

## *A SWEET JOURNEY*

*“I can’t wait to get on The Colorado River! When Chad brought up the idea of going to Arizona to go river rafting, I was totally psyched about the opportunity. Yet now I have to admit that I am worried about the diabetes-related implications. After all, river trips aren’t especially easy to plan for with someone who has diabetes. Do I have enough reaction supplies? How do I test my blood sugar on the raft? Will I be tossed into the water with my insulin pump on? How can I make my insulin pump part of this trip? How will I guard my insulin when it is 110+ degrees? These are the thoughts going through my head...”*

River guides do an amazing job meeting the unique needs of passengers floating down the Colorado River each year. Each person heading down the river has personal issues to think about. For some the issues are simple, ranging from clothing preferences to dietary needs. For others, the issues are critical, knowing that emergency care is not immediately available. There are large numbers of people with a variety of disabilities who travel the Colorado River each year coming away rejuvenated by the spirit of this unique place. Yet the experience takes on the added benefit of braving the excitement of such an adventure in spite of having a disability. Diabetes is one of the disabilities on the increase in the United States and worldwide. Chances are if you lead, guide or participate in trips on the Colorado River you are likely to spend time with a person who has diabetes.

Diabetes is a disorder in the body’s ability to break down blood sugar. Diabetes has been known for many years as the disease associated with sweet urine. Type 1 diabetics do not produce insulin at all, so they must either inject insulin with a syringe or use an insulin pump. The pump is about the size of a deck of cards and connects to flexible tubing which inserts under the skin near the abdomen to supply insulin continuously during the day. 5-10% of diabetics have Type 1 diabetes. With Type 2 diabetes, people may not produce enough insulin, or they are unable to use the insulin their body produces. Type 2 diabetics may inject insulin or may control their diabetes through diet, exercise and medication. Most of the diabetic population has this form of the disease.

Each person with diabetes has a unique regimen, and responses to diet and insulin vary across the board. Most diabetics are very knowledgeable about their body and the reactions that may occur. Most intuitively know when they are heading into trouble. Chances are good that they will not be heading down the Colorado River if their blood sugars are out of control. Still, the environment poses demands that diabetics on a river trip and the people that travel with them need to be aware of.

- **People with Diabetes are at higher risk for dehydration.** Dehydration occurs when the body loses so much fluid it cannot function at optimal levels. People with diabetes are at higher risk because high blood sugar triggers dehydration. This occurs because the kidneys can’t absorb all the extra glucose in the bloodstream and must get rid of it through urination which deprives the body of fluids. Therefore, diabetics need to be extra vigilant about fluid intake.

- **The anxiety and excitement of river running can send blood sugars soaring.** Some rapids have everyone's adrenaline soaring, including the best of guides. However, adrenaline causes sugar to be released from stores in the liver and the muscle, which may raise blood sugar for awhile. The nervousness and excitement during a river journey can send sugars skyrocketing, easily throwing a diabetic with normal blood sugars into the 250-350 milligrams per deciliter range for awhile. Normal blood sugar range is about 80-120 milligrams per deciliter. Blood sugars left high on the river can lead to a number of problems. Therefore diabetic passengers should be checking blood sugars frequently. It is important to check more frequently than normal because often blood sugars may be unpredictable while traveling on the river. While most diabetics feel low blood sugar reactions occurring, it is more difficult to feel the highs. However, it is high blood sugar that can create problems with dehydration in diabetics, so it is crucial to check these numbers on the river.
- **Strenuous exercise can cause low blood sugar reactions.** While running a particularly notorious rapid may make blood sugar rise, a strenuous hike up Nankoweap may have the opposite effect. Exercise is great for helping people with diabetes balance blood sugars on a daily basis. Yet exercise out of routine may bring blood sugars dangerously low. Even diabetics who exercise on a regular basis may not expect the strenuous nature of some of the Canyon side hikes or hiking in or out of the Canyon on the Bright Angel Trail during an interchange. Sometimes strenuous activity during the day can cause a late-night blood sugar reaction. Insulin dependent diabetics are more likely to experience problems with fluctuating blood sugars. Diabetics must always have a form of fast acting sugar available to treat a low blood sugar reaction. Guides with a diabetic on a trip should also carry some form of sugar on side hikes as a precaution. Usually a diabetic will be ultra careful about carrying sugar, because a low blood sugar reaction is really unpleasant. However, carrying a few more snacks is a good idea. Because diabetics have to have sugar available, it is important guides let them know where to keep their emergency supplies not only during the day, but also at night. Since their camp is away from the kitchen, it is essential that a diabetic isn't wandering looking for sugar in the midst of an all out reaction near the river. A small animal proof container to put their sugar in their camp for the night is safer. A small sealed container can store several glucose tablets in case they were to wake up in the night with low blood sugar.
- **Diabetic foot care is critical.** While it is crucial for everyone to take care of feet, it is downright critical for the diabetic passenger to be extra scrupulous with foot care. Foot problems are common with people in diabetes in general. Foot problems can very quickly become serious in a diabetic. Damage to blood vessels and impairment to the immune system from diabetes make it very difficult for foot wounds to heal especially in the river environment. Often when a diabetic develops a bacterial infection it is much more difficult to treat. Therefore, guides may wish to diligently emphasize preventing foot problems with diabetic passengers. The need to tend to small foot wounds with vigilance must be stressed even more.

- **Supplies for the diabetic passenger need to be readily available.** Office staff will cover the need to bring extra diabetes supplies on the river. A discussion regarding where extra supplies such as insulin can be kept is a concern for diabetics. Extra insulin should be kept in a cooler in case insulin kept with the passenger is lost. Insulin should not get too hot or too cold because heat and cold can reduce the potency of the insulin. Anyone with diabetes should have adequate supplies to monitor blood sugars more frequently while on the river. Office staff should also explain the importance of bringing extra supplies (double the norm) for blood sugar checks because of the unusual environment. Extra batteries for anyone with an insulin pump, and extra batteries for glucose monitors should be stressed. If a person does choose to bring an insulin pump on the river, they should also bring injection supplies in case something happens to the pump. Some blood sugar monitors do not always work well in extreme heat or cold, and staff should caution diabetic passengers to be aware of this prior to the trip. Blood glucose monitors are small, so if a person has an extra monitor available it may be worth bringing along.

While diabetes can present some challenging issues, the problems that can surface on a river trip are certainly as manageable as any of the problems that arise for those with a disability wishing to travel on a river trip. The organization and attention to detail toward diabetic blood sugar control is well worth the magic of experiencing a trip down the Colorado River.

~Annie Phillips

gives orientations for AZRA and Canyon Explorations/ Type 1 diabetic