



Insulin Basics



Starting insulin

Using insulin
effectively

Table of contents

Facts about insulin.....	page 3 – 4
Benefits of insulin.....	page 5 – 6
Healthy balance for diabetes.....	page 7 – 8
When people with type 2 diabetes need insulin.....	page 9 – 10
What should your blood sugar be?.....	page 11 – 12
Drawing up insulin.....	page 13 – 14
Using insulin pens.....	page 15 – 16
Low blood sugars.....	page 17 – 20
Healthy plate.....	page 21
Carbohydrates.....	page 22
Food portions and your blood sugar.....	page 23
Protein and vegetables.....	page 24
Insulin for when you're <i>not</i> eating.....	page 25 – 26
Insulin for meals.....	page 27 – 28
Action plan.....	page 29

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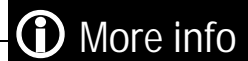
Facts about insulin

- Insulin is natural. Our own bodies make insulin.
- Insulin controls blood sugar.
- High blood sugars can damage the eyes, kidneys and nerves.
- If your body doesn't make enough insulin, insulin can be given by injection.
- Insulin injections don't hurt.
- Many people with type 2 diabetes need insulin injections.
- Insulin can prevent complications from diabetes.
- Most people start with one insulin injection a day.
- Sometimes people need more than one injection a day.



See back for more info ►

Common worries about insulin



I'm afraid of needles.

Giving an insulin shot hurts a lot less than checking your blood sugar. Short needles make it even less painful. Most people who try a practice shot don't feel any pain.

I'm worried I'll need insulin forever.

Most people with type 2 diabetes will need insulin because the body makes less and less insulin over time. You may need insulin shots when your body can't make enough insulin.

If I ate better or exercised more, I wouldn't need insulin.

Doing your best with healthy eating habits and exercise is always important. But, little by little your body loses its ability to make insulin. How quickly or slowly this happens to you depends on a combination of your genetics and your lifestyle. Don't blame yourself. You didn't fail—your body is not making enough insulin.

I feel fine. Why do I need insulin?

You may feel OK but high blood sugars can quietly damage your eyes, kidneys, nerves and heart. When your blood sugars or A1C are high, insulin can help lower your blood sugars to a safer level.

I'm afraid my life will change completely.

You've probably already changed how you eat and exercise since you found out you have diabetes. You probably have also started taking diabetes pills to stay healthy. Insulin can also help control your blood sugars but doesn't have to change your life completely. Most people start with one insulin injection a day. You can do more when you're ready.

I've heard that insulin causes blindness and amputations and can lead to dialysis.

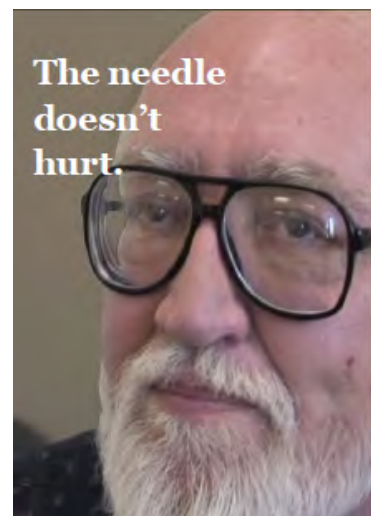
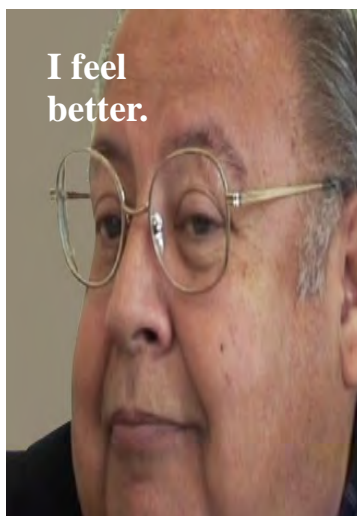
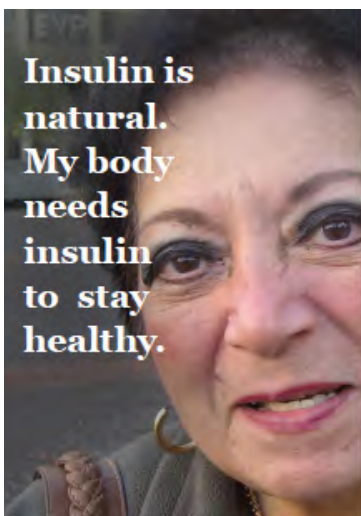
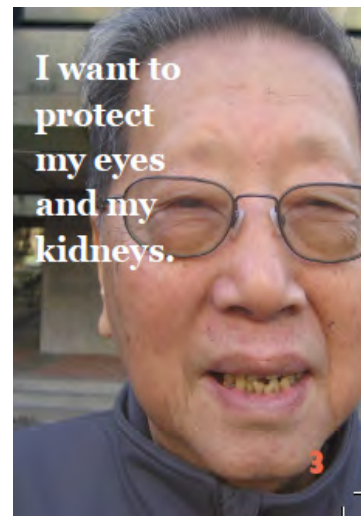
Actually, it's the high blood sugars, not insulin, that damage the eyes, feet and kidneys. Insulin is a natural hormone that lowers your blood sugar and prevents these problems.

