

# Glucose and Diabetics

Dr. Jason Barker

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### Key Points

- Diabetics must closely monitor the amount of simple carbohydrates consumed, along with the dose of medication and exercise
- Gatorade sports drink contains a moderate amount of simple carbohydrates; a diabetic with well-controlled blood sugar is able to safely consume it
- Hydration and fuel replacement are important for exercising diabetics

People with diabetes are able to enjoy a regular, and even competitive, exercise program much like other athletes. In general, exercise will lower blood sugar levels in everyone, including diabetics; however, diabetics have specific challenges with exercise and maintaining their blood sugar levels.

A diabetic is typically unable to absorb sugar from the bloodstream, necessitating certain medications (such as insulin or oral hypoglycemic agents) and strict dietary adjustments. Because of this, a diabetic must be extra vigilant about their blood sugar levels when exercising and taking diabetic medications.

There are two different types of diabetes; with Type 1 diabetes, a person's body does not manufacture the hormone insulin, which is required for escorting simple carbohydrate (sugar) into the cells. Because of this, a Type 1 diabetic must inject insulin into their body to absorb sugar from the bloodstream.

In Type 2 diabetes, a person's cells become resistant to the actions of insulin. When this occurs, dietary adjustments are the first line of defense to control blood sugar levels. Depending on the severity of Type 2 diabetes, a person may need to take medications that boost insulin secretion or sensitivity in the cells.

It may be easy for a diabetic to become hypoglycemic (low blood sugar) during exercise due to the combined effects of medications and exercise. While the issue of maintaining proper blood glucose levels during exercise is very specific to the individual, there are certain aspects of fluid and fuel replacement that may be broadly applied to diabetics in general while exercising.

Because exercise can alter blood sugar levels and the amount of medication needed, it is important that people with diabetes consult their physician prior to embarking on an exercise program. Exercising diabetics are encouraged to closely monitor their blood sugar and carbohydrate intake. While informative guidelines exist, exact dose adjustments must be made on an individual basis to obtain the right balance between blood glucose levels, insulin; and carbohydrate replacement sources immediately preceding, during and following exercise.<sup>1</sup>

Because a diabetic's blood sugar levels may easily become too low during and after exercise, it is recommended that all diabetics carry a source of glucose when exercising<sup>2</sup>.

Glukos is an ideal glucose-replacement source for diabetics for a number of reasons:

1. Glukos' primary ingredient is glucose, the most rapidly assimilated carbohydrate.<sup>3</sup> Glucose is the recommended sugar replacement for all diabetics and is carried by emergency personnel for the purpose of raising blood sugar.
2. The amount of carbohydrates in Glukos is optimal for keeping blood sugars at a healthy level in diabetics. Our ready-to-drink contains 23 grams per serving; this amount of glucose is enough to keep blood sugar sustained, but not so much that a "crash" will result from ingesting it. Other foods and drinks such as sodas, "energy bars" and even fruit juices contain excessively high amounts of sugar that can detrimentally affect a diabetic's blood sugar balance.
3. Hydration is also important in diabetics, who tend to dehydrate more easily than others. Glukos provides both the electrolytes and fluids necessary for optimal hydration status.

\*People with diabetes should consult their physician prior to altering their diet.

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<sup>1</sup> McNiven-Temple, M. Bar-Or, O. Riddell, M. (1995). The reliability and repeatability of the blood glucose response to prolonged exercise in adolescent boys with IDDM. *Diabetes Care* 18, 326-332.

<sup>2</sup> Wallberg-Henriksson. Acute exercise: fuel homeostasis and glucose transport in insulin-dependent diabetes mellitus. *Medicine and Science in Sports and Exercise*, 21, 356-361.

<sup>3</sup> Williams, R. (2003). *Williams Textbook of endocrinology* (10<sup>th</sup> ed., p. 1585). Philadelphia, Pa.: Elsevier.