

Diabetes Medications: What you should know

What should I know about my diabetes medicines?

People who have diabetes are likely to have one or more prescription medicines in their treatment plan. It is important that you follow your treatment plan and take your medicines exactly as ordered by your healthcare provider. If you find it hard to do this for any reason (for example: cost concerns, side effects, or forgetting to take it), tell your healthcare provider or pharmacist. They will help you find ways to overcome your problems so you can stay healthy. In addition:

- **Ask questions about your medicines.** Make sure you know what they're for, how to take them, and where to store them.
- **Keep a current list of all your medicines with you and bring it to all of your appointments.** Be sure to include any vitamins, herbs, and over-the-counter drugs like cough syrup or allergy pills you are taking. Write down:
 - The name of each medicine
 - How much you take
 - When you take it

Be sure to tell your healthcare providers if:

- Your dose has changed since your last visit.
- You've started any new medicines.
- You've stopped any medicines.
- Your medicines aren't helping enough.



What kinds of medicines are used to treat diabetes?

There are many different kinds of medicines to treat diabetes. Each works differently than the other. Your healthcare providers will work with you to find the best medicine for your condition and your lifestyle.

Metformin

Metformin is a commonly-prescribed medicine that helps lower your blood glucose (blood sugar) by:

- **Decreasing the amount of glucose released by your liver.** Less glucose enters into your bloodstream.
- **Increasing the ability of your muscles to use glucose for energy.** As more glucose is used, more glucose leaves your bloodstream.

Common side effects of metformin include:

- Gas
- Diarrhea
- Upset stomach

These side effects are most likely to happen when you first start taking it. They will usually go away on their own. Taking metformin with food may help reduce or avoid these issues.

Lactic acidosis is another side effect of metformin. While very rare, it can be serious. It happens most often in older people with kidney or liver disease. Common symptoms of lactic acidosis include belly pain, muscle pain or cramping, sleepiness, and tiredness.

If you have symptoms of lactic acidosis, go to your nearest emergency treatment center.

GLP-1 agonists

A GLP-1 agonist is taken by injection (shot) using a prefilled dosing pen. These medicines work with other diabetes medicines to help control your blood glucose by:

- **Slowing or stopping the release of glucose from your liver**
- **Increasing the release of insulin from your pancreas after a meal**
- **Slowing the emptying of your stomach after a meal.**
This helps you eat less by lowering your appetite and helping you feel full after a meal. This may cause weight loss.

The names of some common GLP-1 agonists are:

- Exenatide (Byetta/ Bydureon)
- Semaglutide (Ozempic)
- Liraglutide (Victoza)
- Dulaglutide (Trulicity)

Common side effects from GLP-1 agonists include:

- Nausea (feeling sick to your stomach)
- Diarrhea



SGLT2 inhibitors

SGLT2 inhibitors are pills that help lower your blood glucose by:

- **Lowering the amount of glucose that goes into the blood from the kidneys.**
- **Increasing the amount of glucose that leaves your body when you urinate (pee).**

The names of some common SGLT2 inhibitors are:

- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)

SGLT2 inhibitors may lower your blood pressure and may cause weight loss. SGLT2 inhibitors can also cause dehydration. You will need to drink more fluids to stay healthy. Other side effects include:

- Dizziness
- A need to pee more
- Higher risk of urinary tract infections (UTIs)
- Higher risk of genital yeast infections in both women and men

DPP-4 inhibitors

A DPP-4 inhibitor is a pill that blocks an enzyme called dipeptidyl peptidase 4 (DPP-4). This helps lower your blood glucose in two ways:

- **Decreases the amount of glucose released by your liver.** Less glucose enters into your bloodstream.
- **Boosts the production of insulin in your pancreas.** With more insulin to “unlock” your body’s cells, more glucose moves into the cells and your blood glucose goes down.

The names of some common DPP-4 inhibitors are:

- Sitagliptin (Januvia)
- Linagliptin (Tradjenta)
- Saxagliptin (Onglyza)
- Alogliptin (Nesina)

DPP-4 inhibitors rarely cause side effect. The most common side effects include:

- Runny or stuffy nose
- Headache
- Sore throat
- Cough

Glitazones

Glitazones, also called **thiazolidinediones** or **TZDs**, lower your blood glucose in 2 ways:

- **Helping your muscles use glucose for energy.** As more glucose is used, more glucose leaves your bloodstream.
- **Lowering the amount of glucose released from your liver.** Less glucose enters your bloodstream.