I'm afraid insulin will make my blood sugar go too low.

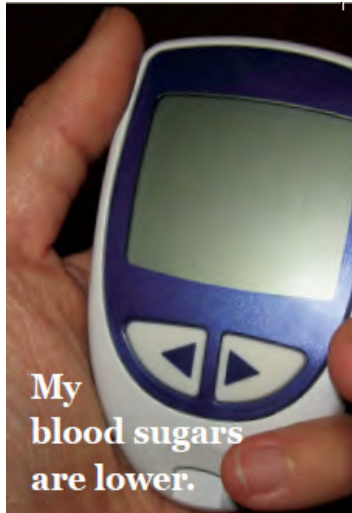
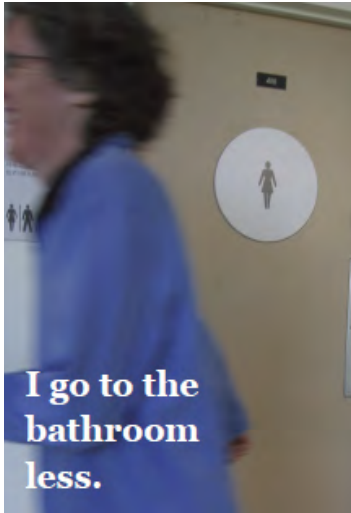
Blood sugars that are too low or too high aren't good for you. Even some diabetes pills can cause low blood sugars if you take too much or at the wrong time. You can learn to use insulin safely and effectively.

The benefits of insulin are worth it

It's normal to feel nervous about insulin in the beginning. You're not alone. But many people with type 2 diabetes take insulin. They find the benefits are worth it. These are their experiences.



