



Metformin: How it helps keep you healthy

If you have type 2 diabetes, it is very important to keep your blood sugar (glucose) levels in a healthy range. Metformin (Glucophage) is a medication that helps your body control blood sugar.

Here are answers to questions people often ask about taking metformin.

How does metformin help with diabetes?

Metformin, taken alone or with other diabetes medications, can help when you have too much sugar in your blood.

Here's how it works: Your liver usually stores extra glucose and releases it when your body needs to use the sugar for energy. Insulin is an important hormone in this process of controlling blood sugar. You need insulin to get sugar out of the blood and into your cells, where your body can use it.

When you have type 2 diabetes, your pancreas may no longer make enough insulin. Without enough insulin, you will have high amounts of sugar in your blood. Over time, high blood sugar levels can cause health problems, some of which can become very serious. Uncontrolled high blood sugar can lead to kidney damage, vision problems and nerve damage that can cause the loss of limbs. Metformin can help you avoid these problems.

Metformin helps your liver make less sugar, helps cells in your body use insulin better, and also limits the amount of glucose that is absorbed after eating. Well-controlled blood sugars help lower the chance that you will develop complications from diabetes.

How should I take metformin?

Take metformin with a meal or snack to help avoid an upset stomach. Your doctor will ask you to increase the amount of metformin you take (the dose) slowly over six weeks to lessen your chances of side effects.

How will I know if the medication is working?

Regular home blood sugar testing is the easiest way to see how your medicine is working. Be sure to:

- Ask your health care team how often to test your blood sugar at home.
- Write down and keep track of your results. This can help you see what changes in eating, activity, or medication may help you keep your blood sugar in a healthy range.
- Get an A1C blood test done at least every six months. This test also gives you an estimated Average Glucose (eAG) result. Together, these two results measure your average blood sugar over the past two to three months.

What problems could I have taking metformin?

Although most people have no problems taking metformin, there are occasional side effects. The most common side effect is mild stomach upset, including gas, cramping, or a change in bowel movements. This usually goes away as your body gets used to the medication.

To reduce your risk of some side effects while taking metformin, avoid drinking more than two alcoholic beverages a day. If you have diabetes and other

health problems like heart failure, kidney trouble, or liver problems you may still benefit from using metformin, but you may need more frequent lab tests to make sure the medication is right for you. Talk with your health care team about your choices. Insulin is another option you may want to consider for good blood sugar control.

Some important things to know when taking metformin

Call your health care team if you have any of the following:

- trouble breathing
- feeling more weak or more tired than usual
- feeling dizzy or light-headed
- muscle aches
- upset stomach (nausea) or vomiting

Taken by itself, metformin should *not* cause low blood sugar (hypoglycemia). However, you may have low blood sugar levels when you use metformin along with other diabetes medicines. Call the Appointment and Advice line or your health care team if your blood sugar levels before you eat are below 70 mg/dL three or more times in one week.

Metformin may increase a woman's chance of getting pregnant. If this is a concern, discuss your birth control choices with your health care team.

You may be asked to temporarily stop using metformin before certain surgeries or procedures, such as:

- X-ray using a contrast dye such as iodine
- Colonoscopy (a small video camera is used to look inside your large intestine)

- Endoscopy (a small video camera is used to look at the inside of your esophagus, stomach, and the beginning of your small intestine)

Talk with your doctor or health care team about when you should re-start metformin after these procedures.

When should I treat low blood sugar?

For most people a blood sugar level below **70 mg/dL** is too low. Signs of low blood sugar may include feeling shaky, sweaty, nervous, hungry, angry, or light-headed. If you feel any of these symptoms, test your blood sugar right away (if possible).

Use the **15/15** rule to treat low blood sugar:

1. Eat or drink **15 grams** of a carbohydrate that your body can absorb quickly. For example:
 - 3 to 4 glucose tablets
 - 1 tube glucose gel
 - 1/2 cup fruit juice
 - 1 cup low-fat or fat free milk
2. Wait **15 minutes** and test again. If your reading is still less than 70 mg/dL, repeat steps 1–2 one more time.
3. Repeat steps 1–3 one more time if blood sugars are still under 70 mg/dL.

If your blood sugars are back in the normal range, eat a small meal such as a half of a small sandwich with a glass of milk to keep your blood sugar in a good range.

If your blood sugars are still low after following the 15/15 rule, call the Appointment and Advice line or your health care team right away. Always carry a source of carbohydrate like the ones listed above so that you can treat low blood sugar as soon as it happens.

How can I manage my medications?

- Refill your medicines at least two weeks before you run out. We have several convenient ways to help you refill your medications:
 - Online. Register on kp.org and then visit kp.org/rxrefill. Have your medicine mailed to your home for little or no charge.
 - By phone. Look for the Easy Refill number on the upper corner of your prescription bottle or package.
 - In person at your local Kaiser Permanente pharmacy.

Keep a list of the medication names and doses you take each day and keep it up to date. Write down any over-the-counter medications, herbs, or supplements you take. Note any drug or food allergies you may have.

When you start any new medication or supplement, ask the pharmacist to check if it might cause problems (interact) with your other medications.

Wear medical identification at all times. For more information call 1-888-633 4298 or go to MedicAlert.org.

Additional resources

To learn more about diabetes, visit your physician's home page at kp.org/mydoctor, where you can:

- View your lab results, schedule appointments, refill prescriptions, and email your doctor.
- View videos on how to treat low blood sugar and prevent complications.
- Try a personalized online diabetes program called HealthMedia[®] Care[™] for Diabetes.
- Access health and drug encyclopedias, health education classes and more.

You can also contact Health Education Department near you for books, videos, classes, and more resources on diabetes and other health topics.

Diabetes is a chronic condition which has been shown to worsen in cases where domestic violence is present. If you are being hurt in anyway by a partner or spouse, there is help. Call the National Domestic Violence Hotline at 1-800-799-7233 or connect to ndvh.org.

This information is not intended to diagnose health problems or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult with your doctor. If you have questions or need more information about your medication, please speak to your pharmacist. Kaiser Permanente does not endorse the medications or products mentioned. Any trade names listed are for easy identification only.