

Motion Complications (Canadian Edition)

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Diabetes can cause both short-term and long-term health complications, and you need to know how to avoid some and exercise safely with others.

Particularly if you're just getting started, your physician or exercise professional should help you develop an exercise prescription with careful consideration of your diabetes control, complications, and other health problems; risk factors for cardiovascular disease; personal goals; and exercise preferences.

Hypoglycemia: If your blood glucose is below 3.9 mmol/L, you may need to delay starting exercise until it rises a bit higher (either from eating carbs or on its own). The only exception is if you are going to be doing high-intensity training or a competition that is likely to raise your blood glucose levels by itself. If you have already had a low in the prior 24 hours, your body's hormonal response to exercise is also likely to be blunted, which increases your risk of having another hypo reaction related to being active.

Hyperglycemia: Before you start working out, check your blood glucose first. You shouldn't exercise if it's above 13.9 mmol/L and you have moderate or higher levels of ketones (measured in urine or blood), which start building up in your bloodstream when your body is insulin-deficient (mostly in people with type 1 diabetes with inadequate insulin dosing), or your glucose levels can go even higher. You can exercise with it above 16.7 mmol/L without ketones as long as you use caution, though. Delay exercise when you aren't feeling well, whether you have a cold or an infection, until you feel better.

Heart disease: If you have been diagnosed with heart disease, you should still participate regularly in both cardio and resistance training. Just start out at a low level and progress slowly. If you want to do vigorous activities, you will need to have a stress test done since people with diabetes can experience reduced blood flow to their hearts without getting symptoms. If you normally have some chest pain during exercise, keep your heart rate at least 10 beats per minute below where the pain starts. Carry nitroglycerin with you, if prescribed by your cardiologist, and use as instructed for chest pain.

High blood pressure: Avoid vigorous activity, heavy weightlifting and holding your breath when exercising. If your systolic blood pressure (the higher number) is above 200 mmHg or your diastolic pressure (the lower one) is above 110 mmHg, avoid exercising until your numbers are lower. Blood pressure medications should help keep your pressures lower during activities.

Peripheral vascular disease: If you experience pain in your lower legs when you exercise, it may be due to clogged arteries in your calves that reduce the oxygen supply to your active muscles. Using pain as your guide, engage in easy or moderate walking, and take rest periods as needed. Walking will actually improve the blood flow to your feet, even if you have some blockage.

Arthritis/joint issues: Doing moderate amounts of aerobic activity that is weight-bearing (like walking) will actually improve arthritis pain in hips and knees. You may also want to spend more time doing water activities, though, as your added buoyancy takes the strain off painful joints so you can move them more fluidly. While swimming is an excellent activity, engaging in aquatic classes (like water aerobics) in either shallow or deep water is also challenging and beneficial and improve joint mobility, overall strength, and aerobic fitness all at the same time. Most resistance and many aerobic exercises can also be done seated.

Peripheral neuropathy: If you've lost some feeling in your feet, include more non-weight-bearing activities, such as swimming, water aerobics (using water shoes) or stationary cycling, into your exercise routine to reduce stress on your feet. Inspect your feet daily for sores, blisters, irritation, cuts or other injuries that could develop into ulcers. If you can't see the bottoms of your feet, place a mirror on the floor and hold your feet over it to inspect them. It's okay to walk as long as any ulcers are fully healed, but keep your feet clean and dry, avoid swimming, and stay off your feet if you have an infection or unhealed ulcer on your feet. Wear good-fitting and supportive shoes and socks that keep dampness to a minimum. Work on flexibility and balance to prevent falls, which are more common if you lose sensation in your feet.

Central nerve damage (autonomic neuropathy): If you have autonomic neuropathy, you should probably have your doctor check your heart's responses before starting an exercise program. Check your blood glucose before and after exercise as you're more likely to develop a low and avoid activities with rapid postural changes (like racquetball) as your blood pressure may not respond normally and you could faint. Don't exercise in extreme hot or cold weather if you can avoid it since you may also not be able to regulate your body temperature well and stay hydrated by drinking fluids during exercise.

Eye diseases (like proliferative retinopathy): Ideally, you should be having a dilated eye exam by an ophthalmologist at least once a year and before you start strenuous exercise. If you have been diagnosed with any diabetic retinopathy, avoid heavy weightlifting or holding your breath during exercise. If you have proliferative retinopathy (abnormal vessels in the back of your eyes, which increase your risk for hemorrhages) that is unstable, avoid doing heavy resistance exercise, running, racket sports, head down activities, jumping, jarring activities, heavy lifting, or any activity that elevates your blood pressure a lot. Never exercise with an active eye hemorrhage. It's also recommended that you let your eye doctor know about your exercise routine to find out if you should modify it based on the results of your latest eye exam. Over time, after your retinopathy stabilizes, you can return to doing most activities safely. If you have

any vision loss from any eye problems, choose activities that are safer or rely on a sighted guide.

Kidney disease (nephropathy): If you have developed problems with your kidneys due to diabetes, be forewarned that you may have a reduced capacity to exercise. It's okay to be active but start out by doing low to moderate activities instead of anything strenuous. You can exercise safely daily, though, even during dialysis sessions if you have to do those and have the chance to exercise during them.

Caution: If you've been mostly sedentary, start with mild or moderate exercise and progress slowly to prevent potential problems with complications. Brisk walking and other mild and moderate activities are usually safe to start on your own, but if you want to do vigorous activities, it's recommended that you see your health care provider first to get medical clearance and to be checked for complications that could be worsened by being in motion.

Disclaimer: *The information that is provided does not replace your relationship with your doctor. The information is for your general use, so be sure to talk to a qualified healthcare professional before making medical decisions or if you have questions about your health.*