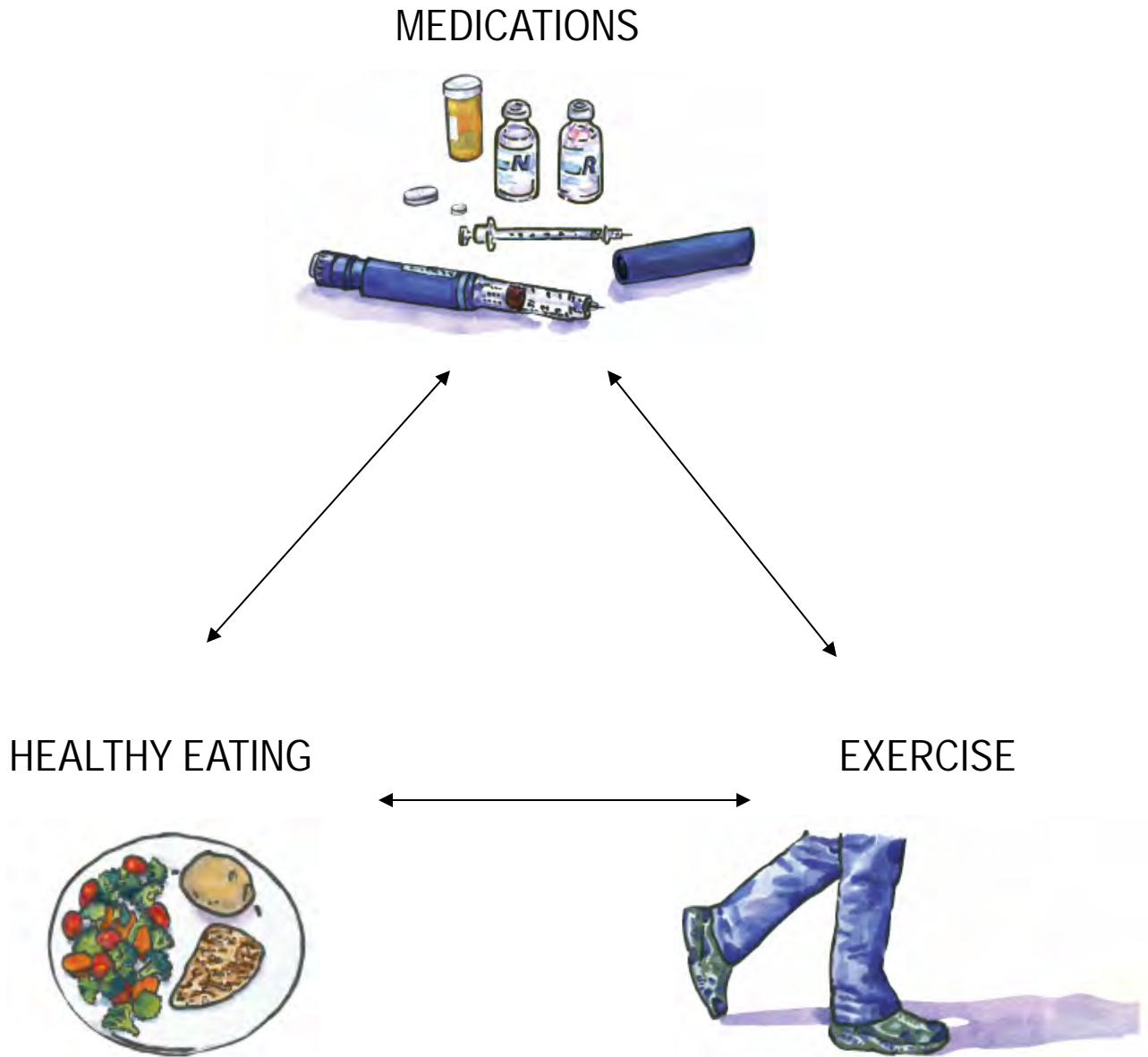
The benefits of insulin are worth it



How might insulin help you?

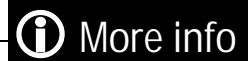
Healthy balance for diabetes

Taking medications, eating healthy and exercising are all important.



See back for more info ▶

Healthy balance for diabetes



Medications

Talk to your provider about which diabetes pills are right for you. Many people with type 2 diabetes also need insulin to keep blood sugars from going too high.

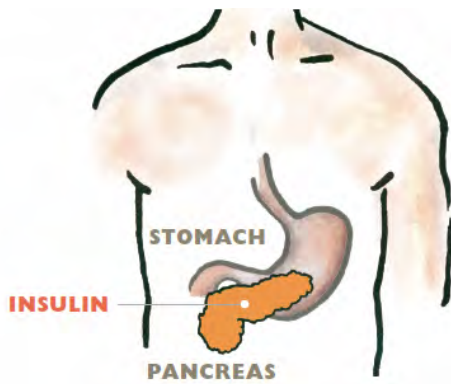
Healthy eating

People with diabetes don't need special foods. Paying attention to portions of starchy foods is most important. See pages 21-24 for more information.

Exercise

Being active, moving your body and exercising help your body use insulin better. It also helps with losing weight, feeling better, and lowering blood pressure.

