



Medicines Used to Treat Type 2 Diabetes

People who have type 2 diabetes may need to take medicine to help lower their blood glucose, in addition to being active & choosing healthy food. There are six types of oral medicines for diabetes. There are also combination drugs which include two different medicines in one pill. There are three types of injected medicines used in type 2 diabetes, often in combination with oral medicines.

The longer a person has type 2 diabetes, the more effort it takes to control it. There are many treatment options and it is typical to start with one medicine and progress to more as time goes on.

Oral Medicines

1. Sulfonylureas stimulate the pancreas to make more insulin.

Possible side effects include low blood sugar, weight gain, upset stomach, skin rash, & itching.

Generic & Brand Names	Dose Range	Special Instructions
Glyburide <ul style="list-style-type: none">DiabetaMicronaseGlynase PresTab	1.25-20 mg/day in 1 or 2 doses 0.75-12 mg/day	
Glipizide <ul style="list-style-type: none">Glucotrol Glipizide extended release <ul style="list-style-type: none">Glucotrol XL	2.5-40 mg/day in 1 or 2 doses 2.5-20 mg/day in 1 dose	Non-extended release should be taken on an empty stomach. Extended release & XL should be swallowed whole and may be taken with or without food.
Glimepiride <ul style="list-style-type: none">Amaryl	1-8 mg/day in 1 dose	Take with the first meal of the day, unless told otherwise.

2. Biguanides decrease the amount of sugar made by the liver.

Possible side effects include diarrhea, nausea, upset stomach, metallic taste in mouth, & weight loss.

Metformin can occasionally cause a serious condition called lactic acidosis.

Symptoms of lactic acidosis are: upset stomach, abdominal pain, muscle pains, weak, dizzy, tired, & trouble breathing. Call your doctor right away if you have these symptoms.

Generic & Brand Names	Dose Range	Special Instructions
Metformin <ul style="list-style-type: none">GlucophageRiomet (cherry-flavored liquid)	500-2550 mg/day in 1, 2 or 3 doses	Take with a meal. Limit your intake of alcohol (it increases your risk of getting lactic acidosis). Stop taking metformin the day of surgery or a medical test which uses dye. Wait 2 days before re-starting it. Your provider will check your kidney function (with a blood test) regularly while you are taking this drug.
Metformin extended-release <ul style="list-style-type: none">Glucophage XRFortametGlumetza	500-2500 mg/day in 1 dose with largest meal	

3. Thiazolidinediones make your body more sensitive to insulin.

They are not used in people who have active liver disease or those who have had congestive heart failure. Possible side effects include liver problems, weight gain, swelling of the feet and legs, a cough or a cold, headache, inflammation of the sinuses and back pain. Pregnancy can occur in women who had stopped ovulating. These medicines stimulate ovulation and make birth control pills less effective.

Generic & Brand Names	Dose Range	Special Instructions
Rosiglitazone <ul style="list-style-type: none">Avandia	2-8 mg/day in 1 or 2 doses	Your provider will check your liver function (with a blood test) before you start the drug and periodically afterwards.
Pioglitazone <ul style="list-style-type: none">Actos	15-45 mg/day in 1 dose	Your provider will check your liver function (with a blood test) before you start the drug and periodically afterwards.

4. Meglitinides help the pancreas make more insulin, especially after meals. Possible side effects include low blood glucose & weight gain.

Generic & Brand Names	Dose Range	Special Instructions
Repaglinide • Prandin	0.5-16 mg/day in 1, 2 or 3 doses	Take from $\frac{1}{2}$ hr to just before a meal. Don't take it if you don't eat. Prandin interacts with Gemfibrozil (Lopid) which is used to lower triglycerides and raise HDL cholesterol. Prandin levels are higher when a person also takes Gemfibrozil. Talk with your provider if you are on both medicines or are on one and the other is prescribed.
Nateglinide • Starlix	60-120 mg with each meal	Take from $\frac{1}{2}$ hr to just before a meal. Don't take it if you don't eat.

5. Alpha-glucosidase inhibitors slow the absorption of starches. Possible side effects include bloating, diarrhea, and gas.

Generic & Brand Names	Dose Range	Special Instructions
Acarbose • Precose	25-100 mg with each meal	Take with the first bite of a meal. Treat low blood glucose with glucose tablets or low fat milk.
Miglitol • Glyset	25-100 mg with each meal	Take with the first bite of a meal. Treat low blood glucose with glucose tablets or low fat milk.

6. DPP-4 Inhibitors help improve the amount of insulin produced by your body after a meal and decrease the amount of sugar made by your body. Possible side effects include an upper respiratory infection, stuffy or runny nose and sore throat, and headache. Occasionally it can cause stomach discomfort and diarrhea.

Generic & Brand Names	Dose Range	Special Instructions
Sitagliptin • Januvia	25-100 mg in 1 dose a day	Take with or without food.

Combination Pills

Generic & Brand Names	Dose Range	Special Instructions
<ul style="list-style-type: none"> Glucovance 	1.25/250-20/2000 mg/day in 1 or 2 doses with meals	See information on Glyburide & Metformin on pages 1 & 2.
<ul style="list-style-type: none"> Avandamet 	1/500-8/2000 mg/day in 1 or 2 doses with meals	See information on Avandia & Metformin on page 2.
<ul style="list-style-type: none"> Metaglip 	2.5/250 - 10/2000 mg/day in 1 or 2 doses with meals	See information on Metformin and Glipizide on pages 1 & 2.
<ul style="list-style-type: none"> ActoPlus Met 	15/500-45/2550 mg/day in 1 or 2 doses with meals	See page 2 for information on Pioglitazone & Metformin.
<ul style="list-style-type: none"> Avandaryl 	4/1—8/4 mg/day in 1 dose	See information on Avandia & Amaryl on pages 1 & 2.
<ul style="list-style-type: none"> Duetact 	30/2—30/4 mg/day in 1 dose.	See information on Actos & Glimepiride on pages 1 & 2.

Injected Medicines

1. Insulin is a hormone which lowers blood glucose by moving glucose from the bloodstream into the body's cells. Insulin comes in many types and forms. People with type 2 diabetes may inject insulin from 1–4 times a day, depending on their diabetes and lifestyle. More information on insulin can be found in our handout entitled, *Insulin Preparations*.

2. Incretin mimetics stimulate insulin secretion when the blood glucose is high, prevent the body from releasing too much glucagon, and slow emptying of the stomach. They are used in combination with either sulfonylureas (see page 1), metformin (see page 2) or both. Possible side effects include: loss of appetite, nausea, vomiting, diarrhea, dizziness, feeling "jittery", headache, & weight loss.

Generic & Brand Names	Dose Range	Special Instructions
Exenatide • Byetta	5 mcg twice a day for the first month, then 10 mcg twice a day.	Take up to 60 minutes before breakfast & dinner (or 2 meals which are at least 6 hours apart). Do not take after the meal. Keep open pen at room temperature and unopened pens in refrigerator. Discard pen after 30 days. If you are also taking birth control pills or antibiotics, take them at least 1 hour before taking Byetta.

3. Pramlintide is a synthetic copy of the human hormone, amylin, which is only used in combination with insulin therapy. Amylin, a hormone normally made by the pancreas, slows stomach emptying,

Generic & Brand Names	Dose Range	Special Instructions
Pramlintide • Symlin	10 units given just before all meals of at least 250 calories and 30 grams of carb. After 3 days on this dose with no nausea, the dose is increased to 20 units.	Can not be mixed with insulin or given within 2" of insulin injection site. Pre meal insulin dose must be cut in half. Inject in abdomen or thigh.