

Sports Medicine Monthly

Editor: Darren H. Lunow, M.Ed, ATC, LAT • Certified Athletic Trainer

Volume 1, Issue 9, April 2010

FOCUS ISSUE:

DIABETICS IN ATHLETICS:

According to the American Diabetes Association, there are 23.6 million individuals in the United States who have Diabetes Mellitus.

Diabetes, as it is commonly called, is a disease in which the body does not produce or properly use insulin. Insulin is a hormone that is normally produced by the pancreas and it is required by the body for the uptake of sugar out of the bloodstream. In



individuals without diabetes, insulin is secreted by the pancreas during periods of increased sugar levels, such as after meals or snacks, to aid in sugar absorption. For individuals with diabetes, their body either does not produce insulin, it does not produce enough, or it resists the insulin that is produced. Subsequently, those who are challenged by this disease must diligently monitor their eating habits, their blood sugar levels, and provide their bodies with an additional source of insulin.

Type 1: Occurs when the body fails to produce insulin and thereby renders the body insulin dependant. As this is the most common form of diabetes noted in children and adolescents, this type of diabetes is commonly called juvenile diabetes.

Type 2: Occurs when the body does not produce enough insulin or when the body is resistant to the insulin that the body does produce. This form of diabetes usually presents sometime after childhood and is characteristically seen in individuals who have a family history of diabetes, those who are obese, and/or those who are inactive. Characteristically, this form of diabetes is usually referred to as adult onset diabetes.

Nutrition for the Diabetic Athlete

1.5 hours prior to activity, begin monitoring your blood sugar levels every 30 minutes.

<100mg/dl = increase your blood sugar levels by ingesting 15 grams of carbohydrates
15grams of carbs =

- 1/2 Gatorade
- 3 glucose tablets
- 1/2 cup of fruit juice
- 5-6 pieces of hard candy
- 6oz of non-diet soda



*15 grams of carbs will raise blood sugar levels 30-50 points in 15-30 minutes

100-180mg/dl = optimal for exercise, but realize that either extreme can predispose you to complications during exercise

180-250mg/dl = decrease your blood sugar levels with a non-carbohydrate drink, a very light exercise or both.

>250mg/dl = decrease your blood sugar levels to a safer level with a non-carbohydrate drink prior to participating in any exercise

How Many Carbs Should I Eat?

1 hr of activity per day =

5 -6g carbs/kg of body weight

2 hrs of activity per day =

8g carbs/kg of body weight

2+hrs of activity per day =

10g carbs/kg of body weight

continued on page 2



R. Clio Robertson, MD
Don L. Hawkins, MD
David R. Hicks, MD
Michael W. Tanner, MD
Brian C. Howard, MD
James D. Cash, MD

David E. Nonweiler, MD
Randall L. Hendricks, MD
David K. Wong, MD
Bryan J. Hawkins, MD
Perry D. Inhofe, MD
Thomas G. Craven, MD

Jeffrey R. Morris, DO
Ronald S. LaButti, DO
Jeff A. Fox, MD
Kathleen M. Sisler, MD
Troy A. Glaser, DO

Tulsa: 918.481.CSOS (2767) • Statewide: 888.269.CSOS (2767) • www.csosortho.com

Tulsa • Owasso • Pryor • Vinita • Grove • Bixby • Jenks

Diabetic Emergencies

Hypoglycemia: occurs when the body's blood sugar levels fall below 70mg/dl

Why: Too much exercise, too much insulin, or not enough carbs

Signs and Symptoms: Shakes, Dizzy, Sweating, Hungry, Pale Skin, Headache, and/or Tingling

Treatment: Steadily increase blood sugar levels

Hyperglycemia: occurs when the body's blood sugar levels rise above 250mg/dl

Why: Eating too much, not enough insulin, etc...

Signs and Symptoms:

If: Dry mouth, Exceedingly Thirsty, and/or Frequent Urination

Treatment: decrease blood sugar levels to a safer level with a non-carbohydrate based drink and very light exercise

If: Nausea, Vomiting, Confusion, and/or Acetone ('fruity' smelling) breath

Treatment: Contact your local emergency medical services. These individuals will require a dosage of insulin and may not be able to deliver it for themselves.



Information gathered from:

"The Daily Management of Athletes with Diabetes" by MacKnight et. al published in the July 2009 edition of Clinics in Sports Medicine
"Hyperglycemic Emergencies in Athletics" by Chansky et. al published in the July 2009 edition of Clinics in Sports Medicine.
"Hypoglycemia in Athletes with Diabetes" by Susan E. Kirk Published in the 2009 edition of Clinics in Sports Medicine
The American Diabetes Association: www.diabetes.org

Nutrition: Continued from page 1

Pre-Game Meal:

- * 4g of carbs/kg of body weight 3-6 hours prior
- * 1g of carbs/kg of body weight 1 hour prior
- * 15g of carbs 15-30 minutes prior



Post-Game Meal:

- * Within 30 minutes of activity:
 - <90 minutes of activity →→→ 1g carb/kg body weight
 - >90 minutes of activity →→→ 1.5g carb/kg body weight
- * 1-2 hours after activity:→→→ 1.5g carb/kg body weight



What About Insulin Dosage for the Type 1 Diabetic?

- * For minor to moderate intense exercise... Decrease your insulin intake by 30-50% prior to exercise
- * If you have an insulin pump, remove the pump 30 minutes prior to any contact activity, but supplement with 50% of your regular insulin dosages every hour

A Note to the Reader.....

Central States Orthopedic Specialists does not endorse any of the organizations or research groups whose information has been published herein. Furthermore, information in this publication is provided for informational purposes only and not as medical advice, or as a substitute for the advice provided by your physician or other healthcare professional, or for diagnosing or treating a health problem or disease. This publication is designed to provide you, the reader with information only. It is your choice in how you apply the information given herein, and not a directive from Central States Orthopedic Specialist. It is simply an informative resource for you, the reader. As always, if you have specific questions regarding specific injuries, illnesses, policies, procedures, etc... speak with your Certified Athletic Trainer, or contact your physician.



R. Clio Robertson, MD
Don L. Hawkins, MD
David R. Hicks, MD
Michael W. Tanner, MD
Brian C. Howard, MD
James D. Cash, MD

David E. Nonweiler, MD
Randall L. Hendricks, MD
David K. Wong, MD
Bryan J. Hawkins, MD
Perry D. Inhofe, MD
Thomas G. Craven, MD

Jeffrey R. Morris, DO
Ronald S. LaButti, DO
Jeff A. Fox, MD
Kathleen M. Sisler, MD
Troy A. Glaser, DO