When people with type 2 diabetes need insulin



- In the past, your pancreas made insulin on its own to keep your blood sugars normal.



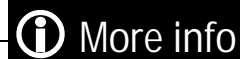
- When you have type 2 diabetes, your pancreas makes less and less insulin over time.
- When your blood sugars go up, it means your body is not making enough insulin on its own.



- Injecting insulin replaces the natural insulin that is missing.
- Taking insulin injections can control your blood sugars.

See back for more info ▶

Common questions about insulin



Why can't I just continue taking my diabetes pills?

Some diabetes pills tell your pancreas to make more insulin. If your pancreas can't make insulin anymore, these pills won't work. If your blood sugars are high during the day or after eating, this might mean some of your diabetes medications aren't working.

Why are my morning sugars always high?

There are many reasons for high blood sugars in the morning. The most common reason is that diabetes tricks the liver into making too much sugar when it's not supposed to. Taking insulin at bedtime can stop the liver from making too much sugar. Bedtime insulin helps lower the morning blood sugar.

Is there an insulin pill?

Insulin is not made as pills because it would be destroyed by the acid in your stomach. Insulin only comes as an injection at this time.

It's not natural to take insulin.

Everyone needs insulin, and it is a natural part of our bodies. Insulin was discovered in the 1920s. Insulin has been life-saving for people with diabetes.

If I lose weight, maybe I won't need insulin?

Being overweight makes your body "resistant" to insulin. The good news is that losing a little weight can help. But, your body still might not make enough insulin. Giving insulin shots can help if your body just needs more insulin.

What should your blood sugar be?

- The A1C blood test is your average blood sugar over the last 3 months.
- Keeping your A1C level under 7% is the best way to protect your eyes, kidneys and nerves in your feet.
- Talk to your provider about what your A1C goal should be.
- If your A1C is too high, insulin may help bring your blood sugars down.

Goal for most people:

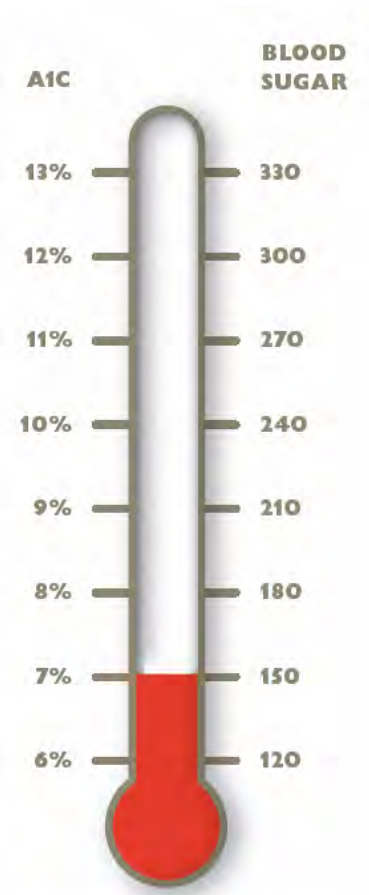
A1C under 7%

Blood sugar 80-130 before meals

Blood sugar under 180 two hours after meals

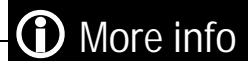
Your A1C _____

Where do you want to be? _____



See back for more info ►

Common questions about blood sugars



My A1C is high but I feel fine. I don't feel sick.

Diabetes is tricky. You might feel fine but high blood sugars can quietly cause damage in your body over time. That's why it's important to look at your blood sugar levels and A1C. Insulin can help bring your blood sugars back to goal.

My morning blood sugars are fine.

It's great you're checking your sugars in the morning. Starting the day off at the right level helps. But if your A1C is high, it means that there are probably other times during the day when your sugar is higher. Testing before other meals or 2 hours after meals can tell which medicines will work best for you.

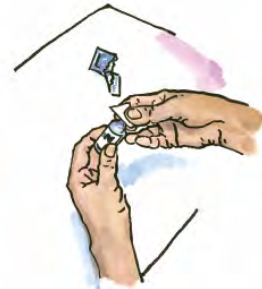
Drawing up insulin



1. Wash your hands.



2. (Cloudy insulin only) Roll bottle between your hands.



