

Management of the Athlete With Type 1 Diabetes Mellitus

Diabetes is the term used for abnormally high glucose levels. There are two forms of Diabetes known as Type 1 or Type 2. Type 2 diabetes is the most common form of diabetes. Millions of Americans have been diagnosed with type 2 diabetes, and many more are unaware they are at high risk. Some groups have a higher risk for developing type 2 diabetes than others. Type 2 diabetes is more common in African Americans, Latinos, Native Americans, and Asian Americans, Native Hawaiians and other Pacific Islanders, as well as the aged population.

In type 2 diabetes, either the body does not produce enough insulin or the cells ignore the insulin. Insulin is necessary for the body to be able to use glucose for energy. When you eat food, the body breaks down all of the sugars and starches into glucose, which is the basic fuel for the cells in the body. Insulin takes the sugar from the blood into the cells. When glucose builds up in the blood instead of going into cells, it can lead to diabetes complications.

In type 1 diabetes, the body does not produce insulin. Only 5% of people with diabetes have this form of the disease. The most important goal in the management of diabetes is to keep blood glucose levels at or as close to normal levels without causing hypoglycemia. This can be more challenging in the athlete due to the physical demands of practice and competition.

It is recommended that you review the following information as well as the link to the NATA position statement “Management of the Athlete with Type 1 Diabetes Mellitus” on the Athletic Training Website.

The following are signs and symptoms of Type 1 and 2 diabetes.

Type 1 Diabetes

- Frequent urination
- Unusual thirst
- Extreme hunger
- Unusual weight loss
- Extreme fatigue and Irritability

Type 2 Diabetes*

- Any of the type 1 symptoms
- Frequent infections
- Blurred vision
- Cuts/bruises that are slow to heal
- Tingling/numbness in the hands/feet
- Recurring skin, gum, or bladder infections

*Often people with type 2 diabetes have no symptoms

The following are signs and symptoms for Hyperglycemia and Hypoglycemia.

Hypoglycemia: Low blood glucose level

- Shakiness
- Dizziness
- Sweating
- Hunger
- Headache
- Pale skin color
- Sudden moodiness or behavior changes, such as crying for no apparent reason
- Clumsy or jerky movements
- Seizure
- Difficulty paying attention, or confusion
- Tingling sensations around the mouth

Treatment of Hypoglycemia: The quickest way to raise your blood glucose is with some form of sugar. Glucose tablets are one of the best ways to treat it, however any simple carbohydrate such as fruit juice, hard candies, pretzels or crackers work well. **The important thing is to get at least 15-20 grams of sugars or carbohydrates.** To treat hypoglycemia you should stick with something that is mostly sugar or carbohydrates. Foods that have a lot of fat as well as sugars and carbohydrates, such as chocolate or cookies, do not work as quickly to raise blood glucose levels.

Foods with 15 grams carbohydrates:

- 4 oz (1/2 cup) of juice or regular soda
- 2 tablespoons of raisins
- 4 or 5 saltine crackers
- 4 teaspoons of sugar
- 1 tablespoon of honey or corn syrup

Once you've checked the blood glucose and treated the hypoglycemia, wait 15 or 20 minutes and check the blood again. If the blood glucose is still low and the symptoms of hypoglycemia don't go away, repeat the treatment. After the athlete feels better, be sure to have them eat their regular meals and snacks as planned to keep their blood glucose level up.

If the athlete does pass out from hypoglycemia here are some general do's and don'ts.

Remember the athlete will need immediate treatment!

- DO NOT inject insulin.
- DO NOT provide food or fluids.
- DO NOT put hands in your mouth.
- DO inject glucagon.
- DO call for emergency help.

Go to this site to watch a short video on administering glucagon injections.
http://www.youtube.com/watch?v=m4BGh_yRxDs

Hyperglycemia: High blood glucose level

- High blood glucose
- High levels of sugar in the urine
- Frequent urination
- Increased thirst

A number of things can cause hyperglycemia:

- If you have type 1, you may not have given yourself enough insulin.
- If you have type 2, your body may have enough insulin, but it is not as effective as it should be.
- You ate more than planned or exercised less than planned.
- You have stress from an illness, such as a cold or flu.
- You have other stress, such as family conflicts or school or dating problems.

Exercise is one of the best ways to lower your blood sugar. However, if your blood glucose is above 240 mg/dl, check your urine for ketones. ***If you have ketones, do not exercise.*** If you fail to treat hyperglycemia, a condition called [ketoacidosis](#) (diabetic coma) could occur. Ketoacidosis develops when the body doesn't have enough insulin. Without insulin, the body can't use glucose for fuel, so your body breaks down fats to use for energy.

Ketoacidosis is life-threatening and needs immediate treatment. Symptoms include:

- Shortness of breath
- Breath that smells fruity
- Nausea and vomiting
- Very dry mouth

In some cases our athletes may use an insulin pump. The athlete should be completely trained in its usage and monitoring of blood sugar level. This normally does not require any intervention from the athletic training staff or coaches. However if intervention does become necessary the athletic training staff and/or coaches should be trained in how to administer the insulin. This information should be obtained from the athlete prior to the start of the season.

The best way to prevent both hypoglycemia and hyperglycemia is to practice good diabetes management and learn to detect their signs and symptoms so you can treat it early.