

Is Your Child At Risk?



Obesity, Acanthosis nigricans, and Type 2 Diabetes

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Agent Introduction:

In the United States at least one child in five is overweight and the number of overweight children continues to grow. Over the last 2 decades, this number has increased by more than 50% and the number of "extremely" overweight children has nearly doubled. A doctor determines if children are overweight by measuring their height and weight. Although children have fewer weight-related health problems than adults, they are at an increased risk of developing a serious disease – diabetes. Overweight children are also at risk for becoming overweight adolescents and adults. Overweight adults are at risk for a number of health problems including heart disease, diabetes, high blood pressure, stroke, and some forms of cancer.

<http://diabetes.about.com/library/bNIHOverweightkids.htm>

BMI Information for County Extension Agents

The below information is provided for you to use in teaching settings if desired.

Body mass index for age is the method recommended screening tool for overweight and underweight children and adolescents from 2 to 20 years of age.

Body mass index for age is a screening tool that may lead to further assessment to diagnose a specific health condition. Please remember, BMI is a screening tool and is NOT a diagnostic tool.

For children, BMI is age and gender specific and nutritional status is identified based on percentiles. For adults, BMI is neither age nor gender specific and nutritional status is defined by fixed cut points.

It is very important in the screening that accurate weight and heights are used in the determination of the BMI.

Calculating BMI

Step 1: Obtain accurate weight and height measures

Step 2: Select the appropriate growth chart from

www.cdc.gov/growthcharts (based on the age and gender of the child being weighed and measured). For example, if your child is male and between the ages of 2 and 20 visit the above website, click on "set 1" then "children 2 to 20 years (5th - 95th percentile), then "boys BMI-for-age percentiles"; this will give you the correct graph to plot from.

Step 3: Record data on appropriate growth chart.

Step 4: Calculate BMI. If you have a computer with internet access please visit <http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm>. This web site has a BMI web calculator for your use. You enter the child's height in feet, and then inches, also entering the child's weight in pounds. Press the "calculate" button and it will provide the child's BMI.

If you do not have internet access, you can calculate the child's BMI using a calculator using this calculation:

$$[\text{Weight (lb)}/\text{height (in)}/\text{height (in)}] \times 703$$

For example, Sam weights 37 pounds and 4 ounces, and his height is 41 ½ inches. First we need to convert ounces and fractions into decimals:

- *Weight of 37 lbs and 4 oz = 37.25 (16 ounces = 1 pound so 4 oz/16 oz = .25).*
- *Height =41.5 in.*

Let's calculate Sam's BMI:

$$[37.25 \text{ lbs} / 41.5 \text{ in} / 41.5 \text{ in}] \times 703 = 15.2$$

Step 5: Plot measurements on appropriate growth chart using the vertical axis for the BMI and the horizontal axis for the age. Make sure you are using the appropriate gender table.

Step 6: Interpret the plotted measurements. Healthcare professionals use the following established percentile cutoff points to identify if children are underweight, at risk for being overweight or overweight:

- *Underweight – BMI-for-age <5th percentile*
- *At risk of overweight – BMI-for-age 85th percentile*
- *Overweight – BMI-for-age \geq 95th percentile*

Let's look at Sarah's BMI. It is 18.5 and she is 9 years old. What percentile does she fall into? Answer: She would fall between the 75th and 85th percentile meaning she is not at risk for being overweight.

What if her BMI was 19? What percentile would she fall into? Answer: She would be in the 85th percentile, meaning she would be at risk for being overweight.

What Causes Children to Become Overweight?

Children become overweight for a variety of reasons. The most common causes are genetic factors, lack of physical activity, unhealthy eating patterns, or a combination of these factors. In rare cases, a medical problem, such as an endocrine disorder, may cause a child to become overweight. Your physician can perform a careful physical exam and some blood tests, if necessary, to rule out this type of problem.

Genetic Factors

Children whose parents or brothers or sisters are overweight may be at an increased risk of becoming overweight themselves. Although weight problems run in families, not all children with a family history of obesity will be overweight. Genetic factors play a role in increasing the likelihood that a child will be overweight, but shared family behaviors such as eating and activity habits also influence body weight.

Lifestyle

A child's total diet and his or her activity level both play an important role in determining a child's weight. The increasing popularity of television and computer and video games contributes to children's inactive lifestyles. The average American child spends approximately 24 hours each week watching television-time that

could be spent in some sort of physical activity.

Is My Child Overweight?

If you think that your child is overweight, it is important to talk with your child's doctor. A doctor is the best person to determine whether your child has a weight problem. Physicians will measure your child's weight and height to determine if your child's weight is within a healthy range. A physician will also consider your child's age and growth patterns to determine whether your child is overweight. Assessing if your child is overweight is difficult because children grow in unpredictable spurts. For example, it is normal for boys to have a growth spurt in weight and catch up in height later. It is best to let your child's doctor determine whether your child will "grow into" a normal weight. If your doctor finds that your child is overweight, he or she may ask you to make some changes in your family's eating and activity habits.

Linking overweight children to diabetes

In recent years, obesity and type 2 diabetes have been rapidly increasing in youth, especially among Hispanics, African-Americans, and Native Americans. Today I would like to discuss with you what diabetes is, its risk factors, the signs and symptoms of type 2 diabetes, and ways to *prevent* the disease.

ASK:

Can anyone tell me what diabetes is?

SAY:

A number of you said diabetes means there is too much sugar in the blood. That is true. Others said diabetes means there is not enough insulin to take care of the sugar or glucose in your blood – that is also true, but I need to explain that there are two kinds of diabetes – type 1 and type 2.