3. Wipe top with alcohol.



4. Put air in syringe.



5. Put air in bottle.



6. Pull out insulin.



7. Put needle straight in.



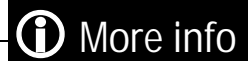
8. Push plunger down. Count to 6. Remove needle.



9. Throw needle away safely.

See back for more info ►

Tips on using insulin everyday



Where should I inject insulin?

If you use a long-acting slow insulin like NPH or glargine (Lantus) insulin, you can use the back of your arm, thigh or abdomen. For a short-acting fast insulin like Regular or aspart (Novolog) before meals, you should only inject in the abdomen. Don't inject yourself in the same place everyday.

How do I store insulin?

The insulin bottle that you've already opened does not have to be refrigerated. Keep the opened bottle in its original box at room temperature. Don't let the opened bottle sit under sunlight or heat. If the pharmacy gives you extra bottles that aren't opened yet, keep them in the refrigerator. Never freeze insulin.

How long can I use insulin?

An insulin bottle that is open and in-use may be kept at room temperature for up to 1 month.

I'm not sure I'm drawing insulin out correctly.

If you're having problems holding the bottle of insulin, or you can't see the lines on your syringe, talk to your provider. There might be ways to make using insulin easier for you.

How do I use insulin away from home?

Carry your insulin with you, just like you would carry your wallet or cell phone. If you use insulin at bedtime, pack it with your toothbrush when you spend the night somewhere else. If you use insulin at mealtimes, bring it in your purse, bag or pocket. At restaurants, people often inject their insulin in the bathroom, or even at the table.

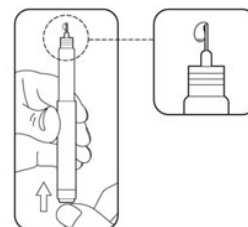
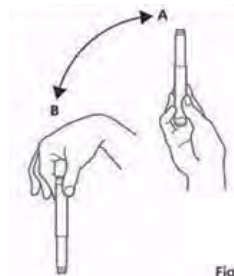
Can I travel with insulin?

People with diabetes are allowed to bring their glucose meters, medicine bottles and any insulin supplies with them when traveling. You should take your diabetes supplies with you in your carry-on bag. Don't check them in your luggage in case they are lost or get too cold. Carry insulin and medications in their original boxes/bottles with the prescription label.

Using an Insulin Pen

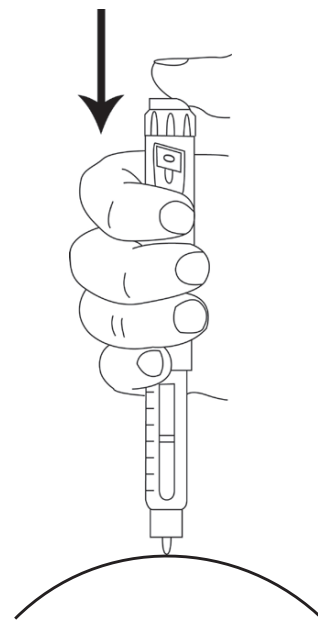
Get ready:

1. Wash your hands.
2. Take the pen cap off .
3. For cloudy insulin only: Roll the pen between your hands and tip it back and forth to mix.
4. Remove paper cover from pen needle. Screw pen needle onto the pen. Take off the outer & inner caps.
5. Dial to 2. Point the needle straight up. Press the button so that drops of insulin come out the needle. If no insulin comes out, repeat this step.
6. Make sure the dial is back at 0.



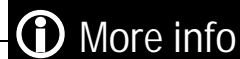
Injecting the insulin:

1. Turn the dial until you reach your insulin dose.
2. Put the needle straight in.
3. Press down the button all the way. The dial should be back at 0.
4. Count to 10, then take the needle out.
5. Unscrew the needle and throw it away safely.



See back for more info ►

Tips on using insulin pens



Read page 14 for tips on using insulin since these tips are also useful for insulin pens.