The names of some common glitazones are:

- Pioglitazone (Actos)
- Rosiglitazone (Avandia)

The most common side effects include:

- Upper respiratory tract infections
- Headache
- Fluid retention
- Weight gain

Sulfonylureas

Sulfonylureas help lower your blood glucose by **increasing the amount of insulin released by your pancreas**. With more insulin to “unlock” your body’s cells, more glucose moves into the cells and your blood glucose goes down.

The names of some common sulfonylureas are:

- Glipizide (Glucotrol XL)
- Glimepiride (Amaryl)
- Glyburide (Diabeta)

Common side effects include:

- Low blood glucose (hypoglycemia)
- Minor weight gain (1 to 5 pounds)
- Skin rash

If you are taking a sulfonylurea, it is recommended that you keep a source of fast-acting glucose with you at all times. **Treat any signs of hypoglycemia with the Rule of 15** (see box at right).

Meglitinides

Meglitinides are pills that help lower the amount of glucose in your bloodstream. They do this by **increasing the release of insulin from your pancreas after a meal**.

The names of some common meglitinides are:

- Repaglinide (Prandin)
- Nateglinide (Starlix)

If you are taking a meglitinide, it is recommended that you keep a source of fast-acting glucose with you at all times. **Treat any signs of hypoglycemia with the Rule of 15** (see box below).

Common side effects include:

- Back or joint pain
- Cough
- Stuffy or runny nose
- Diarrhea

Hypoglycemia and the “Rule of 15”

Hypoglycemia (low blood glucose) is a common side effect of insulin and other diabetes medicines. Hypoglycemia can come on suddenly, making you feel:

- Shaky
- Cranky or irritable
- Sweaty
- Hungry
- Tired or fatigued
- Dizzy

If you are experiencing these symptoms, check your glucose level. If it is below 80 mg/dL, treat using **The Rule of 15**:

- **Take 15 grams of fast-acting glucose** (for example: ½ cup juice or regular soda, 1 heaping tablespoon of sugar, or 3 to 4 glucose tablets).
- Check your blood glucose in **15 minutes**.
- If it’s still low, repeat the steps above.

Insulin

Insulin is a hormone that is normally made in the pancreas. It lowers your blood glucose by moving it from your bloodstream into your cells to be used as energy.

All people with **type 1 diabetes** must take insulin because the pancreas has stopped making insulin. If you have **type 2 diabetes**, the pancreas may not be releasing enough insulin to help turn glucose into energy. It may make less and less insulin over time.

Insulin may cause:

- Weight gain of 5 to 10 pounds
- Low blood glucose (hypoglycemia)

If you are taking insulin, it's recommended that you check your blood glucose regularly. Keep a source of fast-acting glucose with you at all times. **Treat any signs of hypoglycemia with the Rule of 15.**

Make sure you ask your healthcare provider or pharmacist about what type of insulin you are prescribed, how to take it, and how to store it.

My medication names and doses:

There are several types of insulin:

- **Rapid-acting insulin** (Humalog, Novolog, Apidra) and **short-acting insulin** (Humulin R, Humalog U-200, Novolin R) are given with meals to help lower blood glucose after you have eaten carbohydrates.
- **Intermediate-acting insulin** (Humulin N, Novolin N) and **long-acting insulin** (Lantus, Basaglar, Levemir, Toujeo, Tresiba) are given 1 or 2 times daily to help lower blood glucose over 12 to 24 hours and are not given in relation to when you eat.
- **Pre-mixed insulin** (Novolin 70/30, Humulin 70/30, Humulin 50/50, Humalog 75/25, Humalog 50/50, Novolog 70/30) combines rapid or short acting insulin with intermediate acting insulin. The combination is given twice daily with meals.
- **Concentrated insulin** (Humulin R U-500) is five times more potent than regular insulin and is used in patients who are taking at least 200 units of insulin per day.

Notes:

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