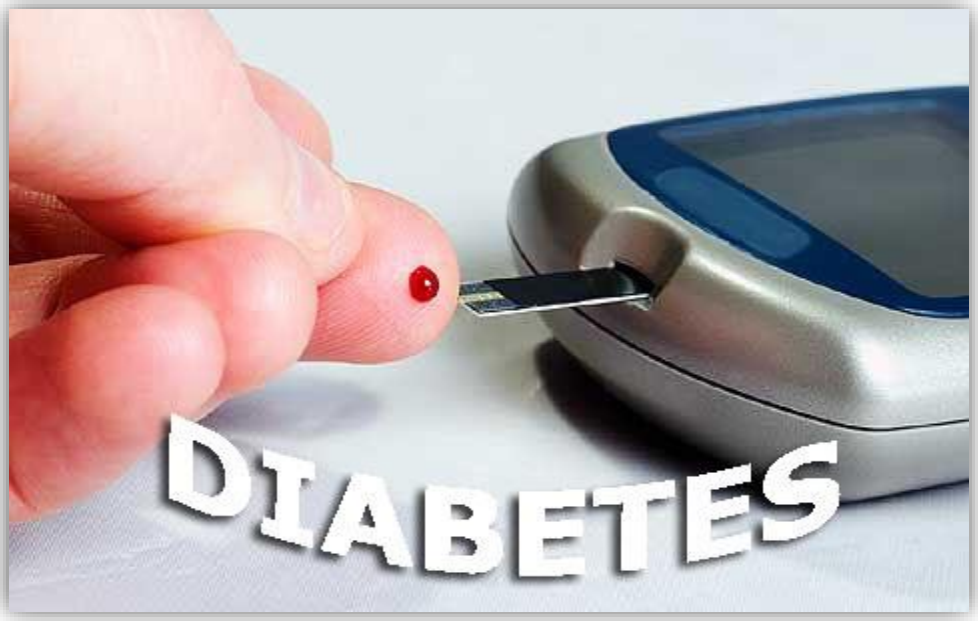


Taking Care of Type 2 Diabetes

What is type 2 diabetes?

Everyone's blood has some glucose (sugar) in it because your body needs glucose for energy. Normally, your body breaks food down into glucose and sends it into your bloodstream. Insulin, a hormone made by your pancreas, helps get the glucose from the blood into the cells to be used for energy. In people with type 2 diabetes, the pancreas doesn't make enough insulin or the insulin doesn't work very well, or both. Without insulin, your blood glucose rises.

How can type 2 diabetes affect me?

Type 2 diabetes sometimes leads to problems such as heart disease, stroke, nerve damage, and kidney or eye problems. But the good news is that keeping blood glucose, blood pressure, and cholesterol on target can help delay or prevent problems.

How is type 2 diabetes managed?

Most of the day-to-day care of diabetes is up to you. Your plan for taking care of your diabetes will include

- choosing what, how much, and when to eat
- including physical activity in your daily routine
- taking medications (if needed) to help you reach your blood glucose, blood pressure, and cholesterol targets

What can I do to take care of my diabetes?

Choose targets for the **ABCs** of diabetes care:

A: your A-1-C check for average blood glucose

B: your blood pressure

C: your cholesterol levels

Work with your **Health Care Team** to make a plan that helps you reach your targets.
Ask your Doctor or your HealthCare Provider about seeing a **Certified Diabetes Educator (CDE),** usually a Nurse. A CDE can provide you with information and knowledge that can help you learn how to best self-manage your condition. Skills like self-monitoring your blood glucose and self-insulin administration can be taught by a CDE.
Keep track of your numbers.
If you're not reaching your targets, change your plan as needed to stay on target.

Your Blood Glucose

Targets established by the American Diabetes Association (ADA) are listed below.
Your personal targets may differ. Talk with your health care team about the best targets for you.
You will check your blood glucose using a blood glucose meter or Continuous Glucose Monitor or Sensor/CGM. The device tells you what your blood glucose is at a particular moment.

ADA Targets for Blood Glucose My Targets

Before meals: *(70mg/dl) 80mg/dl to 130 mg/dl
2 hours after the start of a meal: less than 180 mg/dl

(* According the ADA, lower blood glucose levels =70 mg/dl may be appropriate "normal" for some people)

ADA Target for A-1-C result: Below 7%

My A1C %_____* At least twice a year, your doctor should order an A-1-C check. The results will give your average blood glucose for the past 2 to 3 months.

