

TYPE 1 DIABETES:

DKA Care Instructions

Diabetic ketoacidosis (DKA) happens when the body does not have enough insulin and can't get the sugar it needs for energy. When the body can't use sugar for energy, it starts to use fat for energy. This process makes fatty acids called ketones. The ketones build up in the blood and change the chemical balance in your body.

This problem can be very dangerous and needs to be treated. Without treatment, it can lead to a coma or death.

DKA occurs most often in people with type 1 diabetes. But people with type 2 diabetes also can get it. DKA can be caused by many things. It can happen if you don't take enough insulin. It can also happen if you have an infection or illness like the flu. Sometimes it happens if you are very dehydrated.

DKA can only be treated with insulin and fluids. These are often given in a vein (IV).

Follow-up care is a key part of your treatment and safety. Be sure to make and go to all appointments, and call your doctor if you are having problems. It's also a good idea to know your test results and keep a list of the medicines you take.

How can you care for yourself at home?

To reduce your chance of ketoacidosis:

- Take your insulin and other diabetes medicines on time and in the right dose.
 - If an infection caused your DKA and your doctor prescribed antibiotics, take them as directed. Do not stop taking them just because you feel better. You need to take the full course of antibiotics.
- Test your blood sugar before meals and at bedtime or as often as your doctor advises. 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 helpful. This is because you may not have symptoms until your blood sugar is very high. Or you may not notice them.
- Teach others at work and at home how to check your blood sugar. Make sure that someone else knows how to do it in case you can't.
- Wear or carry medical identification at all times. This is very important in case you are too sick or injured to speak for yourself.
- Talk to your doctor about when you can start to exercise again.
- Eat regular meals that spread your calories and carbohydrate throughout the day. This will help keep your blood sugar steady.
- When you are sick:
 - Take your insulin and diabetes medicines. This is important even if you are vomiting and having trouble eating or drinking. Your blood sugar may go up because you are sick. If you are eating less than normal, you may need to change your dose of insulin. Talk with your doctor about a plan when you are well. Then you will know what to do when you are sick.
 - Drink extra fluids to prevent dehydration. These include water, broth, and sugar-free drinks. If you don't drink enough, the insulin from your shot may not get into your blood. So your blood sugar may go up.
 - Try to eat as you normally do, with a focus on healthy food choices.
 - Check your blood sugar at least every 3 to 4 hours. Check it more often if it's rising fast. If your doctor has told you to take an extra insulin dose for high blood sugar levels (for example, above 240 mg/dL) be sure to take the right amount. If you're not sure how much to take, call your doctor.
 - Check your temperature and pulse often. If your temperature goes up, call your doctor. You may be getting worse.
 - If you take insulin, check your urine or blood for ketones, especially when you have high blood sugar (for example, above 240 mg/dL). Call your doctor if your ketone level is moderate or high.

If you know your blood sugar is high, treat it before it gets worse.

- If you missed your usual dose of insulin or other diabetes medicine, take the missed dose or take the amount your doctor told you to take if this happens.
- If you and your doctor decide on a dose of extra-fast-acting insulin, 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.
- Drink extra water or sugar-free drinks to prevent dehydration.
- Wait 30 minutes after you take extra insulin or 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 sleepy or confused, **call 911**.

When should you call for help?

Call 911 anytime you think you may need emergency care. For example, call if:

- You passed out (lost consciousness).
- You are confused or cannot think clearly.
- Your blood sugar is very high or very low.

Watch closely for changes in your health, and be sure to contact your doctor if:

- Your blood sugar stays outside the level your doctor set for you.

- You have any problems.

Hemoglobin A1c: About This Test

Hemoglobin A1c is a blood test that checks your average blood sugar level over the past 2 to 3 months. This test also is called a glycohemoglobin test or an A1c test.

Why is this test done?

The A1c test is done to check how well your diabetes has been controlled over the past 2 to 3 months. Your doctor can use this information to adjust your medicine and diabetes treatment, if needed.

How can you prepare for the test?

You do not need to stop eating before you have an A1c test. This test can be done at any time during the day, even after a meal.

What happens during the test?

