Thriving with Diabetes

Enrich your active life through self-study and balanced blood sugar

By Casey Flynn

Lisa Seaman was at dinner with friends when someone suggested a ski under the full moon. For Lisa, a professional photographer and former guide, an evening ski tour was no big deal. She grabbed her gear, enthused, and hit the trail. Skiing into the mountains outside her Summit County, Colorado, home, though, she suddenly realized she hadn't brought any food. Though inconsequential for many, for Lisa it was huge. She has type 1 diabetes and no sugar can quickly turn dangerous.

For the 18 years since she was diagnosed with type 1 diabetes, Lisa has been studying her body and how it responds to varying levels of exercise, nutrition, and insulin. For all her outdoor pursuits—including a diabetes research and fundraising expedition to climb a 23,000-foot peak in Kyrgyzstan—Lisa plans and prepares diligently to control her blood glucose levels. But it was on a night ski in her own backyard that Lisa learned there is no such thing as a "no-big-deal" run.

Diabetes Difficulties for Athletes

Diabetes refers to a group of metabolic diseases that cause high levels of blood glucose, also called blood sugar, due to problems with insulin, a hormone that is important in the uptake of blood glucose into the cells of the body. With type 1 diabetes, the pancreas does not produce insulin and it has to be taken externally. In people with type 2 diabetes, the body's cells are resistant to the effects of insulin and the pancreas is unable to produce enough insulin to overcome this resistance. Diet, exercise, medication, and supplemental insulin can all help someone with type 2 diabetes manage their blood sugar. Though 90 percent of people with diabetes in the U.S. have type 2 diabetes, type 1 diabetes is more common among high-level athletes.

The biggest challenge for athletes with diabetes is the sudden changes in blood sugar that occur during activity. At rest, insulin engages with receptors on muscle cells to allow blood glucose to get into the cell. During exercise, other pathways into muscle cells open up, allowing more glucose in. Normally, the pancreas stops producing insulin to keep blood sugar levels from plummeting, but when insulin is being taken externally it becomes more difficult to manage. Increased insulin can cause lows in blood sugar, which can lead to hypoglycemia, seizures, and unconsciousness.

"Fear of hypoglycemia is a big deal, especially when you change your exercise regimen," says Carla Cox, Ph.D., registered dietician and certified diabetes educator. "If someone runs every day, she can adjust her insulin, know what to eat, and keep reasonable blood sugars. But if she increases the intensity, increases the duration, or starts riding a bike, the whole equation changes."

Balancing Blood Glucose

The rapid and uncertain response of the body to new activities, durations, and intensities makes going slow and regularly monitoring blood sugar incredibly important. "The best thing you can do is arm yourself with a blood glucose meter," says Sheri Colberg, Ph.D., professor of exercise science at Old Dominion University and author of *Diabetic Athlete's Handbook*. "You're going to have to figure out what works just for you, because your body is not going to be the same as anyone else's." This goes for people who are new to exercise as well as seasoned athletes who are adjusting their training regimen.

If you're introducing exercise into your life to manage your diabetes, start with basic lifestyle activities, says Dr. Colberg. Begin with standing and walking more often, then introduce resistance training a few days a week, using your own body weight or bands. Resistance training increases the muscle storage of glycogen, an important form of energy storage, and reduces the amount of excess carbohydrates that turn to fat.

For more experienced athletes, who tend to have type 1 diabetes and use insulin, training regime changes should be approached cautiously and experimentally—the body's responses may not always be intuitive. For example, high intensity activity, like that in interval training, stimulates the release of glucose-raising hormones that cause a spike in blood sugar. If the workout is short enough, you may finish with high blood glucose and need insulin. But be sure to take less than normal, since you'll still be very sensitive to the insulin, Dr. Colberg says.

Planning Equals Thriving

Discipline and study empower athletes with diabetes. As Lisa has learned through experimentation, her body and metabolism work differently while kayaking than they do while rock climbing and therefore demand different approaches. She has developed her planning skills and powers of observation to notice and adjust what is critical.

One of those critical components is fueling the body. Be prepared to treat a blood sugar low at all times (you may not think you need to bring a snack while walking the dog after a one-hour run, but you do), and plan ahead when you can. "One challenge I see in people with type 1 diabetes is fear of fueling their body with carbohydrates," says Dr. Cox. "So they end up treating lows but they don't prevent the lows to start with."

Plan your exercise around your insulin uptake. Aim to exercise three or more hours after your last injection or right before midday and evening meals. At these times of day, your insulin levels are lower and closer to what they would be if you produced insulin naturally, says Dr. Colberg. Insulin pumps, though more expensive than other methods of intake, offer the greatest degree of flexibility since levels can be adjusted on the fly.

Diabetes In Athletes

Type 1 diabetes is more common than type 2 diabetes in high-level athletes because type 2 diabetes is closely correlated with obesity. People with type 2 diabetes tend to be very overweight and inactive, so it is possible for competitive athletes who stop their sport and lead unhealthy lives to develop type 2 later in life.

Being active helps to keep your insulin needs low, which helps maintain your body's insulin sensitivity and leads to better overall health. By becoming a master observer of yourself, not only will you be able to control your diabetes, you'll thrive with it.

"Get out there, because the reward is always worth it," says Lisa. "When you get back from an expedition or climb and you've had a good blood sugar day, it's a success. You know that you've done all your hard work and it has paid off."

Community

Joining a diabetic community brings invaluable benefits. People with a common mission and shared experiences form special bonds and offer support for those with questions that may be hard to find answers to. It also helps to work with diabetes educators and doctors that specialize in your area of need. Here are some resources for growing your community:

- Mountains for Active Diabetics, *facebook.com/groups/mountainmad*
- Suite D: OmniPod Diabetes Blog, *suited.myomnipod.com*
- Insulindependence, *insulindependence.org*
- Dr. Sheri Colberg's website, *shericolberg.com*