Your Blood Pressure

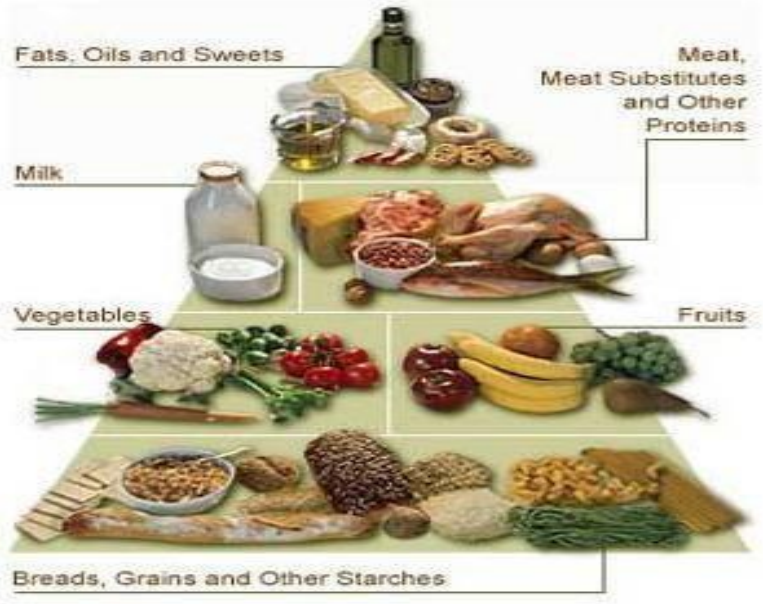
At every office visit, your health care team should check your blood pressure.
ADA Target for Blood Pressure Below 140/90 mmHg

Your Cholesterol/Triglycerides

Every year, your health care team should check your cholesterol and triglyceride levels.

Types	**ADA Targets**
LDL Cholesterol	Below < 70mg/dl (< 55mg/dl if significant heart risk or disease-ASCVD)
HDL Cholesterol	Above 40 mg/dL (for men)
	Above 50 mg/dL (for women)
Triglycerides	Below 150 mg/dL

What do I need to know about meal planning, physical activity and Meal Planning?



Meal Planning

Many people think that having diabetes means you cannot eat your favorite foods. But you can still eat the foods you like. It's the amount that counts. Ask for a referral to see a **Registered Dietitian (RD)** who specializes in diabetes. Together, you will design a personalized meal plan that can help you reach your goals.

• **Count carbohydrates (also called "carbs")**
Carbohydrate foods—bread, tortillas, biscuits, rice, crackers, cereal, fruit, juice, milk, yogurt, potatoes, corn, peas, sweets—raise your blood glucose levels the most. Keeping the amount of carbohydrate in your meals and snacks consistent can help you reach your blood glucose targets.

• **Choose foods low in saturated fat.** Cutting down on foods that have saturated fat can help you lower your cholesterol and prevent heart disease. Foods high in saturated fat include meats, butter, whole milk, cream cheese, lard, shortening, many baked goods, and tropical oils such as palm and coconut oil.

• **Lose weight if needed.** Try to lose weight by cutting back on food portions and increasing your daily activity.

• **Increase the fiber in your diet.** Include high-fiber foods, such as fruits, vegetables, dried beans and peas, oatmeal, and whole grain breads and cereals, in your diet.

Carbohydrate Counting and Diabetes

Why Is Carbohydrate Counting Important?

Counting carbohydrate servings may help you to control your blood glucose level so that you feel better. The balance between the carbohydrates you eat and insulin determines what your blood glucose level will be after eating.
Carbohydrate counting can also help you plan your meals.

Which Foods Have Carbohydrates?

Foods with carbohydrates include:

- Breads, crackers, and cereals
- Pasta, rice, and grains
- Starchy vegetables such as potatoes, corn, and peas
- Beans and legumes
- Milk, soy milk, and yogurt
- Fruits and fruit juices
- Sweets such as cakes, cookies, ice cream, jam, and jelly

Carbohydrate Servings

In diabetes meal planning, 1 serving of a food with carbohydrate has about 15 grams of carbohydrate:

- Check serving sizes with measuring cups and spoons or a food scale.
- Read the Nutrition Facts on food labels to find out how many grams of carbohydrate are in foods you eat.
- The food lists in this handout show portions that have about 15 grams of carbohydrate.

Food Lists for Carbohydrate Counting

1 serving = about 15 grams of carbohydrate

Starches

- 1 slice bread (1 ounce)
- 1 tortilla (6-inch size)
- ¼ large bagel (1 ounce)
- 2 taco shells (5-inch size)
- ½ hamburger or hot dog bun (1 ounce)
- ¾ cup ready-to-eat cereal
- ½ cup cooked cereal
- 1 cup broth-based soup
- 4-6 small crackers
- ⅓ cup pasta or rice (cooked)
- ½ cup beans, peas, corn, sweet potatoes, winter squash, or mashed or boiled potatoes (cooked)
- ¼ large baked potato (3 ounces)
- ¾ ounce pretzels, potato, or tortilla chips
- 3 cups popcorn (popped)

Fruit

- 1 small fresh fruit (4 ounces)
- ½ cup canned fruit
- ¼ cup dried fruit (2 tablespoons)
- 17 small grapes (3 ounces)
- 1 cup melon, berries
- 2 tablespoons raisins
- ½ cup fruit juice

Milk

- 1 cup fat-free or reduced-fat milk
- 1 cup soy milk
- ⅔ cup fat-free yogurt sweetened with sugar-free sweetener (6 ounces)

Sweets and Desserts

- 2-inch square cake (unfrosted)
- 2 small cookies (⅔ ounce)
- ½ cup ice cream or frozen yogurt
- ¼ cup sherbet or sorbet
- 1 tablespoon syrup, jam, jelly, table sugar, or honey
- 2 tablespoons light syrup

Other Foods

- Count 1 cup raw vegetables or ½ cup cooked nonstarchy vegetables as zero carbohydrate servings or “free” foods. If you eat 3 or more servings at one meal, count them as 1 carbohydrate serving.
- Foods that have less than 20 calories in each serving also may be counted as zero carbohydrate servings or “free” foods.
- Count 1 cup of casserole or other mixed foods as 2 carbohydrate servings.

