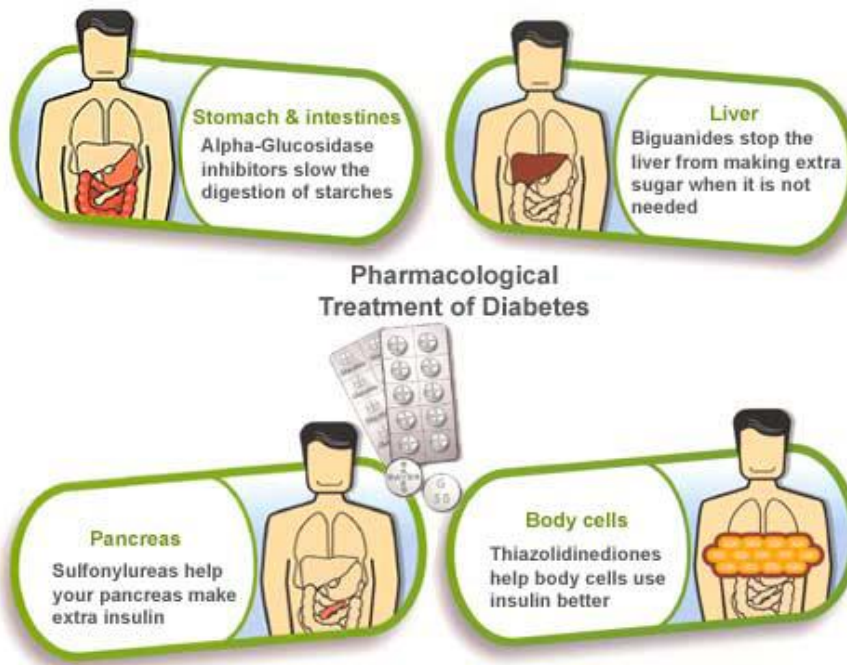


# What Are My Options? (Oral Medication)

Source [American Diabetes Association](#)

There are different types, or classes, of drugs that work in different ways to lower blood glucose (blood sugar) levels:



Sulfonylureas  
Biguanides  
Meglitinides  
Thiazolidinediones  
DPP-4 inhibitors  
SGLT2 Inhibitors  
Alpha-glucosidase inhibitors  
Bile Acid Sequestrants

## Sulfonylureas

Sulfonylureas stimulate the beta cells of the pancreas to release more insulin. Sulfonylurea drugs have been in use since the 1950s. Chlorpropamide (Diabinese) is the only first-generation sulfonylurea still in use today. The second generation sulfonylureas are used in smaller doses than the first-generation drugs. There are three second-generation drugs: glipizide (Glucotrol and Glucotrol XL), glyburide (Micronase, Glynase, and Diabeta), and glimepiride (Amaryl). These drugs are generally taken one to two times a day, before meals. All sulfonylurea drugs have similar effects on blood glucose levels, but they differ in side effects, how often they are taken, and interactions with other drugs.

## Biguanides

Metformin (Glucophage) is a biguanide. Biguanides lower blood glucose levels primarily by decreasing the amount of glucose produced by the liver. Metformin also helps to lower blood glucose levels by making muscle tissue more sensitive to insulin so glucose can be absorbed. It is usually taken two times a day. A side effect of metformin may be diarrhea, but this is improved when the drug is taken with food.

## Meglitinides

Meglitinides are drugs that also stimulate the beta cells to release insulin. Repaglinide (Prandin) and nateglinide (Starlix) are meglitinides. They are taken before each of three meals.

Because sulfonylureas and meglitinides stimulate the release of insulin, it is possible to have hypoglycemia (low blood glucose levels).

You should know that alcohol and some diabetes pills may not mix. Occasionally, chlorpropamide and other sulfonylureas, can interact with alcohol to cause vomiting, flushing or sickness. Ask your doctor if you are concerned about any of these side effects.

## **Thiazolidinediones**

Rosiglitazone (Avandia) and pioglitazone (ACTOS) are in a group of drugs called thiazolidinediones. These drugs help insulin work better in the muscle and fat and also reduce glucose production in the liver. The first drug in this group, troglitazone (Rezulin), was removed from the market because it caused serious liver problems in a small number of people. So far rosiglitazone and pioglitazone have not shown the same problems, but users are still monitored closely for liver problems as a precaution. Both drugs appear to increase the risk for heart failure in some individuals, and there is debate about whether rosiglitazone may contribute to an increased risk for heart attacks. Both drugs are effective at reducing A1C and generally have few side effects.

## **DPP-4 Inhibitors**

A new class of medications called DPP-4 inhibitors help improve A1C without causing hypoglycemia. They work by preventing the breakdown of a naturally occurring compound in the body, GLP-1. GLP-1 reduces blood glucose levels in the body, but is broken down very quickly so it does not work well when injected as a drug itself. By interfering in the process that breaks down GLP-1, DPP-4 inhibitors allow it to remain active in the body longer, lowering blood glucose levels only when they are elevated. DPP-4 inhibitors do not tend to cause weight gain and tend to have a neutral or positive effect on cholesterol levels. Sitagliptin (Januvia), saxagliptin (Onglyza), linagliptin (Tradjenta), alogliptin (Nesina) are the DPP-4 inhibitors currently on the market in the US.

## **SGLT2 Inhibitors**

Glucose in the bloodstream passes through the kidneys, where it can either be excreted or reabsorbed. Sodium-glucose transporter 2 (SGLT2) works in the kidney to reabsorb glucose, and a new class of medication, SGLT2 inhibitors, block this action, causing excess glucose to be eliminated in the urine. Canagliflozin (Invokana) and dapagliflozin (Farxiga) are SGLT2 inhibitors that have recently been approved by the FDA to treat type 2 diabetes. Because they increase glucose levels in the urine, side effects can include urinary tract and yeast infections.

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