

## Diabetes: Importance of Exercise

### Why is exercise important?

Exercise helps keep your blood sugar under control. Many of the people with the best controlled diabetes are those who exercise regularly. Exercise helps in the following ways:

- ✓ **Exercise helps your body burn more sugar.** Insulin is more effective during exercise. More sugar and insulin flows in the blood to the muscles during exercise. As a result, your body burns more sugar. Exercise usually helps lower the blood sugar.
- ✓ **Exercise makes you feel better.** You will have more energy and tire less easily. Studies have shown that exercise can make you feel healthier and happier by helping you keep normal levels of the brain hormones that affect your mood.
- ✓ **Exercise helps keep the body in good shape.** Exercise helps you burn extra calories. If you are overweight, it can help you lose weight and keep a normal weight. It also keeps your muscles and bones strong.
- ✓ **Exercise helps keep the heart rate and blood pressure lower.** People who exercise have healthier hearts. Their hearts don't have to pump as hard. Normal blood pressure helps prevent strokes and heart, eye, and kidney problems.
- ✓ **Exercise helps keep blood fat levels normal.** Many people with diabetes have high levels of blood fats (cholesterol and triglycerides). High blood fats can lead to early aging of blood vessels. Exercise and a healthy diet are the best ways to keep blood fats low.
- ✓ **Exercise helps normal blood flow to the feet.** Exercise can help you keep good blood flow to your feet. This can help prevent foot problems.

Exercise is particularly important if you have type 2 diabetes. Regular exercise and a careful diet can be an effective way to lower blood sugar if you have type 2 diabetes. (People who have type 1 diabetes need insulin to control their blood sugar.) If you don't have diabetes but are at risk for type 2, you may be able to cut your risk by more than half if you keep a normal weight, choose healthy foods, and exercise regularly.

### How do I get started?

- Make sure you discuss plans for a new exercise program with your healthcare provider before you start.
- It is always best to start a new exercise program slowly. Slowly increase how long and how much you exercise.
- If you are taking insulin or other diabetes medicines, ask your provider about checking your sugars and adjusting your dose of insulin before and after exercise.
- Make exercise a daily routine.
- Protect your feet when you exercise. Wear good-fitting shoes and smooth-fitting socks. Check your feet every day and watch for blisters, warm areas or redness. If you have any kind of sore on your foot, see your healthcare provider right away.

## **Which kinds of exercise are best?**

The best exercise is exercise you enjoy. It is easier to form a habit of exercising if you enjoy the activity. Some of the exercise should be aerobic because it helps the heart. Aerobic exercise makes you breathe faster and more deeply. It uses your large muscles, like your legs and arms, and gets your heart beating faster. Some examples are walking, jogging, swimming, and bicycling, including exercycles. Ask your healthcare provider which exercises and what maximum pulse rate are best for you.

Activities done in short bursts with rests in between (such as weight lifting) are strength-building exercises, not aerobic exercise.

People with diabetes can play almost every sport. Boxing is the only activity that is discouraged. This is because eye injuries are common in boxing, and eye problems are a possible complication of diabetes. Also, the high risk of brain damage makes boxing dangerous for anyone.

Strenuous activities, such as weight lifting and jogging, are discouraged if you have severe eye problems related to diabetes because they increase the pressure in the eyes. If you have eye problems, make sure you talk to your healthcare provider before you start a new activity.

## **When should I exercise?**

The best time to exercise depends on your schedule. If you are taking insulin or other diabetes medicines that can lower blood sugar, you need to take precautions against your blood sugar getting too low when you exercise. Think ahead and make changes in your snacks and doses of insulin or other diabetes medicine to help prevent low blood sugar. Try to pick a regular exercise time and adjust your snacks and medicine dose to fit the exercise. If you are just starting an exercise program, don't exercise too long. Check your blood sugar after 15 minutes and, whether you're still exercising or finished, again at 30 minutes.

## **How often and long should I exercise?**

Ask your healthcare provider to prescribe a plan for starting an exercise program. It should include the type of exercise, how long you should exercise, and how often.

To help your heart stay healthy, it is good to have at least 30 minutes of aerobic exercise 5 or more times a week. The more exercise you get, the more fat you will burn. If weight loss is one of your goals, you may need to exercise harder or for a longer time to reach your goal.

Start each exercise activity with a warm-up. Do something for 5 to 10 minutes that slowly increases your heart rate, such as walking. Gently stretch your muscles before and after exercise to help prevent cramps and stiffness. Finish your exercise with a cool-down by slowing your activity for 5 to 10 minutes before you stop.

## **When should I not exercise?**

If you have type 1 diabetes, you should avoid vigorous physical activity when your urine or blood test is positive for ketones. If your urine ketone level is high or moderate, exercise can raise your ketone level even more. Check your urine for ketones before exercising if you are not feeling well or your blood sugar is staying higher than 240 milligrams per deciliter (mg/dL), or about 13 millimoles per liter (mmol/L). You can usually still exercise when your blood sugar is high as long as you feel well and there are no ketones in your blood or urine.

Avoid exercising when it is very hot or very cold. Ask your healthcare provider if there are other times when you should not exercise—for example, when you feel ill or have a fever.

## How can I prevent low blood sugar reactions during exercise?

A low blood sugar (hypoglycemia) could happen during or after exercise. There are several ways to manage your blood sugar and exercise:

- ✓ Plan to exercise after a light, high-protein snack.
- ✓ Exercise after a meal, but wait at least 30 minutes after you have eaten so you can digest your food first.
- ✓ Reduce your insulin dose before exercise.
- ✓ Take extra snacks with you to help prevent low blood sugar during your exercise.

You will need some practice with adjusting the amount of food you eat before exercise, how long you wait before exercising, and how much you decrease your doses of insulin or other diabetes medicine. You will need to keep good records so you can see what works best. Take these records to your visits with your healthcare provider so you can get help making adjustments.

Here are some things that might help.

- Often the best time to exercise is 1 to 3 hours after eating a meal.
- Check your blood sugar before and after exercise. You may need to eat a carb snack (that is at least 15 grams of carbohydrate) before exercise if your blood sugar is less than 100 mg/dL (5.5 mmol/L). Test your blood sugar 15 to 30 minutes later. Your provider may recommend that you not exercise until your blood sugar is higher than 100 mg/dL (5.5 mmol/L). Your blood sugar may keep being lower than usual for several hours after exercise. Until you learn how your body is reacting to a new exercise program, you should check your blood sugar more often than usual until bedtime, just to be sure it's not getting too low.
- Avoid exercising when insulin is working at peak level, which means it is keeping your blood sugar at its lowest level. Your provider can tell you when your type of insulin is at its peak.
- Learn how your blood sugar responds to different exercise conditions.
- Know what to do if your blood sugar is low or gets low when you are exercising.
- **Always** carry a source of sugar, plus a longer lasting snack of some carbohydrate and protein, for example, nuts, peanut butter, or cheese and crackers.

Remember, it is wise to **think ahead** about the day's schedule and plan accordingly. Be sure to ask your healthcare provider if you have any questions about managing your blood sugar levels, your doses of insulin or other diabetes medicines, and the timing of your exercise.

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