

Exercising with Type 2 Diabetes



About 24 million Americans have type 2 diabetes. Almost 79 million Americans are at risk of developing it! What is diabetes? Body tissues that use and store blood sugar for energy (muscles and fat cells) need insulin to allow the blood sugar to enter. When those tissues aren't sensitive enough to the insulin, sugar stays in the blood. High levels of blood sugar when you have not eaten for a long time is a major characteristic of diabetes.



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Losing body fat makes fat cells more sensitive to insulin. Exercise also improves the sensitivity of muscle cells to insulin. Since 80 percent of people with type 2 diabetes are overweight or obese, losing weight and fat through diet and exercise are important treatments for controlling blood sugar levels. They also decrease the risk of developing cardiovascular diseases and help prevent type 2 diabetes.

If you have type 2 diabetes, regular physical activity will help you control your blood sugar levels and manage your weight. Exercise allows your body to respond better to insulin by helping your muscles and fat cells take sugar out of the blood. It could even reduce your need for medicine. The most important thing; no matter your weight or weight loss, regular exercise will improve your health.

How much exercise do you need? The most health benefit comes when inactive people become moderately active. Try to work up to 150 minutes of brisk walking a week. Making exercise a regular part of your life can have a major impact on your health.

The key is to choose activities you enjoy. Then, you will want to continue so you can control your blood sugar levels.

Evidence suggests both aerobic and muscle-strengthening exercise programs help. So try to do both. If you are just starting out, do more aerobic exercise. Over time, add resistance workouts. Doing both types will bring even more benefits for your blood sugar levels and overall health and fitness.

Getting Started

- Talk with your doctor before you start an exercise program. Ask about any changes to your medications or any concerns in becoming more active.
- Take all medicines prescribed by your doctor.
- Although exercise is important in managing your diabetes, you may need to make changes to your diet, too.
- Start by exercising on your own. Begin walking or another form of activity that you can integrate into your daily routine.
- Invite others to join you. Exercising together is more fun and increases the chance you will continue. Dogs also make great walking partners!
- Look for programs available in your community. Consider contacting an appropriately credentialed exercise professional* to help you. All you really need, though, is a good pair of shoes to get started walking.
- Use a pedometer or other activity tracker to monitor your progress. Slowly work toward a goal, like maybe 10,000 steps per day.

Aerobic Exercise Programs

The American College of Sports Medicine and the Centers for Disease Control and Prevention recommend at least 150 minutes per week of moderate-intensity aerobic activity, 75 minutes of vigorous aerobic activity, or a combination of both for adults. They also suggest twice-a-week muscle strengthening. Follow the FITT principle to design and implement a safe, effective, and enjoyable program. F = frequency, I = intensity, T = time, and T = type (Pescatello et al., 2013).

- Frequency – Be active on most days of the week but at least three to four days. Work up to five days a week. Research shows that moderate to vigorous exercise makes muscle and fat cells sensitive to insulin for up to 48 hours. With that in mind, try to exercise at least every other day for improved control of your blood sugar.
- Intensity – Exercise at a moderate level. Use the “talk test” to help you monitor. For example, even though you may notice a slight rise in your heart rate and breathing, you should be able to carry on a conversation while walking at a moderate pace. As you walk faster, you will begin to breathe faster and have difficulty talking. At that point, you’ve achieved moderate intensity or “somewhat hard.” Vigorous exercise causes a large rise in heart rate and breathing. At this intensity it would become difficult to talk. Most people would rate this as “hard to very hard.”
- Time – Exercise 30-60 minutes per day. You can do it all at once or break it up into a few sessions of at least 10 minutes each.
- Type – Do rhythmic exercises using the large muscle groups. Try brisk walking, cycling, and swimming. Choose activities you enjoy and will do regularly in your new, more active lifestyle. Add variety depending on the day or the season to keep your program more enjoyable.

Aerobic Exercise Cautions

- If you have been inactive for a long time, start with short sessions (ten to 15 minutes). Add five minutes to each session, increasing every two to four weeks. Gradually build up to being active 30 minutes a day for most days of the week.
- If you exercise at a high intensity, you will not be able to exercise for a long time. That means you will use less total energy. Also, you have a higher risk of injury.
- Drink plenty of fluids before, during, and after exercise. Be careful not to overdo it! Extra weight makes it easier for the body to overheat.

Resistance Exercise Programs

Evidence suggests that moderate- to vigorous-intensity resistance training is a good addition to your exercise program. Not only does it improve your blood sugar control, it helps increase or maintain muscle mass. Resistance training also improves your ability to function and promotes good health. Follow the FITT principal when creating a resistance exercise program, too.

- Frequency – Do resistance training at least two days per week. Plan a day of rest between sessions.
- Intensity – Exercise at a moderate level. If you can lift a weight 10 to 15 times, you’ve achieved moderate intensity. You get to high intensity when you can lift a weight only eight to 10

times. Remember, you aren’t training to be a weight lifter. Your goal is to improve your strength and muscle endurance so your daily activities will be less stressful.

- Time – This will depend on the number of exercises you do.
- Type – Exercise all major muscle groups using either free weights or a machine. There is no difference between the two methods. Don’t belong to a gym or health club? No problem. You can do the same exercises at home using lighter weights, resistance bands, or your body weight as the resistance, like push-ups or sit-ups.

Resistance Exercise Cautions

- Avoid holding your breath when lifting. This can cause large changes in blood pressure. That change may increase the risk of passing out or developing abnormal heart rhythms. This is especially true if you also have high blood pressure.
- If you have joint problems or other health problems, do only one set for all major muscle groups. Start with 10 to 15 repetitions. Build up to 15 to 20 repetitions before you add another set.

Other Types of Exercise

- For blood sugar control, research suggests strongly that a combination of aerobic and resistance training done three to four days a week is better than either form of training alone. If you also are trying to lose weight, aerobic exercise on most days of the week is still important.
- Yoga and Tai-chi also can be good for you. These exercises improve strength and flexibility. They also can help you relax. However, whether they will help you control your blood sugar is not clear. More research is needed.

Design your exercise program for maximum benefit and minimum risk to your health and physical condition. Consider reaching out to an appropriately credentialed exercise professional* to work with you and your doctor. Together, you can establish realistic goals and design a safe, effective, and enjoyable program.

For more information, visit www.exerciseismedicine.org or e-mail eim@acsm.org.

Pescatello, L., Arena, R., Riebe, D., & Thompson, P. (2013). General Principles of Exercise Prescription. In ACSM's Guidelines for Exercise Testing and Prescription (9th ed., pp. 166-177). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

*A listing of exercise professionals can be found at www.usreps.org and EIM Credentialed professionals can be found through the ACSM ProFinder (<http://bit.ly/1Mq6ldN>).

Referral Instructions