

DIABETES MEDICATIONS

Type of Drug and How it Works	Generic Name	Brand Name	How Is it Taken?	A1C Change	Weight Change	Risk for Hypoglycemia	Consider Before Choosing This Medication
Biguanide							
Lowers the amount of glucose released from the liver. Helps your body absorb and use more glucose.	metformin	Glucophage Glucophage XR, Glumetza, Fortamet, Riomet (liquid)	1 to 2 times a day, with or without food	↓1-2%	None	No	Side effects: Indigestion, diarrhea, nausea. These are more likely to occur with higher doses. Possible risks: Avoid drinking more alcohol than normal. Take with caution if you have kidney or liver problems. Talk with your health care provider if you need an X-ray or CT scan with dye. Your metformin may be stopped for the test. Addition considerations: Recommended as first-line therapy by ADA and AACE. May reduce risk of cardiovascular events and death. Low-cost option.
Sulfonylureas							
Helps the pancreas release more insulin.	glimepiride glipizide glyburide glyburide-micronized	Amaryl Glucotrol and Glucotrol XL Diabeta Glynase	1 to 2 times a day	↓1-2%	Gain (average 2 to 3 pounds)	Yes	Side effects: Hypoglycemia (low blood glucose), weight gain, nausea. Possible risks: Take with caution if you have liver or kidney problems or are 65 years of age or older. Additional considerations: If cost is a major factor.
DPP-4 Inhibitors "Gliptins"							
Helps your body use incretins. These are hormones that make the pancreas release more insulin. Incretins also prevent your liver from making glucose.	sitagliptin saxagliptin linagliptin alogliptin	Januvia Onglyza Tradjenta Nesina	Once a day	↓0.6-1%	None	No	Side effects: Headaches, nose and sinus congestion. Possible risks: May cause pancreatitis (inflammation of the pancreas). Additional considerations: If compelling need to minimize hypoglycemia or concern for side effects.
SGLT2 Inhibitors							
Helps more glucose leave the body in urine. This happens when medication lowers the amount of glucose the kidneys absorb back into the blood.	canagliflozin dapagliflozin empagliflozin ertugliflozin	Invokana Farxiga Jardiance Steglatro	Once a day	↓0.5-1%	Lose (average 1 to 4 pounds)	No	Side effects: Yeast infections and urinary tract infections in women, colds. Possible risks: Take with caution if you are 65 or older or take diuretics (water pills). Does not cause hypoglycemia (low blood glucose). Additional considerations: Proven benefit CVD benefit-reduced cardiovascular events and deaths including HF. Proven to reduce CKD progression and blood pressure.
GLP-1 Receptor Agonists							
Helps you make more insulin when your blood glucose rises. Prevents your liver from making glucose. Slows emptying of food from the stomach. Helps you feel full with meals and decreases your appetite.	exenatide liraglutide exenatide ER dulaglutide Lixisenatide semaglutide	Byetta Victoza Bydureon Trulicity Adlyxin Ozempic Rybelsus	Byetta, 2 times a day Victoza, once a day Adlyxin once daily Rybelsus must be taken in the morning and at least 30 mins apart from medications or food. Others, once a week	↓1-1.5%	Lose (average 3 to 6 pounds)	No	These medications are taken by injection (shot). Side effects: Nausea or diarrhea. This usually gets better after you take the medication for a while. Possible risks: May increase the risk of pancreatitis (inflammation of the pancreas). Additional considerations: Proven CVD benefits include a reduction on ASCVD events and deaths.
Thiazolidinediones (TZD)							
Lowers the amount of glucose made the liver. Helps your muscles and fat use up insulin better.	pioglitazone rosiglitazone	Actos Avandia	Actos, once a day Avandia, 1 to 2 times a day	↓1-2%	Gain (average 2 to 6 pounds)	No	Side effects: Swelling from fluid buildup in the body. Possible risks: May increase the risk of breaking a bone or getting bladder cancer. People with certain heart and liver problems should not take these medications. Does not cause hypoglycemia (low blood glucose). Higher risk of low blood glucose when taken with sulfonylureas or insulin. Additional Considerations: If cost a major factor or if compelling need to reduce risk for hypoglycemia.

