Exercise and Type 2 Diabetes

The incidence of type 2 diabetes is on the rise, which experts largely attribute to the rise in obesity. Type 2 diabetes, which is responsible for 90 to 95% of all diabetes cases, is more common in adults, but as rates of childhood obesity increase, more young children are being diagnosed with the disease. The good news is that simple lifestyle changes can prevent and, in some cases, counter the course of this disease.

Type 2 Diabetes Explained

Following digestion, a hormone called insulin is released into the blood from the pancreas. Among insulin's primary roles is its ability to allow carbohydrates (absorbed in the form of glucose) and proteins to enter muscle cells, where they are stored or used for energy. With type 2 diabetes, some insulin is produced, but the body does not effectively use it. This condition is known as "insulin resistance" and prohibits glucose from entering the cells. In turn, blood glucose rises to abnormal levels in the blood. If unchecked for extended periods, elevated glucose levels lead to heart disease, kidney failure, blindness and nerve dysfunction.

Type 2 diabetes is strongly linked to lifestyle factors, especially diet and exercise. People at highest risk of developing type 2 diabetes have a family history, as well as other cardiovascular risk factors, such as high blood pressure, high cholesterol, obesity and a sedentary lifestyle. However, the same techniques that are used for prevention of this disease—a healthy diet and regular exercise—can be used to control and possibly reverse its progression.

Exercise Can Help

The latest research has put exercise at the forefront in the prevention, control and treatment of diabetes because it decreases insulin resistance. Following regular exercise training, cells can better respond to insulin and effectively take glucose out of the blood and into the cell. Exercise also helps to decrease the risk of cardiovascular disease by decreasing blood pressure, cholesterol levels and body fat.

Exercise Recommendations

If you have type 2 diabetes, you should adhere to the following exercise guidelines:

- Always consult with your physician before starting any exercise program to determine the potential risks associated with exercise.
- Cardiovascular exercise—Strive to accumulate a minimum of 1,000 kcal expended through physical activity each week. Pending current conditioning levels, this may require three to seven days per week of low-to-moderate intensity exercise for 20 to 60 minutes (walking and other non-weightbearing activities such as water aerobics and cycling are good choices). Daily exercise is highly recommended.
- Resistance training—Perform resistance-training activities at least two days per week, targeting the major muscle groups. Complete a minimum of one set of 10 to 15 repetitions of each exercise at a low-to-moderate intensity.
- Flexibility—Perform stretching exercises at least two to three days per week, stretching major muscle groups to the point of tension (not pain) for 15 to 30 seconds. Complete two to four repetitions of each stretch.

The ultimate goal is to expend a minimum of 1,000 calories per week via physical activity for health benefits, or 2,000 calories per week for weight loss. Keep in mind that these are goals that you should work up to gradually over time.

What are the precautions?

If you have type 2 diabetes, you must monitor your glucose before and after exercise to understand how you respond to certain types of activities. Also, exercising with a partner and wearing an ID bracelet indicating one's diabetic condition are very important.

Finally, don't forget to check with your physician prior to beginning a physical-activity program and return regularly to assess the diabetic complications. If complications of the eyes, kidney or heart are present, your physician should provide you with clear boundaries regarding the intensity of any physical activity.

Additional Resources

American Diabetes Association—Exercise: www.diabetes.org/weightloss-and-exercise/exercise/overview.jsp/
Centers for Disease Control—Exercise and Diabetes: www.cdc.gov/diabetes/faq/exercise.htm/
Mayo Clinic—Diabetes and Exercise: www.mayo_clinic.com/health/diabetes-and-exercise/DA00036/