Meal Planning Tips

A meal plan tells you how many carbohydrate servings to eat at your meals and snacks. For many adults, eating 3 to 5 servings of carbohydrate foods at each meal and 1 or 2 carbohydrate servings for each snack works well.

In a healthy daily meal plan, most carbohydrates come from:

- ✓ 5 servings of fruits and vegetables
- ✓ 3 servings of whole grains
- ✓ 2 to 4 servings of milk or milk products

- Check your blood glucose level regularly. It can tell you if you need to adjust the timing of when you eat carbohydrates.
- Eating foods that have fiber, such as whole wheat, and having very few salty foods is good for your health.
- Eat 4 to 6 ounces of meat or other protein foods (such as soybean burgers) each day. Choose low-fat sources of protein, such as lean beef, lean pork, chicken, fish, low-fat cheese, or vegetarian foods such as soy.
- Eat some healthy fats, such as olive oil, canola oil, and nuts.
- Eat very little saturated fats. These unhealthy fats are found in butter, cream, and high-fat meats, such as bacon and sausage.
- Eat very little or no *trans* fats. These unhealthy fats are found in all foods that list "partially hydrogenated" oil as an ingredient.

Label Reading Tips

The Nutrition Facts panel on a label lists the grams of total carbohydrate in 1 standard serving. The standard serving may be larger or smaller than 1 carbohydrate serving.

To figure out how many carbohydrate servings are in the food:

- Look first at the label's standard serving size.
- Then check the total grams of carbohydrate. This is the amount of carbohydrate in 1 standard serving.
- Divide the total grams of carbohydrate by 15. This number equals the number of carbohydrate servings in 1 standard serving. Remember: 1 carbohydrate serving is 15 grams of carbohydrate.
- Note: You may ignore the grams of sugars on the Nutrition Facts panel because they are included in the total grams of carbohydrate.

Sample 1-Day Menu **Total Carbohydrate Servings: 15**

Breakfast 4 servings 1 small banana (1 carbohydrate serving) ¾ cup corn flakes (1 carbohydrate serving) 1 cup fat-free or low-fat milk (1 carbohydrate serving) 1 slice whole-wheat bread (1 carbohydrate serving) 1 teaspoon soft margarine
Lunch 4 servings 2 ounces lean meat (for sandwich) 2 slices whole- wheat bread (2 carbohydrate servings) Raw vegetables: 3-4 carrot sticks, 3-4 celery sticks, 2 lettuce leaves 1 cup fat-free or low-fat milk (1 carbohydrate serving) 1 small apple (1 carbohydrate serving)
Snack 2servings ¼ cup canned apricots (1 carbohydrate serving) ¾ ounce unsalted mini-pretzels (1 carbohydrate serving)
Evening Meal 4 servings 3 ounces lean roast beef ½ large baked potato (2 carbohydrate servings) 1 tablespoon reduced-fat sour cream ½ cup green beans 1 vegetable salad: lettuce, ½ cup raw vegetables, and 1 tablespoon light salad dressing 1 small whole-wheat dinner roll (1 carbohydrate serving) 1 teaspoon soft margarine 1 cup melon balls (1 carbohydrate serving)
Snack 1 serving 6 ounces low-fat fruited yogurt with sugar-free sweetener (1 carbohydrate serving) 2 tablespoons unsalted nuts

Physical Activity

Regular physical activity helps lower your blood glucose, blood pressure, and cholesterol levels. It also keeps your joints flexible, strengthens your heart and bones, tones your muscles, and helps you deal with stress. Your health care team may want to check your heart function before you start doing new activities. They can help you plan what kinds of physical activities are best for you. The different kinds of activities include:

- **Aerobic exercise** Examples: walking, dancing, rowing, swimming, or riding a bicycle— working up to about 30 minutes a day, 5 days a week
- **Strength training** Example: lifting light weights several times a week
- **Stretching** Example: stretching your whole body, especially your arms and legs
- **Being active throughout the day** Examples of exercises/activities that you may be interested in: gardening, walking, swimming, Consider taking the stairs instead of the elevator, or walking around while you talk on the phone— trying to work up to about 30 minutes of activity a day.

A warm up and cool down session is recommended before moderate to intense physical activity.
REMEMBER: Always talk with your doctor before beginning/participating in any/all physical activity. Get your Doctor's permission and/or approval!