Some more tips:

Can I leave the pen needle on?

It's best to take the needle off after each injection. If the needle is kept on, air can enter the insulin pen.

I notice insulin leaking out after I inject. What should I do?

Be sure to count to 10 before removing the needle. This is because insulin is still coming out after the dial goes back to 0. If you notice leaking, hold the needle in longer the next time and try injecting at a different site. Let your provider know if you still notice insulin leaking.

How do I know if there's enough left for my dose?

If the dial won't turn, you'll know it's time for a new pen.

How long can I use my pen?

Insulin pens can usually be kept at room temperature for 2 weeks to 1 month, depending on the type of insulin. Ask your pharmacist or clinic how long you can keep your pen at room temperature. Always store extra unopened pens in the fridge (never store insulin in the freezer). Don't let your pen sit under sunlight or heat.

Can I share my pen with someone else?

Never share insulin pens, even if it's a new needle.

Low Blood Sugar

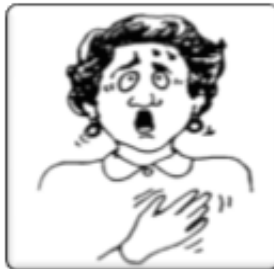
Some diabetes medication can put you at risk for low blood sugar.
Ask your provider about the medication you take.

How do you know if your blood sugar is too low?

You may feel...



Very hungry



Heart beating fast



Dizzy/shaky



Headache

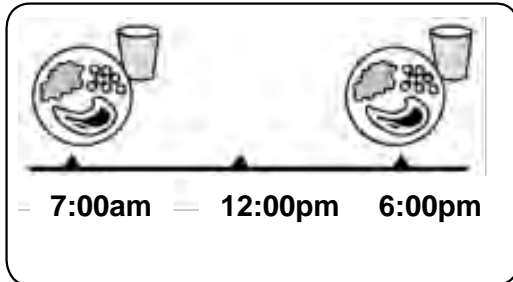


Sweaty



Confused

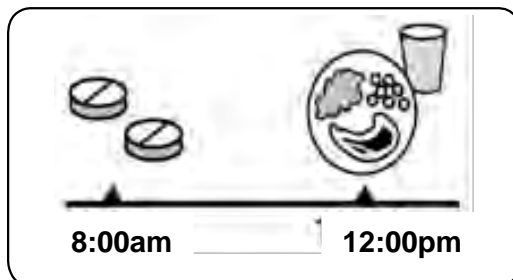
What causes low blood sugar?



