

Medications for Treating Type 2 Diabetes

The first way to treat type 2 diabetes is often meal planning, weight loss, and exercise. Often these steps are not enough to bring blood glucose levels down to a healthy range. The next step is taking medication that lowers blood glucose levels.

Your doctor will decide which medication is right for you.

This depends on:

- your lifestyle
- physical condition
- how you respond to the medicine
- insurance coverage

ORAL MEDICATIONS

There are different types, or classes, of drugs that work in different ways to lower blood glucose.

Sulfonylureas *chlorpropamide (Diabinese), glipizide (Glucotrol and Glucotrol XL), glyburide (Micronase, Glynase, and Diabeta), glimepiride (Amaryl)*

Sulfonylureas stimulate the beta cells of the pancreas to release more insulin.

Biguanides *metformin (Glucophage)*

Biguanides lower blood glucose levels primarily by decreasing the amount of glucose produced by the liver. They also help to lower blood glucose levels by making muscle tissue more sensitive to insulin so glucose can be absorbed.

Meglitinides *repaglinide (Prandin), nateglinide (Starlix)*

Meglitinides are drugs that also stimulate the beta cells to release insulin.

Thiazolidinediones *rosiglitazone (Avandia), pioglitazone (ACTOS)*

Thiazolidinediones drugs help insulin work better in the muscle and fat and also reduce glucose production in the liver.

DPP-4 Inhibitors *linagliptin, saxagliptin, sitagliptin Sitagliptin (Januvia), saxagliptin (Onglyza), linagliptin (Tradjenta), alogliptin (Nesina)*

DPP-4 Inhibitors 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 high.

SGLT2 Inhibitors *canagliflozin (Invokana), dapagliflozin (Farxiga)*

Glucose in the blood passes through the kidneys. Sodium-glucose transporter 2 (SGLT2) works naturally in the kidney to reabsorb glucose, and SGLT2 inhibitors block this action, causing excess glucose to be eliminated in the urine.

Alpha-Glucosidase Inhibitors *acarbose (Precose), meglitol (Glyset)*

Alpha glucosidase inhibitors help the body to lower blood glucose levels by blocking the breakdown of starches, such as bread, potatoes, and pasta in the intestine. They also slow the breakdown of some sugars, such as table sugar. Their action slows the rise in blood glucose levels after a meal.

Bile Acid Sequestrants (BAS) *colesevelam (Welchol)*

The BAS colesevelam is a cholesterol-lowering medication that also reduces blood glucose levels in patients with diabetes.

Oral Combination Therapy

Because the drugs listed above act in different ways to lower blood glucose levels, they may be used together. For example, a biguanide and a sulfonylurea may be used together. Many combinations are prescribed together as a single pill for convenience.

INSULIN

There are different types of insulin that vary in how quickly they lower blood glucose levels. Some work very quickly and are taken with meals. Others are long-acting and are used just once or twice a day.

Rapid Acting *insulin glulisine (Apidra), insulin lispro (Humalog), insulin aspart (NovoLog)*

Onset: about 15 minutes

Peak: about 1 or 2 hours after injection

Duration: last between 2-4 hours

Regular or Short-Acting *regular (Humulin R and Novolin R)*

Onset: about 30 minutes

Peak: about 2 to 3 hours after injection

Duration: last between 3-6 hours

Intermediate-Acting *NPH (Humulin N and Novolin N)*

Onset: about 2 to 4 hours after injection

Peak: 4 to 12 hours later

Duration: it is effective for about 12 to 18 hours

Long-Acting *insulin detemir (Levemir), insulin glargine*

Onset: between 2 and 4 hours

Peak: long acting insulin has a continuous, “peakless” action that mimics the way your body normally releases insulin

Duration: last up to 24 hours

In 2015 an inhaled insulin product, Afrezza, became available in the U.S. Afrezza is a rapid-acting inhaled insulin. Afrezza must be used in combination with injectable long-acting insulin in patients with type 1 diabetes and in type 2 patients who use long-acting insulin.

Inhaled insulin *Technosphere insulin-inhalation system (Afrezza)*

Onset: within 12 to 15 minutes

Peak: 30 minutes

Duration: Out of your system in 180 minutes

OTHER INJECTED MEDICATIONS

In addition to pills and insulin, some medications for controlling your blood glucose are injected.

Synthetic amylin *pramlintide (Symlin)*

Synthetic amylin slows food moving through the stomach. This can decrease appetite and may cause weight loss. It also reduces glucose production by the liver. This keeps after-meal glucose levels from going too high.

GLP-1 analogues *exenatide (Byetta and Bydureon), liraglutide (Victoza)*

GLP-1 analogues stimulate the release of insulin when blood glucose is high and decrease the amount of glucose produced by the liver. They also slow food’s movement through the stomach, which decreases appetite and may lead to weight loss.

WHAT IF MY BLOOD GLUCOSE STAYS TOO HIGH?

If your blood glucose levels remain too high, your medication may need to be adjusted. Do not adjust your medication on your own. Talk to your doctor about possible changes.

More handouts about this and other topics can be found at <http://professional.diabetes.org/PatientEd>

For more information visit diabetes.org or call 1-800-DIABETES