Medications

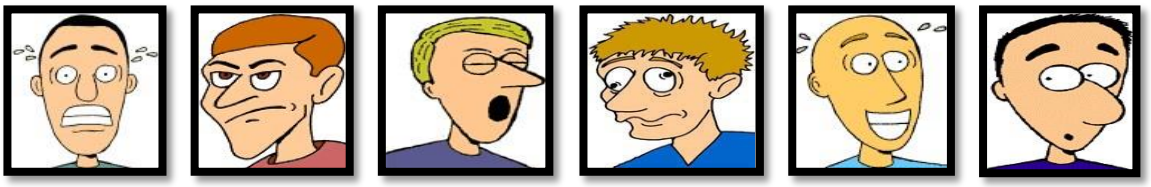
Many people need medications along with meal planning and physical activity to reach their blood glucose, blood pressure, and cholesterol targets. If you've had type 2 diabetes for a while, you may need a change in your diabetes pills to reach your blood glucose targets. If you need insulin shots, it doesn't mean that your diabetes is getting worse. It just means that you need a change in how you reach your target numbers.
If it's difficult for you to reach your target numbers, talk with your health care team about whether medications can help

Hypoglycemia: Low Blood Sugar

If you begin to experience low blood sugars you may feel some of the following symptoms.

Blood Sugars that fall below **70** require immediate treatment. Remember **The Rule of 15.**

Take 15 grams of a fast acting carbohydrate source and wait about 15 minutes to recheck the Blood Glucose Level



Anxious **Irritable** **Tired** **Vision Changes** **Sweating** **Confusion**

What can you do to treat low blood sugars?

1. First you must get sugar into your body very quickly. Choose One below:

½ cup of juice (4 oz.) **1 glass of milk (8 oz.)** **3-5 pieces of Hard candy** **4 oz. Regular Soda (~ 1/3 to ½ can)**

2. Next, you need to eat a small snack that includes protein. Choose One below:

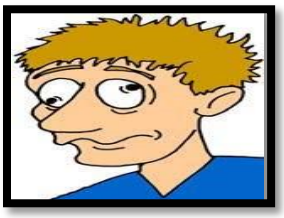
3. Recheck your Blood Sugar in 15 minutes. If it is still below 70, repeat steps #1 and #2.

4. Try to avoid these foods for treatment of low blood sugar: They contain too much fat!

Hyperglycemia: High Blood Sugar

Blood Sugars that are higher than **200mg/dL** may cause long term complications. Symptoms of high blood sugar may include: (You may have one or none of these symptoms)



Extreme Thirst **Frequent Urination** **Always Hungry** **Blurry Vision**





Weight Loss **Wounds** **Impotence** **Numbness** **Infections**
Nausea, Vomiting **Cellulitis** **Low Testosterone** **Tingling, Stabbing** **Vaginal (Yeast),**
Dehydration **Osteomyelitis** **Low Libido** **Burning Pain** **UTIs, Pneumonia**

Common Causes of high blood sugar include: Too much food, too little insulin or diabetes pills, illness or stress.

Onset: Often starts slowly. May lead to a medical emergency if not treated.

What can you do if you blood sugar is too high?

1. Check your blood sugar levels more often. Drink fluids (water is best).
2. Take your insulin or medication as prescribed. Follow your Sick Day Plan
3. Check your urine for ketones if your blood glucose levels are persistently > 250-300 mg/dl
4. Call your doctor if your blood sugars are over 300mg/dl for > 2 consecutive checks
5. Call your Doctor if you have difficulty breathing, chest pain, fever, or diarrhea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Information Series for Adults

What You Need to Know About Diabetes and Adult Vaccines

Each year thousands of adults in the United States get sick from diseases that could be prevented by vaccines — some people are hospitalized, and some even die. People with diabetes (both type 1 and type 2) are at higher risk for serious problems from certain vaccine-preventable diseases. **Getting vaccinated is an important step in staying healthy.**

American Diabetes Association.

Prevent, Protect, and Plan to Stay Healthy with Vaccinations

Immunizations and vaccines protect everyone, especially people living with diabetes.

To stay healthy, follow the three Ps:

1 Prevent illness and complications before they happen.

Diabetes puts you at a higher risk of complications from infections. And those complications can be serious. Vaccinations are a powerful way to protect your health.

Talk to your doctor about which vaccines are right for you. This will be based on factors like your age and health history.

Common vaccines for people with diabetes include:

- Flu
- Pneumococcal
- Hepatitis B
- Tdap (tetanus, diphtheria, pertussis)
- Shingles
- COVID-19
- RSV (respiratory syncytial virus)

2 Protect yourself from getting sick.

Everyday habits can also help you stay healthy and avoid infections, aim to:

- Wash hands often with soap and water.
- Get enough sleep. Aim for 7-9 hours each night.
- Eat healthy foods. Focus on fruits, vegetables, and whole grains, along with foods high in vitamin C, zinc, and vitamin D.
- Stay hydrated by drinking plenty of fluids.
- Be active. Aim for 150 minutes of physical activity each week (try 30 minutes of activity for five days of the week).
- Manage stress.
- Take medications as directed.

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3 Plan ahead for sick days so you are ready.

Being sick can affect your blood glucose (blood sugar), making diabetes harder to manage.