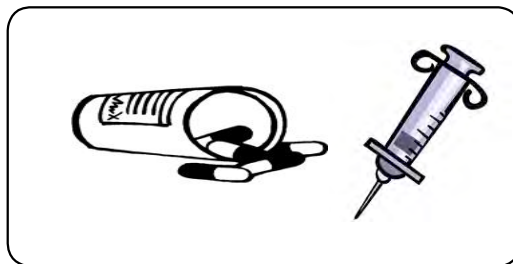
Skipping meals



Long periods of exercise
with no snack



Delaying meals too long
after taking diabetes
medicine



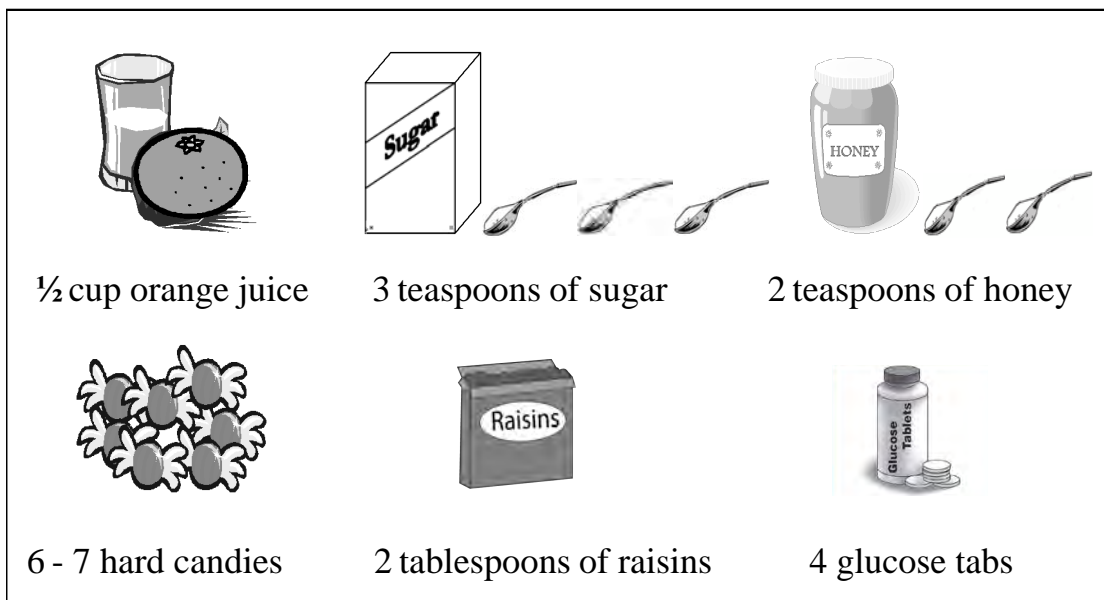
Too much insulin or
diabetes medication

What should you do for low blood sugar?

DON'T IGNORE LOW BLOOD SUGAR!

If you do not treat low blood sugar, you may pass out or have seizures. Act quickly - treat these symptoms without delay!

☞ Drink or eat 10-15 grams of sugar such as:



☞ If you do not feel better in 15 minutes, repeat the treatment.

☞ Check your blood sugar if you have a glucometer.
Less than 80 is too low!

☎ Call your clinic if you continue to have trouble.

Low Blood Sugar: Helpful Hints



Carry or wear diabetic identification.



Always carry something with sugar or starch.



Teach your family and friends to give you juice or sugar when you feel that your blood sugar is low.



Drive only if your blood sugar level is above 100.

Teach your family and friends what to do if you pass out and cannot wake up:



Call 911 for help.



Do not give food or liquids to someone who is passed out.


Healthy plate

- People with diabetes don't need to buy special or expensive foods.
- Eating healthy **portions** of food is most important.
- Balance your meal with carbohydrates, protein and vegetables.



See back for more info ▶

Carbohydrates

 More info

- Carbohydrates are the sugars and starches in food.
- Carbohydrates affect your blood sugar the most.
- Eat small portions of carbohydrates.

Examples of some carbohydrates

Grains	Starchy vegetables and fruit	Dairy	Sweets
Rice Noodles Bread Tortillas Crackers	Potatoes Corn Peas Beans Fruit	Milk Yogurt Ice cream (but not cheese or cottage cheese)	Cakes Cookies Regular soda Juice Sweetened drinks



Keep the portion of starchy food the size of your fist, or less, or $\frac{1}{4}$ of your plate.



Eat 2 - 3 small servings of fruit each day.



Up to 2 cups of milk or soy milk per day is OK.
Choose fat-free or 1% milk or yogurt.

Food portions and your blood sugar



- Your blood sugar might go up too much.




- Healthy portions for diabetes.



- Your blood sugar might go down too much.

Protein and vegetables

 More info



Vegetables

Eat lots of colorful vegetables.
Fill half your plate with non-starchy vegetables.

Starch

Keep the portion the size of your fist, or less, or $\frac{1}{4}$ of your plate.

Protein

Choose lean protein:

Chicken without the skin

Pork or beef without the fat

3-4 eggs per week

Fish and other seafood

Cheese and cottage cheese (fat-free or low-fat)

Tofu

Keep the portion the size of your palm, 3-4 oz, or $\frac{1}{4}$ of your plate

Healthy eating tips:

- Eat protein, vegetables and carbohydrates at every main meal.
- Try to eat the same amounts from day to day.
- Don't skip meals.
- Eat less fried food, cheese, butter, oil and desserts if you're trying to lose weight.
- People with diabetes don't have to buy special or expensive foods.
- Drink water, coffee, tea or diet drinks. Avoid regular sodas and juices.