The health professional taking a sample of your blood will:

- Wrap an elastic band around your upper arm. This makes the veins below the band larger so it is easier to put a needle into the vein.
- Clean the needle site with alcohol.
- Put the needle into the vein.
- Attach a tube to the needle to fill it with blood.
- Remove the band from your arm when enough blood is collected.
- Put a gauze pad or cotton ball over the needle site as the needle is removed.
- Put pressure on the site and then put on a bandage.

What else should you know about the test?

The test result is usually given as a percentage. The normal A1c is less than 5.7%.

The A1c test result also can be used to find your estimated average glucose, or eAG. Your eAG and A1c show the same thing in two different ways. They both help you learn more about your average blood sugar range over the past 2 to 3 months.

Learning About Low Blood Sugar (Hypoglycemia) in Diabetes

What is low blood sugar (hypoglycemia)?

Hypoglycemia means that your blood sugar is low and your body (especially your brain) is not getting enough fuel. If you have diabetes, your blood sugar can go too low if you take too much of some diabetes medicines. It can also go too low if you miss a meal. And it can happen if you exercise too hard without eating enough food. Some medicines used to treat other health problems can cause low blood sugar too.

What are the symptoms?

Symptoms of low blood sugar can start quickly. It may take just 10 to 15 minutes. If you have had diabetes for many years, you may not realize that your blood sugar is low until it drops very low.

- If your blood sugar level drops below 70 (mild low blood sugar), you may feel tired, anxious, dizzy, weak, shaky, or sweaty. You may have a fast heartbeat or blurry vision.
- If your blood sugar level continues to drop (usually below 40), your behavior may change. You may feel more irritable. You may find it hard to concentrate or talk. And you may feel unsteady when you stand or walk. You may become too weak or confused to eat something with sugar to raise your blood sugar level.
- If your blood sugar level drops very low (usually below 20), you may pass out (lose consciousness). Or you may have a seizure or stroke. If you have symptoms of severe low blood sugar, you need to get medical care right away.

If you had a low blood sugar level during the night, you may wake up tired or with a headache. Or you may sweat so much during the night that your pajamas or sheets are damp when you wake up.

How is low blood sugar treated?

You can treat low blood sugar by eating or drinking something that has 15 grams of carbohydrate. These should be quick-sugar foods. Check your blood sugar level again 15 minutes after having a quick-sugar food to make sure your level is getting back to your target range.

Here are examples of quick-sugar foods that have 15 grams of carbohydrate:

- 3 to 4 glucose tablets
- 1 tube of glucose gel
- Hard candy (such as 3 Jolly Ranchers or 5 to 7 Life Savers)
- 1 tablespoon honey
- 2 tablespoons of raisins

- ½ cup to ¾ cup (4 to 6 ounces) of fruit juice or regular (not diet) soda
- 1 tablespoon of sugar
- 1 cup of fat-free milk

If you have problems with severe low blood sugar, someone else may have to give you a shot of glucagon. This is a hormone that raises blood sugar levels quickly.

How can you prevent low blood sugar?

You can take steps to prevent low blood sugar.

- **Follow your treatment plan.** Take your insulin or other diabetes medicine exactly as your doctor prescribed it. Talk with your doctor if you're having low blood sugar often. Your medicine may need to be adjusted if it's causing your low blood sugar.
- **Check your blood sugar levels often.** This helps you find early changes before an emergency happens.
- **Keep a quick-sugar food with you** in case your blood sugar level drops low.
- **Eat small meals more often** so that you don't get too hungry between meals. Don't skip meals.
- **Balance extra exercise with eating more.** Check your blood sugar and learn how it changes after exercise. If your blood sugar stays at a normal level, you may not need to eat after you exercise.
- **Limit how much alcohol you drink.** Alcohol can make low blood sugar go even lower. Don't drink alcohol if you have problems recognizing the early signs of low blood sugar.
- **Keep a diary of your symptoms.** This helps you learn when changes in your body may signal low blood sugar. And keep track of how often you have low blood sugar, including when you last ate and what you ate. This will help you learn what causes your blood sugar to drop.
- **Learn about diabetes and low blood sugar.** Support groups or a diabetes education center can help you understand how medicines, diet, and exercise affect your blood sugar levels.

Since low blood sugar levels can quickly become an emergency, be sure to wear medical alert jewelry, such as a medical alert bracelet. This is to let people know you have diabetes so they can get help for you. You can buy this at most drugstores. And make sure your family, friends, and coworkers know the symptoms of low blood sugar. Teach them what to do to get your sugar level up.