BEFORE YOU GET SICK:

Work with your doctor to create a **Sick Day Action Plan** that includes:

- How often to check your blood glucose
- Whether to adjust insulin or medications
- When to check for ketones
- Which over-the-counter (OTC) medications are safe to use
- How to prevent low blood glucose (hypoglycemia)
- What to eat and how to get fluids if sick with vomiting or diarrhea
- When to call the doctor or go to the emergency room (ER), such as for fever, vomiting, diarrhea, or high blood glucose

BUILD A SICK DAY KIT:

Keep these supplies ready:

- Blood glucose testing supplies and backup batteries
- Seven-day supply of diabetes medications (rotate monthly)
  - Insulin (if prescribed) and needles/pen needles/pump supplies
- Glucose tabs/glucose gels
- Glucagon, if needed (ready-to-use glucagon is preferred)
- Doctor-approved OTC medications
- Ketone test strips
- Thermometer and backup batteries
- Drinks to stay hydrated
- Doctor's contact information and telehealth link

IF YOU GET SICK:

- Keep taking diabetes medications as prescribed unless your doctor advises otherwise
- Stay hydrated and monitor blood glucose frequently
- Call your doctor or go to the ER if symptoms worsen
- If you are at the ER or seeing another doctor, inform them about your diabetes and give them a list of your medications.

Ask your doctor about antiviral treatments.
Early treatment can help keep the illness from getting worse and help you recover faster if you get sick with the flu or COVID-19.

Share your feedback at bit.ly/ada-alert

For more information, visit **diabetes.org/Vaccinations**

Oral Medications

Insulin Secretors: Insulin Producers
Oral Sulfonylurea

How They Work:

These medications help the Pancreas to make more insulin. They also work to help the blood sugar and insulin move into the cells to be used for energy.

Medications:

Chlorpropamide	Diabinase
Glipizide	Glucotrol/ Glucotrol XL
Glyguride	Micronase/ Diabeta/ Glynase Pres Tab
Glimeperide	Amaryl

Side Effects: Low Blood Sugar, Nausea, Vomiting, Constipation, Diarrhea. Tell your Healthcare Provider if you have abnormal weight gain, or puffiness of your hands, feet, or ankles.

Insulin Secretors: Insulin Producers
Meglitinide "Glinides"

How They Work:

These medications help the pancreas to produce more insulin. Take these medications 15 minutes before a meal. They work VERY quickly to lower the blood sugar levels after you eat. These medications are useful for people that cannot predict when they will be eating.

Medications:

Repaglinide	Prandin (DO NOT TAKE IF YOU ARE SKIPPING A MEAL)
Nateglinide	Starlix (DO NOT TAKE IF YOU ARE SKIPPING A MEAL)

Side Effects: Low Blood Sugar, and Flu-like Symptoms.

Insulin Sensitizers: Decreases Insulin Resistance
Biguanide

How It Works:

This medication decreases the release of glucose/sugar from the liver. This medication also helps your body become more sensitive to the insulin that you are already making.

Medications:

Metformin	Glucophage, Riomet (liquid)
Metformin	Glucophage XL (Take with evening meal)

Side Effects: Gastrointestinal issues, including gas, bloating, nausea, stomach pain, vomiting and diarrhea. Loss of appetite and weigh loss are common. A frequent reported taste disturbance-metallic taste in mouth. Potential for Vitamin B12 deficiency, headache and weakness, fatigue. Serious S/E- Severe belly pain, leg, muscle cramps or trouble breathing

Oral Medications

Insulin Sensitizers: Decreases Insulin Resistance Thiazolidinedione (TZD) "Glitazones"

How it Works:

These medications decrease the release of glucose/sugar from the liver. These medications also help your body become more sensitive to the insulin that you are already making.

Medications:

Pioglitazone ——— Actos
Rosiglitazone ——— Avandia

Side Effects: Cold-like symptoms or headache. Weight gain or a risk of fluid build-up (edema) in the extremities or lungs. Risk for heart failure-new or worsening development. Report shortness of breath or swelling right away. Risk for bone fracture, anemia, macular edema, liver damage, and potential bladder cancer.
Contraindicated use in heart failure or liver disease

Alpha-Glucosidase Inhibitors: Gut Inhibitors

How They Work:

These medications work in the intestines. They slow down the breakdown of certain starches and sugars. Take with your first bite of food.

Medications:

Miglitol ——— Glyset
Acarbose ——— Precose

Side Effects: Gas and diarrhea are the most common side effects. If you are taking an additional pill for your diabetes, Which may cause low blood sugars, treat the low blood sugar with a quick fix, like glucose tablets.

Dipeptidyl Peptidase 4; DPP4 Inhibitors "Gliptins"

How They Work:

These medications prevent the breakdown of GLP-1 (glucagon-like-peptide-1) which increase satiety (satisfaction with eating; feeling satisfied with food; feeling full), decreases glucagon and boosts insulin. When glucose is in the bloodstream, these medications will increase insulin secretion after meals and stop glucose release from the liver. DPP4 inhibitors slow gastric (stomach) emptying, which makes your stomach feel fuller.

