

Exercise May Reduce the Complications of Diabetes

Exercise is a critical piece of a healthy lifestyle, however those who suffer from diabetes may see an even greater impact, according to a study published in the January/February 2010 issue of *Sports Health: A Multidisciplinary Approach*. Authors confirm that exercise can aid in diabetes treatment by improving glucose metabolism and insulin sensitivity.

When a healthy individual eats a meal, the pancreas produces insulin. This insulin helps the body store and use the glucose, or sugar, present in the food for energy and everyday activities. A body affected by diabetes either does not create enough insulin or does not properly use the insulin produced. When insulin release and glucose levels are not balanced, either high or low blood sugar can result.

This is where exercise can help. "During exercise, insulin is suppressed to allow more glucose to be released from the liver, but, it also makes the muscle cells more sensitive to insulin, allowing for a more efficient use of the glucose," explains Karl B. Fields, MD, an author of the study and a physician at the Family Practice Center at Moses Cone Hospital.

There are two types of individuals affected by diabetes: Type 1 individuals are typically thin and are affected by diabetes at a young age. In these individuals diabetes is caused by an autoimmune process that destroys insulin-producing beta cells in the pancreas.

Type 2 individuals are more commonly overweight adults, though the disease has become more prevalent in younger age groups due to obesity. Type 2 diabetes is caused by insulin resistance and relative insulin deficiency. The study notes that each group can benefit from exercise, however, it is important for a diabetic athlete to consult with a physician before beginning an exercise program to assess any needed adjustments to insulin intake.

Diabetic athletes should meet with their physician regularly to assess glycemic control. Their physician will establish a baseline hemoglobin A1c. Type 1 diabetics with a baseline level higher than nine percent should not participate in vigorous exercise until the baseline control is improved. Type 2 who have a poorly controlled baseline levels should begin an exercise program with low intensity, increasing intensity as control levels are improved," advises Fields. In individuals without diabetes, the baseline level is typically less than six percent.

The study provides some other recommendations for athletes with diabetes. These include:

- Aerobic exercise five days a week (a minimum of 150 minutes a week)
- Resistance training three days a week
- Consumption of a carbohydrate-rich meal before exercise (insulin-dependent diabetic)
- Blood glucose monitoring before, during, and after exercise

Diabetic individuals can also improve their health by smoking cessation, blood pressure control, and lipid management. "It is very important that an individual suffering from diabetes take progressive steps in creating a healthy lifestyle; changes to diet and physical routine can make a significant impact in diabetes treatment. But, in order for the changes to be beneficial, they have to be long-term," Fields adds.

Source:

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