instructions on the ketone testing kit to see how long you need to wait before comparing the color on the strip to the color on the chart.
2. If the strip shows you have **moderate** or **large** ketones, please contact your diabetes care team immediately to get advice on next steps.
3. If the test strip shows trace or small ketones, drink plenty of water to help flush the ketones from your body. Although exercise can lower your glucose levels, do not exercise if your blood glucose is over 250 mg/dL and you have moderate or large ketones.
4. Continue checking your ketones and glucose every 3-4 hours until the ketones are gone and your glucose is back in your target range.

### Performing a Blood Ketone check (Precision Xtra meter and NovaMax Plus meter)

- Make sure your hands are clean and completely dry. You don't have to use alcohol, but if they are dirty, you should wash first with soap and water.
- Insert a ketone test strip into the meter.
- Using the lancet, prick the side of the upper part of your finger.
- Apply the drop of blood to the test strip.
- What the results mean:

1. Above 1.5 mmol/l are large ketones
2. 1-1.5 mmol/L are moderate ketones
3. 0.6-0.9 mmol/L are small ketones
4. Below 0.6 mmol/L are negative ketones

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### Recommended

[What are Ketones?](#)

[Sick Days](#)

[Wearing a Medical Alert](#)

[What is DKA?](#)

[Causes of Highs and Lows](#)

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Sources

[Ketone Testing - Joslin Diabetes Center](#)

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*This document is not intended to take the place of the care and attention of your personal physician or other professional medical services. Our aim is to promote active participation in your care and treatment by providing information and education. Questions about individual health concerns or specific treatment options should be discussed with your physician.*