Medications:

SitagliptIn ——— Januvia
SaxagliptIn ——— Onglyza
LinagliptIn ——— Tradjenta
AlloglIptIn ——— Nesina, Vipidia
Vildagliptin (approved in Europe)

Side Effects: Most common are cold-like symptoms, upper respiratory symptoms-nasopharyngitis, sore throat, headaches, nausea, diarrhea, weight loss, and joint pain.
Rare, but serious S/E-pancreatitis

Oral Medications

Sodium-glucose cotransporter-2 inhibitors SGLT-2 Inhibitors:

How They Work: These pills work by inhibiting the SGLT2 protein in the kidneys, causing excess blood sugar in the kidneys to be spilled into the urine when blood glucose levels go up. Glucose reabsorption in the kidney is blocked which reduces the blood sugar level and in turn, helps to reduce the blood pressure level. This can produce weight loss in some patients. SGLT-2s help slow down kidney disease and reduce cardiovascular death

Medications:

Canagliflozin → Invokana **Empagliflozin → Jardiance**

Dapagliflozin → Farxiga **Ertugliflozin → Steglatro**

Side Effects: Urinary tract infections, yeast infections, genital mycotic infections. Risk for dehydration. Decreased blood pressure. Weight loss. Increased Low Density Lipoprotein. Not approved for Type 1 use because of potential DKA; Diabetic Ketoacidosis (euglycemia DKA-euDKA in Type2)-normal blood sugar DKA; nausea, vomiting, dehydration

Combination Pills

How They Work: These pills combine two different types of diabetes medications and will work according to what pills are combined.

Medications

Glucovance — Metformin and Glyburide

Metaglip — Metformin and Glipizide

ACTOPlus Met — Metformin and Actos

Avandamet — Metformin and Avandia

Avandaryl — Avandia and Amaryl

Janumet — Januvia and Metformin

Janumet XR — Sitagliptin and Metformin

Jentadueto — Metformin and Linaglipton

Synjardy — Metformin and Empagliflozin

Synjardy XR — Empagliflozin and Metformin XR

Xigduo XR — Metformin and Dapagliflozin

Invokamet — Metformin and Canagliflozin

Kombiglyze XR — Metformin and Saxaglipton

Kazano — Metformin and Aloglipton

Glyxambi — Empagliflozin and Linagliptin

Oseni — Alogliptin and Pioglitazone

Side Effects: See side effects for each medication in the combination listed above.

Newest COMBO Medications

How They Work: These pills combine two different types of diabetes medications and will work according to what pills are combined.

Trijardy XR → Empagliflozin and Linagliptin and Metformin XR *(3 medications)

Qtern → Saxagliptin and Dapagliflozin

Segluromet → Ertugliflozin and Metformin

Steglujan → Ertugliflozin and Sitagliptin

Side Effects: See side effects for each medication in the combination listed above

Medications: Injections (noninsulin)

Glucagon Like Peptide 1 (GLP-1) Inhibitors

How They Work: When Glucose, or sugar, is in the bloodstream, these medications tell the pancreas to release insulin. They also stop the release of glucose from the liver, and slow down gastric (stomach) emptying, which makes you feel fuller.

Medications: GLP-1 for Diabetes

Exanitide	**Byetta, Bydureon**	**Dulaglutide**	**Trulicity**
Liraglutide	**Victoza**	**Albiglutide**	**Tanzeum**
Symlin	**Pramlintide**	**Semaglutide**	**Ozempic**

Side Effects: Nausea and vomiting, headache, decreased appetite, weight loss, stomach pain.

GLP-1 Inhibitors for Weight Loss

To help improve glycemic control in adults Ozempic(semaglutide) and Mounjaro (terzepatide) Officially FDA approved for use in Type 2 diabetes, not specifically for weight loss**

Off label prescription use: Ozempic(semaglutide) and Mounjaro (terzepatide)

Saxenda (Liraglutide)-Once daily injection. Weight loss of 5-10% body weight

Wegovy (semaglutide)-Once weekly injection. Weight loss of 5-15% body weight

Zepbound (tirzepatide)-Once weekly injection. Weight loss of 10-25% body weight

Terzepatide is the first"twincretin", a dual agonist for GLP-1 AND GIP receptors. This combination slows digestion, suppresses appetite, and promotes feelings of fullness after eating which helps in weight reduction

Chronic Weight Management: Zepbound (terzepatide) Indicated for adults with obesity or those who are overweight with at least one weight-related condition, such as hypertension or high cholesterol.

Side Effects: Nausea and vomiting, headache, decreased appetite, weight loss, stomach pain

Medications

ORAL GLP-1 Inhibitor

Medication: Rybelsus (Oral Semaglutide)

How this medication works: When Glucose, or sugar, is in the bloodstream, these medications tell the pancreas to release insulin. They also stop the release of glucose from the liver, and slow down gastric (stomach) emptying, which makes you feel fuller.

RYBELSUS® (semaglutide) 7 mg or 14 mg used along with diet and exercise to improve blood sugar (glucose) in adults with type 2 diabetes. RYBELSUS® is not for use in people with type 1 diabetes

RYBELSUS® is not recommended as the first choice of medicine for treating diabetes

It is not known if **RYBELSUS®** can be used in people who have had pancreatitis

It is not known if **RYBELSUS®** is safe and effective for use in children under 18 years of age

Side Effects: Nausea and vomiting, headache, decreased appetite, weight loss, stomach pain.

