

# DIABETES MELLITUS

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## Symptoms or Behaviors

Diabetes, include:

- Frequent urination
- Frequent thirst/hunger
- Unexplained weight loss
- Abdominal pain
- Muscle weakness
- Unexplained fatigue
- Unexplained problems with vision

Hypoglycemia, include:

- Shaking
- Sweating
- Hunger
- Dizziness
- Paleness
- Numbness or tingling of the lips
- Irritability
- Poor coordination
- Confusion
- Headaches
- Double or blurred vision

Hyperglycemia, include:

- Abdominal pain
- Nausea
- Vomiting
- Blurred vision
- Increased thirst
- Increased urination
- Fatigue



## About the Disorder

Diabetes Mellitus is a chronic, metabolic disorder which adversely affects the body's ability to manufacture and/or use insulin, a chemical needed to convert carbohydrates into energy. Insulin is a hormone that is needed to convert carbohydrates and other food into energy needed for daily life. The cause of diabetes is unknown, although both genetics and environmental factors such as obesity and lack of exercise appear to play roles. There are three major types of diabetes: Type 1, Type 2 and Gestational.

**Type 1 Diabetes:** Results from the body's failure to produce insulin, the hormone that "unlocks" the cells of the body, allowing glucose to enter and fuel them. It is estimated the 5-10% of Americans who are diagnosed with diabetes have Type 1. Those who are diagnosed with Type 1 diabetes require daily insulin injections as well as managed exercise and diet programs. Juvenile Diabetes has been re-classified as a Type 1 insulin-dependent type of diabetes.

**Type 2 Diabetes:** Results from insulin resistance (a condition in which the body fails to properly use insulin), combined with relative insulin deficiency. Approximately 90-95% of Americans who are diagnosed with diabetes have Type 2 diabetes. Type 2 diabetes is becoming more prominent in children. The incidence has increased in youth by 30% over the past 10 years and continues to climb. Treatment is usually through diet and exercise, but sometimes oral medication or insulin is needed.

**Gestational Diabetes:** This diabetes occurs with pregnancy. Women with gestational diabetes are at a higher risk of developing Type 2 diabetes later in life.

Often diabetes goes undiagnosed because many of its symptoms seem so harmless. Treatment involves injections of insulin, a modified diet and exercise program. As most children grow older, they will need to independently monitor their blood sugar levels, exercise, insulin regimes and meal planning. . With proper control of blood sugar levels, diet and exercise the prognosis is good. If diabetes is not properly managed, the occurrences of hyperglycemia (high blood sugar), hypoglycemia (low blood sugar), and ketoacidosis are evident. **Hyperglycemia** is a major cause of complications that happen to people who have diabetes. Hyperglycemia can lead to ketoacidosis in Type 1 diabetes, which is a dangerous condition. Symptoms of hyperglycemia include: increased thirst, increased urination, fatigue, abdominal pain, nausea, vomiting and blurred vision. **Hypoglycemia** is the body's way of telling a person that the amount of glucose in the blood is dropping or has dropped. Hypoglycemic reaction usually comes quickly and frequently occurs before meals, during or after exercise and at peak action time of the insulin. Glucose tablets or gel and/or other carbohydrates should be kept available in the classroom.

**Prognosis:** With proper management of blood sugars and diet, the prognosis is good. Management of diabetes is lifelong. Current research is improving the quality of life for those who are diagnosed with diabetes. There is no cure at this time.

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## Educational Implications

- Student may need to leave classroom to monitor blood sugar levels or receive other medical related assistance from the school health professional, or student may be independent enough to monitor and manage blood sugar in the classroom.
- Inconsistency of blood sugar levels may prevent student from being able to fully focus and participate in class.
- Student will need to have appropriate food choices (lunch and snacks) at all times. Student will need scheduled as well as unscheduled access to food.
- Student may require frequent visits to outside health care professionals.
- Frequent misunderstanding of medical condition among school staff and peers
- Frequent bathroom breaks may be needed and free access to water.
- Younger students may need adult assistance with the monitoring of blood sugar levels, however, generally middle to high school students are independent. Individualized health care plans may be necessary.
- There may be visual, motor or cognitive complications.
- Blood levels outside the target range can affect learning and behaviors.

## Instructional Strategies and Classroom Accommodations

- Health Care Plan and Emergency Health Plan may need to be on file with school nurse. All involved school personnel need to be informed and knowledgeable of medical condition and health plan including substitute teachers and bus drivers.
- Develop a plan to include consistent carbohydrate choices. School should have food content lists available.
- Keep parent-approved carbohydrate products available should student exhibit signs of low blood sugar.
- Develop a plan for field trips or other prolonged exercise activities. These activities will require pre-planning to accommodate for food and medical needs and may require the presence of a school nurse.
- If student has continual record of inconsistent blood sugar levels or frequent absenteeism from school, student may require additional assistance in reviewing of classroom concepts and homework.
- It may be helpful to develop a consistent "medical language" which enables student to communicate his needs to any school personnel.
- Keep a daily journal (independent or with minimal assistance), which records items such as: blood sugar levels, time of insulin injections, food choices, and exercise levels. Supplemental snacks should be available before, during, or after periods of extra activity.
- Regularly scheduled physical activity should be encouraged, as exercise is necessary to manage diabetes. Gym scheduled ideally after breakfast or lunch.

## Resources

American Diabetes Association:  
1701 N. Beauregard St.  
Alexandria, VA 22311  
1-800-342-2383  
[www.diabetes.org](http://www.diabetes.org)  
*Web site, recommended books,  
and newsletter.*

CDC  
4770 Poyford Highway, NE  
Atlanta, GA 30341  
800-311-3435  
[www.cdc.gov/diabetes](http://www.cdc.gov/diabetes)

### *Books:*

"The Uncomplicated Guide to Diabetes Complications, 2<sup>nd</sup> Edition".  
Authors: ME Levin, MD & MA Pfeifer, MD  
Published in 2002  
Editor (FACE)

"Helping the Student with Diabetes Succeed: A Guide for School Personnel"  
USDHHS and CDC, June 2003

"Cognitive Aspects of Chronic Illnesses in Children"  
Ronald T. Brown, Editor  
The Guildford Press (1999)

"School Nurse's Source Book of Individualized Health Care Plans"  
Mary Kay B. Haas, Editor  
Sunrise River Press (1999)

### *Magazines:*

"Diabetes Forecast". A magazine providing information on the latest research, treatment and practical tips for coping with diabetes.  
1-800-806-7801  
[www.diabetes.org](http://www.diabetes.org)

Mayo Clinic  
[www.mayoclinic.com](http://www.mayoclinic.com)  
*Website with information on disability and wellness*