

Kitchen Creations Faculty Newsletter #16
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Type 2 Diabetes in Children and Youth

In the past 10-15 years the percentage of youth with type 2 diabetes has increased 10 times. Depending on ethnicity, 8% to 43% of all new cases of diabetes in youth are type 2. Among African Americans and whites ages 10 to 19 in Ohio, type 2 diabetes accounted for 33% of all cases of diabetes.

There are lifestyle patterns that lead to childhood overweight. Childhood overweight is a risk factor for type 2 diabetes.

32% of females and 52% of males 14-18 years of age consume 3 or more servings of soft drinks per day. An extra soda a day increases the risk for overweight by 60%. A study in *Pediatrics* looked at 6,212 children and teens 4-19 years old. 30% of the children and teens ate fast food on a typical day. Children eating fast food ate an additional 187 calories a day. Children who ate fast food also ate more total fat, more saturated fat, more carbohydrate, more added sugars, more sugar-sweetened beverages, less milk and fewer fruits and non-starchy vegetables.

About 30% of youth who watch television 5 or more hours a day are overweight. About 10% of youth who watch television 2 hours or less are overweight. A study in *New England Journal of Medicine* showed that physical activity in both white girls and black girls declined with age. While 9- and 10-year-olds were active, the 19-year-olds had very little physical activity.

Type 2 diabetes in youth is associated with beta cell failure as well as insulin resistance. Insulin resistance may be more intense in teens due to puberty. Childhood type 2 diabetes may involve destruction of beta cells, which is different than type 2 diabetes in adults. Diagnosis of type 2 diabetes in children/youth is the same as for adults. A fasting glucose of 126 or more on 2 occasions gives the diagnosis of diabetes. A random blood glucose of 200 or more with classic symptoms such as thirst and frequent urination can also be used to diagnose diabetes.

The following criteria should be used to determine who to screen for diabetes:

- Body mass index (BMI) > 85th percentile for age and gender or
- Body weight for height > 85th percentile or
- Body weight >120% of ideal for height

Plus any two of the following risk factors:

- Family history of type 2 diabetes in siblings, parents, or grandparents
- Race/ethnicity (American Indian, African-American, Hispanic, Asian/Pacific Islander)

- Sign/symptoms of insulin resistance: acanthosis nigricans (discoloring of the skin, usually on the neck or under the arms), hypertension, elevated blood lipids, polycystic ovary syndrome

The screening test is fasting plasma glucose

The team approach is the best way to treat type 2 diabetes in children and youth. The entire family should be involved in the diabetes education process.

Treatment goals include:

- Glucose control, HbA1c <7%
- Maintenance of reasonable body weight
- Improve cardiovascular risk factors
- Reduce microvascular complications
- Improvement in physical and emotional well-being

Health care providers and diabetes educators have the responsibility to ensure long-term health for children with type 2 diabetes. Teens with type 2 diabetes and poorly controlled blood glucose levels could have cardiovascular events in their 20's and 30's.

This is a summary of information from two talks by Dr. Francine Kaufman, MD and a newsletter, "Examining the Issues of Diabetes in Youth," from the Diabetes Care and Education Practice Group of the American Dietetic Association.

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Tips for Kids with Type 2 Diabetes from the National Diabetes Education Program (NDEP)

Tips for Kids with Type 2 Diabetes-What is Diabetes?

http://ndep.nih.gov/diabetes/pubs/Youth_Tips_Diabetes.pdf

Tips for Kids with Type 2 Diabetes-Be Active

http://ndep.nih.gov/diabetes/pubs/Youth_Tips_Active.pdf

Tips for Kids with Type 2 Diabetes-Stay at a Healthy Weight

http://ndep.nih.gov/diabetes/pubs/Youth_Tips_Weight.pdf

Tips for Kids with Type 2 Diabetes-Eat Healthy Foods

http://ndep.nih.gov/diabetes/pubs/Youth_Tips_Eat.pdf

Web Sites with information for children:

<http://www.cdc.gov/diabetes/pubs/eagle.htm>

The Eagle Book Series; 4 books are targeted to Native American children with information on healthy eating and physical activity. The Eagle books could be used with other ethnic groups. There is information on the 4 Eagle books and how to order them.

<http://www.cdc.gov/diabetes/eagle/index.html>

An interactive site for children based on the Eagle books.

http://www.cdc.gov/diabetes/human_body.htm

This is an interactive site; click on a body organ to find out how diabetes can affect it.

<http://www.diabetes.org/youthzone/youth-zone.jsp>

Home page of Youth Zone (American Diabetes Association); it has games, tips and links.

Helpful diabetes web sites:

<http://www.cdc.gov/diabetes>

This is the home page of the CDC Diabetes Program. There is information on conferences; the 2007 CDC Diabetes Conference will be in Atlanta April 30-May 3. Information is available on State Based Programs including the New Mexico Diabetes Prevention and Control Program. New Diabetes Data is on this web site.

<http://www.diabetes.org>

This is the home page of the American Diabetes Association. There is information for both lay people and health care professionals.

<http://www.niddk.nih.gov/>

This is the home page of the National Institute of Diabetes and Digestive and Kidney Diseases-NIDDK. It contains health information (diabetes is one of the topics), National Clearing Houses (National Diabetes Information Clearing House), and National Education Programs (NDEP-National Diabetes Education Program and NKDEP-National Kidney Disease Education Program).

<http://www.diabetes.org/diabetes-statistics.jsp>

Diabetes statistics from the American Diabetes Association.

<http://diabetes.niddk.nih.gov/dm/pubs/dictionary>

A dictionary of diabetes terminology from NIDDK.

<http://www.ndep.nih.gov>

The home page of NDEP (National Diabetes Education Program).

<http://www.healthfinder.gov/library/nho/nho.asp>

2006 National Health Observances. For example, January is National Birth Defects Prevention Month and National Blood Donor Month.

Education materials for people with diabetes:

www.dce.org

Click on publications, then on patient education slicks. Seven topics are listed:

- Have Your Cake and Eat It Too: Tips to Lighten up Your Family's Favorite Treats
- Staying off the Roller Coaster: Avoiding Blood Glucose Highs and Lows
- Diabetes and Dietary Supplements: Do Tell, Do Ask
- Your Blood Glucose Numbers
- Carbohydrate Counting: Focus on Consistency For People Who Use Diabetes Pills and Basic Insulin Regimens
- The Truth About Carbs
- Ready, Set, Start Counting: How to Use Carbohydrate Counting to Keep Your Blood Glucose Healthy

<http://kraftfoods.com/kf/HealthyLiving/articles/rulesofthumb.htm>.

This shows portion sizes of various foods based on parts of the hand; a good way to estimate food portions when eating out.

Nutrition Recommendations and Interventions for Diabetes-2006

The American Diabetes Association has a position statement in the September issue of Diabetes Care on nutrition recommendations. The link to the position statement is

<http://care.diabetesjournals.org/cgi/reprint/29/9/2140>.

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