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Use this chart only if your Healthcare Provider has prescribed sliding scale insulin

Sliding Scale Insulin Administration

Check Your Blood Sugar before:

□ Breakfast

□ Lunch

□ Supper

□ Bedtime

The amount of Insulin that you give is based on how high your Blood Sugar is when you check it.

Blood Sugar Reading:	Amount of Insulin to Give:
0-70 mg/dL	**Treat for a LOW Blood Sugar Reading!**
71-150 mg/dL	No Insulin
151-200 mg/dL	2 units Insulin
201-250 mg/dL	4 units Insulin
251-300 mg/dL	6 units Insulin
301-350 mg/dL	8 units Insulin
351-400 mg/dL	10 units Insulin
Greater than 400 mg/dL	12 units and CALL THE DOCTOR

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Transplant Sliding Scale Insulin Administration

Use this chart only if your Healthcare Provider has prescribed sliding scale insulin

Insulin Name: _____

Check Your Blood Sugar before:

□ Breakfast

□ Lunch

□ Supper

□ Bedtime

The amount of Insulin that you give is based on how high your Blood Sugar is when you check it.

Blood Sugar Reading:	Amount of Insulin to Give:
0-70 mg/dL	**Treat for a LOW blood sugar!**
71-160 mg/dL	No Insulin
161-180 mg/dL	2 units Insulin
181-200 mg/dL	4 units Insulin
201-240 mg/dL	6 units Insulin
241-280 mg/dL	8 units Insulin
281-360 mg/dL	10 units Insulin
361-400 mg/dL	12 units Insulin
Greater than 400 mg/dL	14 units Insulin and CALL THE DOCTOR

Sliding Scale for Insulin Administration

Use this chart if your doctor has prescribed sliding scale insulin.

Check your blood sugar before:

☐**Breakfast** ☐**Lunch** ☐**Supper** ☐ **Bedtime**

If your blood sugar is high, give yourself a shot. Look at the chart below to know how much insulin to give when your blood sugar is _____ or higher.

If your blood sugar is:	Breakfast	Lunch	Supper	Bedtime
0-70 mg/dL	**Treat for a LOW blood sugar!**			

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Insulin Products

Insulin ACTION	Brand Name	Generic Name	When it Starts to Work	How Long it Lasts	Comments
Very Rapid Acting	Aspart Lispro-aabc Aspart-szjj	(Fiasp) (Lyumjev) (Merilog)	2.5 min 1 min	~ 3-5 hours ~ 4-5 hours	Bolus insulin lowers after-meal glucose
Rapid Acting	HumaLOG® NovoLOG® Apidra® Admelog®	Lispro Aspart Glulisine Lispro	15 minutes 30 minutes 15 minutes	3-4 hours 3-5 hours 2-4 hours	Administer 15 minutes before or immediately after meals. Solution is clear and colorless.
Short Acting	Humulin R® NovoLIN R®	Regular Insulin	30 minutes-1 hour	3-6 hours	Give Insulin 30 minutes to 60 minutes before meals. Solution is clear and colorless.
Intermediate Acting	HumuLIN N® NovoLIN N®	NPH	2-4 hours	10-16 hours	Cloudy Solution. Give injection 30-60 minutes before meals. Mix thoroughly before injecting.
Long Acting **Ultra Long-Acting**	Lantus®, Basaglar® Toujeo® *Levemir® ***Levemir** was discontinued in the US effective as of December 31, 2024. Call Novo Nordisk Customer Care Center at **800-727-6500** with questions Tresiba®	Glargine (U-100) Glargine (U-300) Detemir Degludec (U-100) (U-200)	4 hours	18-24 hours 42 hours	Do not mix with any other insulins. Clear solution. May give regardless of mealtimes. Toujeo® and Tresiba® pens are more concentrated & **should not be drawn up into a syringe.** Type 1 or 2 Children (1+ or older) and adults
Mixtures	HumuLIN 50/50® HumuLIN 70/30® NovoLIN 70/30® ReliOn 70/30® (Walmart brand)	50% NPH and 50% Regular Insulin 70% NPH and 30% Regular Insulin	30 minutes	16-24 hours	These are combinations of intermediate acting NPH insulin and short acting Regular Insulin. Give 30 minutes before meals. Cloudy solution. DO NOT MIX with other insulins. Thoroughly mix before drawing up and injecting.

Insulin ACTION	Brand Name	Generic Name	When it Starts to Work	How Long it Lasts	Comments
Mixtures Analogs	HumuLOG 50/50®	50% Lispro Protamine and 50% Lispro	15 minutes	16-18 hours	Give 15 minutes before meals. Cloudy solution. DO NOT MIX with other insulins. Thoroughly mix before drawing up and injecting.
	HumuLOG 75/25®	75% Lispro Protamine and 25% Lispro	15 minutes	16-18 hours	Give 15 minutes before meals. Cloudy solution. DO NOT MIX with other insulins. Thoroughly mix before drawing up and injecting.
	NovoLOG 70/30®	70% Aspart Protamine and 30% Aspart	15 minutes	16-18 hours	Give 15 minutes before meals. Cloudy solution. DO NOT MIX with other insulins. Thoroughly mix before drawing up and injecting.
	Ryzodeg® 70/30	70% Degludec and 30% Aspart	15 minutes	24 hours	Give 15 minutes before a meal. DO NOT MIX with other insulins.
Long-Acting Biosimilar Insulin	Semglee® (glargine-yfgn) Rezvoglar® (glargine-aglr)	Insulin glargine	2-4 hours “Peak-less”	24 hours	This biosimilar insulin is used once daily in children (6+ years) and adults with Type 1 or Type 2 diabetes. As a substitutable alternative to Lantus. Administered once a day. Designed to be a lower cost option.