Follow-up care is a key part of your treatment and safety. Be sure to make and go to all appointments, and call your doctor if you are having problems. It's also a good idea to know your test results and keep a list of the medicines you take.

Diet Care Instructions

Meal planning is important to manage diabetes. It helps keep your blood sugar at a target level (which you set with your doctor). You don't have to eat special foods. You can eat what your family eats, including sweets once in a while. But you do have to pay attention to how often you eat and how much you eat of certain foods.

You may want to work with a dietitian or a certified diabetes educator (CDE) to help you plan meals and snacks. A dietitian or CDE can also help you lose weight if that is one of your goals.

What should you know about eating carbs?

Managing the amount of carbohydrate (carbs) you eat is an important part of healthy meals when you have diabetes. Carbohydrate is found in many foods.

- Learn which foods have carbs. And learn the amounts of carbs in different foods.
 - Bread, cereal, pasta, and rice have about 15 grams of carbs in a serving. A serving is 1 slice of bread (1 ounce), ½ cup of cooked cereal, or 1/3 cup of cooked pasta or rice.
 - Fruits have 15 grams of carbs in a serving. A serving is 1 small fresh fruit, such as an apple or orange; ½ of a banana; ½ cup of cooked or canned fruit; ½ cup of fruit juice; 1 cup of melon or raspberries; or 2 tablespoons of dried fruit.
 - Milk and no-sugar-added yogurt have 15 grams of carbs in a serving. A serving is 1 cup of milk or 2/3 cup of no-sugar-added yogurt.
 - Starchy vegetables have 15 grams of carbs in a serving. A serving is ½ cup of mashed potatoes or sweet potato; 1 cup winter squash; ½ of a small baked potato; ½ cup of cooked beans; or ½ cup cooked corn or green peas.
- Learn how much carbs to eat each day and at each meal. A dietitian or CDE can teach you how to keep track of the amount of carbs you eat. This is called carbohydrate counting.
- If you are not sure how to count carbohydrate grams, use the Plate Method to plan meals. It is a good, quick way to make sure that you have a balanced meal. It also helps you spread carbs throughout the day.
 - Divide your plate by types of foods. Put non-starchy vegetables on half the plate, meat or other protein food on one-quarter of the plate, and a grain or starchy vegetable in the final quarter of the plate. To this you can add a small piece of fruit and 1 cup of milk or yogurt, depending on how many carbs you are supposed to eat at a meal.

- Try to eat about the same amount of carbs at each meal. Do not "save up" your daily allowance of carbs to eat at one meal.
- Proteins have very little or no carbs per serving. Examples of proteins are beef, chicken, turkey, fish, eggs, tofu, cheese, cottage cheese, and peanut butter. A serving size of meat is 3 ounces, which is about the size of a deck of cards. Examples of meat substitute serving sizes (equal to 1 ounce of meat) are 1/4 cup of cottage cheese, 1 egg, 1 tablespoon of peanut butter, and 1/2 cup of tofu.

How can you eat out and still eat healthy?

- Learn to estimate the serving sizes of foods that have carbohydrate. If you measure food at home, it will be easier to estimate the amount in a serving of restaurant food.
- If the meal you order has too much carbohydrate (such as potatoes, corn, or baked beans), ask to have a low-carbohydrate food instead. Ask for a salad or green vegetables.
- If you use insulin, check your blood sugar before and after eating out to help you plan how much to eat in the future.
- If you eat more carbohydrate at a meal than you had planned, take a walk or do other exercise. This will help lower your blood sugar.

What else should you know?

- Limit saturated fat, such as the fat from meat and dairy products. This is a healthy choice because people who have diabetes are at higher risk of heart disease. So choose lean cuts of meat and nonfat or low-fat dairy products. Use olive or canola oil instead of butter or shortening when cooking.
- Don't skip meals. Your blood sugar may drop too low if you skip meals and take insulin or certain medicines for diabetes.
- Check with your doctor before you drink alcohol. Alcohol can cause your blood sugar to drop too low. Alcohol can also cause a bad reaction if you take certain diabetes medicines.

Follow-up care is a key part of your treatment and safety. Be sure to make and go to all appointments, and call your doctor if you are having problems. It's also a good idea to know your test results and keep a list of the medicines you take.