Insulin for when you're *not* eating

Your body uses blood sugar for energy. You get blood sugar from two places:


- From the **food** you eat, especially carbohydrates
- From your **liver**, which stores sugar and releases it into the body when you're not eating

Long-acting slow insulin controls blood sugars when you're not eating.

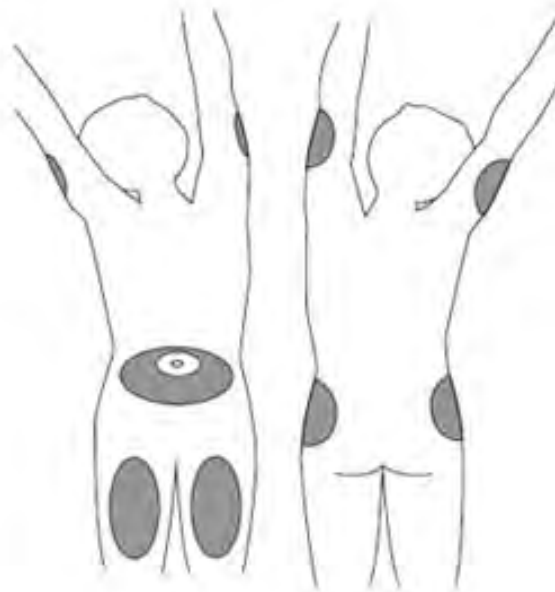


See back for more info ▶

Tips for using bedtime insulin

 More info

- Diabetes tricks your liver into making too much sugar.
- You might wake up in the morning with a high sugar even though you were sleeping all night and didn't eat.
- Taking a long-acting slow insulin at bedtime can help your blood sugar the next morning.
- The morning blood sugar helps you to know how much bedtime insulin you need.
- Long-acting insulin is injected only into your fat tissue. You can inject in the back of your arms, in your abdomen, or in your thighs:



Insulin for meals



Short-acting fast insulin controls blood sugars when you eat.

- When you eat, your blood sugars go up.
- Before you had diabetes, your body naturally made enough insulin to bring the blood sugar back down to normal after eating.
- You may need a short-acting fast insulin that works with meals to bring your blood sugar back to normal.

EATING WITHOUT FAST INSULIN



EATING WITH FAST INSULIN




FAST INSULIN WITHOUT FOOD



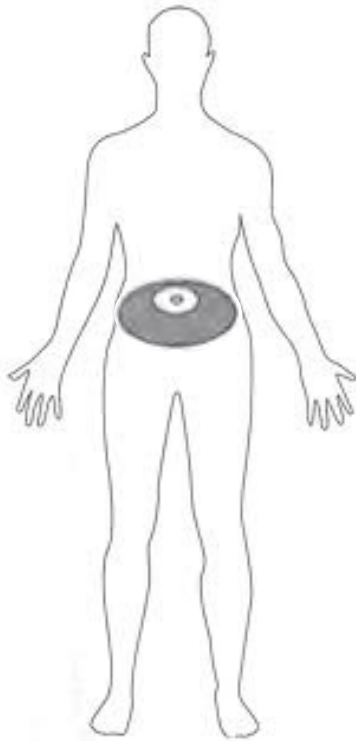
See back for more info ►

Tips for using insulin for meals

 More info

Tips

- The amount of fast acting insulin you need balances the amount of carbohydrates that you eat.
- Mealtime insulin works quickly but only lasts for one meal.
- If you use Regular insulin, inject half an hour before your meal.
- If you use aspart (Novolog) or lispro (Humalog) insulin, inject 5-15 minutes before your meal.
- The best place to inject fast acting insulin is in the fat tissue of your abdomen:



Action plan

Are there any other changes you want to make to stay healthy?

- Reduce stress
- Be physically active or exercise
- Take medications regularly
- Stop smoking
- Check blood sugars at _____
- Eat healthy foods
- Learn to handle diabetes in different situations

For questions, contact: _____