Methodist Le Bonheur Healthcare

Important Facts About Insulin

- Store unused insulin in the refrigerator until the expiration date on the side of the package.
- Insulin vials stored at room temperature, whether they are open or unopened, are good for about 28 days, with the exception of *Levemir, which is good for 42 days, and Tresiba, which is good for 56 days.

(***Levemir** was discontinued in the US effective as of December 31, 2024. Call Novo Nordisk Customer Care Center at **800-727-6500** with questions)

  - Tresiba U-200 is available only in FlexTouch® pen; max 160 units/injection. There is no dose conversion between U-100 and U-200 pens
- If using an insulin pen, be aware that some insulins are more concentrated than others and **SHOULD NOT be drawn up into a syringe.**
- Once opened, Insulin is good for about 28 days at room temperature, with the exception of insulin pens (see package inserts).
- Do not store opened insulin pens in the refrigerator.
- Never store insulin pens with needles attached.
- When storing prefilled syringes, store with needle pointing up (prefilling syringes with Lantus not recommended).
- Insulin pens with cloudy insulin are good for about 7-14 days once in use.
- Never freeze insulin. Never expose insulin to heat, direct sunlight, or temperature extremes.
- Inspect insulin before using. Dispose if it does not look like it should.
- Long-acting biosimilar insulins should not be mixed with any other insulins or used in insulin pumps.
- Dispose of sharps in an approved sharps container.
- If blood sugars are not being controlled as well as they were, make sure you are not using old or damaged insulin.
- Thoroughly, but gently, mix all cloudy insulin prior to drawing up. DO NOT SHAKE!
- Ask your doctor before mixing any insulin.
- Eating a healthy, balanced diet will help your insulin control your blood glucose better and avoid highs and lows.

Resources for Diabetes Education

Web Resources

NovoCare® is a registered trademark and novoMEDLINK™ is a trademark of Novo Nordisk A/S.

https://www.novomedlink.com/diabetes/patient-support/disease-education/library.html

- **http://www.novomedlink.com/diabetes/patient-support/diseaseeducation/library/diabetes-and-your-heart.html**
- **http://www.novomedlink.com/diabetes/patient-support/diseaseeducation/library/how-type-2-diabetes-can-change-over-time.html**
- **http://www.novomedlink.com/diabetes/patient-support/diseaseeducation/library/what-to-expect-when-you-inject.html**
- **http://www.novomedlink.com/diabetes/patient-support/diseaseeducation/library/the-basics-of-healthy-eating.html**
- **http://www.novomedlink.com/diabetes/patient-support/diseaseeducation/library/connecting-with-a-diabetes-health-coach.html**

https://www.novocare.com/diabetes/home.html

Church Health Center On-line Diabetes Health Care Video Series: **https://churchhealth.org/diabetesclass/**

Blood Glucose Tracker **https://careclinic.io/blood-sugar-tracker/**

Pharmacology DRUGS FOR DIABETES (MADE EASY)
https://www.youtube.com/watch?v=LWDQyaKVols

Insulin Assistance Program https://diabetes.org/tools-resources/affordable-insulin

Insulin Pen Teaching:

Lantus **https://www.lantus.com/using-lantus/using-the-solostar-pen**
https://www.lantus.com/how-to-use/how-to-inject ○

Toujeo **https://www.toujeo.com/starting-on-toujeo**
https://www.sanofipatientconnection.com/

Semglee https://insulinglargineyfgn.com/

Novolog Flex Pen **https://youtu.be/8g4rEhOukmM**

Fiasp **https://www.novocare.com/diabetes/products/fiasp.html**

NovoPen Echo
https://www.novocare.com/diabetes/products/novopenecho.html

Lilly KwikPen: for injecting Humalog, Humalog Mix 25 and Humalog Mix 50
https://www.youtube.com/watch?v=Q86xxuh2V2g

Tresiba® (insulin degludec - injection) 100 U/mL, 200 U/mL
https://www.tresiba.com/tresiba-flextouch/using-tresiba-flextouch.html

GlucaGen (Glucagon Emergency Training Kit):

Baqsimi https://www.baqsimi.com/what-is-baqsimi/

GVOKE Hypo Pen @ **https://youtu.be/9RxvgQjFwl4** **https://youtu.be/A9BwCV67PUE**

Mounjaro **https://mounjaro.lilly.com/what-is-mounjaro**

Ozempic **https://www.novocare.com/diabetes/products/ozempic.html**

Victoza **https://www.novocare.com/diabetes/products/victoza.html**

Rybelsus **https://www.novocare.com/diabetes/products/rybelsus.html**