

# How Sweet It Is

## Tips for hiking safely with diabetes

By Tom Welch, M.D.

**DIABETES MELLITUS** is one of the most common chronic health conditions, and a major contributor to premature death. In addition to the effects of the disease itself, diabetes increases the risk and severity of a number of other conditions, including cardiovascular disease, stroke, and chronic kidney disease. Globally, about half a billion people may be affected by diabetes.

The basic defect in diabetes is in the body's ability to utilize glucose as a source of energy. This results in a rise in blood glucose ("sugar") levels. The defect is caused by a decrease in either the ability of the pancreas to produce insulin (the hormone central for the use of glucose as a fuel) or the body's ability to utilize insulin. The former is "type 1" diabetes; the latter is "type 2." Type 1 diabetes requires the use of injectable insulin, and most often develops in children and adolescents; type 2 (far more common) typically develops in adults and is usually managed with diet and medication other than insulin. While the prevalence of both types of diabetes is increasing, this is especially the case for type 2 disease. Rising obesity levels are a major cause of this.

Exercise is very important in the management of diabetes, because it both improves glucose metabolism and may help with weight control. Exercise is also important in averting some of the complications of diabetes, such as cardiovascular disease. Outdoor adventure travel, thus, can be very beneficial for folks with diabetes, although it is very important to discuss this in detail with one's diabetes specialist.

A few issues that are important to any hiker or camper are particularly important for people with diabetes. Suboptimal control of the disease may make one more susceptible to poor healing, especially of foot wounds. Blister prevention and early treat-

ment are important in every hiker, but particularly so in those with diabetes. Careful meal-planning is critical in managing diabetes, and the increased caloric needs of backpacking need to be factored into this. The treatment of diabetes renders many patients susceptible to episodes of hypoglycemia (low blood sugar). Hypoglycemia can



Zack Clothier

be dangerous if not treated immediately, and the treatment commonly is the administration of some form of oral sugar (although some non-sugar drug alternatives are now available). While the principles of bear avoidance require the removal of such items from one's tent, I would make an

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exception for patients with diabetes. One simply cannot be exiting the tent and rooting around in the bear-resistant food container in the middle of the night to secure emergency hypoglycemia treatment!

For decades, I taught wilderness medicine students that wilderness

expeditions, even overnight camping, were not feasible for folks with type 1 diabetes. The logistics of storing insulin, regular blood testing, and responding to dramatic changes in diet and energy expenditure were simply too complex for much beyond a brief overnight trip. Happily, recent developments have proven me very wrong. Individuals with type 1 diabetes regularly compete at high levels in such strenuous activities as triathlons and ultramarathons. A few people with type 1 diabetes have even successfully summited Mt. Everest. Extended trips in austere environments are no longer out of the question.

Much of this change has resulted from major technologic achievements, including programmable insulin pumps, continuous glucose monitors, and easily transportable cold storage units. That being said, the logistics involved in such treks are daunting, not least because the energy requirements of backpacking may increase daily calorie needs by a factor of three or more, necessitating major changes in insulin dosing. Such treks require careful planning with a diabetes specialist who is familiar with the demands of adventure travel. Such an individual may be difficult to find, although major diabetes centers can probably help locate an appropriate specialist. It will also be important to have a companion along who is familiar enough with diabetes to be of assistance in emergencies. ▲

*Tom Welch, MD, is a physician at Upstate Medical University in Syracuse and an active member of the Wilderness Medical Society. He is a licensed professional guide, and a certifying instructor for the Wilderness Education Association, and has guided groups in the Adirondacks, Montana, and Alaska. More information is available at his website and blog, adirondoc.com. Roberto Izquierdo, MD, a senior adult and child diabetes specialist at Upstate Medical University and the Joslin Diabetes Center in Syracuse, reviewed this column and provided very helpful suggestions.*



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