

## Diabetes: Diabetic Ketoacidosis

When you have diabetes (especially type 1 diabetes), you are at risk for diabetic ketoacidosis (DKA). This is a dangerous illness that happens when the body does not have enough insulin to use sugar for fuel, and so it breaks down fat and muscle instead. This process breaks down fat into fatty acids, which are turned into another type of acid called ketones. The ketones build up in your blood and change the chemical balance in your body. If not treated, DKA can lead to a coma or even death.

DKA can happen if you have little or no insulin in your body and your blood sugar level gets too high. This can happen when you do not take enough insulin or when you have an infection or other illness such as the flu. Being severely dehydrated can also cause it.

DKA occurs mostly in people with type 1 diabetes. It occurs less often in people with type 2 diabetes.

### Symptoms of DKA

Symptoms include:

- You have increased thirst and urination.
- You have flushed, hot, dry skin.
- You have a strong, fruity breath odor.
- You have loss of appetite, belly pain, and vomiting.
- You feel restless.
- You have rapid, deep breathing.
- You feel confused.



- You feel very sleepy, or you have trouble waking up. Young children may not care about doing their normal activities.

### How to prevent DKA

You can help prevent DKA if you:

- Take your insulin and other diabetes medicines on time and in the right dose.
- Test your blood sugar before meals and at bedtime. Or test as often as your doctor tells you to. This is the best way to know when your blood sugar is high so you can treat it early. Watching for symptoms is not as good. You may not notice them until you have already started making ketones and your blood sugar is very high.
- Teach others at work, home, or school how to check your blood sugar. Make sure they know how to check your blood sugar in case you are not able to check it yourself.
- Wear or carry medical identification at all times. This is very important in case you are too sick or injured to speak for yourself.

- Do not exercise when your blood sugar is high and you have ketones.
- Follow your meal plan to know how much carbohydrate you need for meals and snacks. This will help keep your blood sugar steady.
- When you are sick:
  - Keep taking your insulin and diabetes medicines. Take them even if you are having trouble eating or drinking. If you are vomiting and cannot take your diabetes pills, call your doctor. If you use insulin, continue to take it as directed but call your doctor if there is no change in your blood sugar level. Your blood sugar may keep rising because you are sick.
  - Drink extra fluids, such as water, broth, and sugar-free soda. Call your doctor right away if you have signs of needing more fluids. (You have sunken eyes and a dry mouth, and you pass only a little urine.)
  - Try to eat your normal types and amounts of food.
  - Check your blood sugar at least every 3 to 4 hours. Check more often if it is rising fast. If it rises above 240 or a number that you and your doctor have agreed upon, follow what your doctor has told you to do. If your doctor has not told you how much insulin to take for high blood sugar, call your doctor for advice.
  - If you are taking insulin, do a test for ketones, especially if your blood sugar is high.
  - Weigh yourself and check your temperature, breathing rate, and pulse frequently if your blood sugar is high. If you are losing weight and your temperature, breathing rate, and pulse are going up, call your doctor. You may be getting worse.

## How to treat high blood sugar

If you know your blood sugar is high, treat it before it gets worse. Once DKA develops, it is a very dangerous condition that **must be treated in the hospital**.

- If you have missed your usual dose of insulin or other diabetes medicine, take the missed dose.
- If you and your doctor have decided on a dose of extra-fast-acting insulin based on your blood sugar level, give yourself the right dose. If you take insulin and your doctor has not told you how much fast-acting insulin to take based on your blood sugar level, call your doctor for advice.
- Drink extra water or other sugar-free, clear liquids to prevent dehydration.
- Test for ketones. Call your doctor if you have moderate or large amounts of ketones in the urine or a high level of blood ketones (for example, more than 0.6 mmol/L).
- Wait 30 minutes after taking extra insulin or your missed medicines. Then check your blood sugar again.
- If symptoms of high blood sugar get worse or your blood sugar level keeps rising, call your doctor. If you start to feel drowsy or confused, **call 911**.