	Biosimilar Name	Brand Name	How Fast Does it Start Working?	How Long Will it Lower Blood Glucose?	Consider Before Starting Insulin
Gives your body additional insulin to control blood glucose.	Basal insulin (long-acting): glargine detemir U300 glargine degludec U-100 & U-200 NPH	Lantus, Basaglar Levemir Toujeo Tresiba NPH	glargine – 1 hour detemir – 1 hour U300 glargine – 6 hours degludec – 1 hour	glargine – 24 hours detemir – 24 hours U300 glargine – 36 hours degludec – half-life 25 hours	Insulin is taken by an injection using a pen or syringe and vial. Possible risks: Hypoglycemia (low blood glucose) can occur. Insulin helps lower the amount of glucose in your blood. Insulin lowers A1C.
	Rapid-acting insulin: Lispro, aspart or glulisine Humalog U-200	Humalog, Novolog, or Apidra Humalog U-200 KwikPen	15 minutes	3 to 5 hours	Insulin usually causes weight gain. The amount is different for each person. Human insulin is less expensive than analog insulin.
	Short-acting insulin: Regular	Regular	30 to 60 minutes	5 to 8 hours	Inhaled insulin is taken using a special inhaler into the lungs.
	Pre-mixed insulin: 75/25, 70/30 or 50/50 70% NPH/30% regular	Humalog Mix 75/25, Novolog 70/30, Humalog Mix 50/50, Novolin 70/30 Humulin 70/30	75/25 – 10 to 15 minutes 70/30 – 5 to 15 minutes 50/50 – 10 to 15 minutes 70% NPH/30% regular – 30 to 60 minutes	75/25 – 10 to 16 hours 70/30 – 10 to 16 hours 50/50 – 10 to 16 hours 70% NPH/30% regular – 10 to 16 hours	To use inhaled insulin, you must not smoke or have lung disease. You need a lung function test before starting and every 6 months after.
	Rapid-acting inhaled insulin: (insulin human) Inhalation Powder	Afrezza	10 to 20 minutes	3 hours	

Type of Drug and How it Works	Generic Name	Brand Name	How Is it taken?	A1C change	Weight change	Hypoglycemic Risk	Consider Before Choosing This Medication
GLP-1 Receptor Agonists Combined With Basal Insulin							
Helps you make more insulin when your blood glucose rises. Prevents your liver from making glucose. Slows emptying of food from the stomach. Helps you feel full with meals and decreases your appetite. Gives your body additional insulin to control blood glucose.	Degludec/liraglutide Glargine/lixisenatide	Xultophy 100/3.6 Soliqua 100/33	Once a day by injection	↓1-2%	Yes	Yes	These medications are taken by injection (shot). Side effects: Nausea or diarrhea. This usually gets better after you take the medication for a while. Possible risks: May increase the risk of pancreatitis (inflammation of the pancreas).

- If you are pregnant or plan to get pregnant, talk with your health care provider about your diabetes medications. You should not take certain diabetes medications when you are pregnant.
- There is an increased risk of low blood glucose if any of these medications are taken with alcohol, sulfonylurea medications or insulin.
- If the medications listed in this table are not right for you, talk with your health care provider about trying some of the other, less common drugs that can also lower blood glucose.
- Some of these medications can be combined into one pill and may be prescribed by your health care provider.

Symbols on this table ↑ – Raises, increases ↓ – Lowers, decreases

References: Inzucchi, S.E., et al. (2015). Management of hyperglycemia in type 2 diabetes, 2015: a patient-centered approach. Update to a Position Statement of the American Diabetes Association and the European Association for the Study of Diabetes.

Diabetes Care, 38, 140-149. DOI: 10.2337/dc14-2441, MPR Nurse Practitioners' Edition Winter 2014-2015, 21(4). WWW.globalrph.com, American Diabetes Association
Xultophy PI 11/2016, Soliqua PI 11/2016, Tresiba PI 6/2016