Most adults have type 2 diabetes, but as I said earlier, children and adolescents are being diagnosed with type 2 diabetes at an increased rate in recent years. Type 2 diabetes is the most

common type of diabetes – 95% of people with diabetes have type 2. With type 2 diabetes, your body may or may not produce insulin. If it does, the insulin may not work well; think of insulin as a taxi, when it is broken down, it can't take sugar into the body's cells. Without enough insulin, your body can't move glucose (sugar) from the blood into the cells. This causes a traffic jam of glucose in the blood.

A second type of diabetes is type 1 diabetes. A person with type 1 diabetes must take insulin shots several times a day, because their body doesn't produce insulin anymore.

ASK:

Why is it bad to have too much sugar in your blood?

SAY:

Blood always has some sugar in it to produce energy, but too much sugar is not good for your health. Having too much sugar in your blood for long periods of time causes problems like tiredness, loss of eye sight, kidney problems, nerve problems in your feet and other places in your body.

These problems are very serious! Even though someone has not been diagnosed with diabetes, they can still have serious health conditions causing health problems.

ASK:

What puts someone at risk for diabetes?

SAY:

Researchers are really not sure what causes type 2 diabetes. They do, however, know that being overweight, having a history of type 2 diabetes in your family, and being of minority descent puts a person at higher risk for developing the disease.

ASK:

Have you ever heard of people saying that someone got diabetes

because they had a “sweet tooth”?

SAY:

People do not get diabetes because they have a “sweet tooth.” Sweets can make you gain weight and put you at a higher risk for diabetes, but just because you like to eat sweets, does not mean it can cause diabetes.

Another myth about diabetes is that you can have a “touch of sugar” or you can be “borderline diabetic.” Either you have diabetes or you don’t – just like being pregnant – either you’re pregnant or you’re not. Research shows even slightly higher blood sugars can be treated.

ASK:

Here are some questions I would like for you to answer. Do you or your child...?

- ★ feel thirsty all the time?
- ★ have to use the restroom often?
- ★ often feel tired or hungry?
- ★ lose weight without trying?
- ★ have sores that take a long time to heal?
- ★ have dry itchy skin?
- ★ have less feeling or experience tingling in the feet?
- ★ have blurry eyesight?

SAY:

The more questions you answered “yes”, the more likely it is that you or your child could have diabetes. Visit with a doctor as soon as you can. Diabetes is a serious disease that does not go away – doctors refer to this as a “chronic” disease because it does not go away. However, people with diabetes can control it!

Because type 2 diabetes is on the rise in children, especially in those who are overweight and of minority descent, some schools are now screening children for type 2 diabetes by looking for a dark skin discoloration often found on the neck, called *acanthosis nigricans* (uh-kan-THO-sis NIH-grih-kans) or AN.

ASK: Have any of you heard of *acanthosis nigricans*?

SAY: *Acanthosis nigricans* is a marker or screening tool (like the BMI) for high levels of insulin (or cars from our earlier illustration). Having high levels of insulin is a risk factor for developing type 2 diabetes, high cholesterol and high blood pressure.

If someone has told you that your child has AN this does not mean he/she has diabetes. It means your child is possibly at risk for diabetes. Not everyone who has AN will develop diabetes. It just means there is an increased possibility of diabetes in the future.

AGENT NOTE: The Centers for Disease Control and Prevention (CDC) state that AN can be used to screen adolescents for high levels of insulin. Their study found that 34% of those with AN are also likely to have high levels of insulin; 47% of those with both AN and a BMI of greater than 25 are likely to have high levels of insulin. Although AN was a marker for high levels of insulin, it could not be used to predict diabetes.

ASK: Can AN be found on other parts of the body besides the neck?

SAY:

Yes, it is usually found on the:

- ★ Neck (most common)
- ★ Folds of the knuckles
- ★ Elbows (outer & inner)
- ★ Knees (outer & inner)
- ★ Armpits
- ★ Soles of the feet
- ★ Inner thighs (groin area)
- ★ Skin folds of the abdomen

ASK:

Is there anything parents can do for their children to prevent type 2 diabetes or slow down it's complications?

SAY:

The best way to deal with type 2 diabetes in children is to prevent it from developing in the first place; whether your child is diagnosed with diabetes or simply at risk for diabetes, there are several things you can do to prevent diabetes from developing or getting worse. The two most important things your child can do are to have a normal weight and increase his or her levels of physical activity. Unfortunately, these are not always an easy tasks. Here are some hints to make the move to an active, healthier life:

- ★ Take things one step at a time. Don't try to enforce a crash diet and hard exercise program all at once. If your child feels that it is too difficult to make too many changes at once, he or she may resist any attempts to change.
- ★ If your doctor suggests a diet, make sure it is a diet that your child can live with. Don't try restricting every single thing your child likes to eat all at once. Replace unhealthy food choices with foods that are tasty. Don't let your child feel that he or she will never again be able to eat a chocolate chip cookie. Instead, think of eating foods like cookies in moderation, or on special occasions.
- ★ Think about restricting the food choices offered. Don't keep cookies, donuts, cakes, chips, and ice cream and soft-drinks with sugar around the house and expect your children to stay away from them. Instead, keep healthier foods on hand like grapes, bananas, etc. This might be a good opportunity for the whole family to adopt a healthier living style.
- ★ Get active...Sit Less! Start by taking an evening family walk, for example. Walking is one of the best and safest ways to exercise. Set a good example by becoming active yourself and involving the whole family. Don't make your child feel that exercise is drudgery that he or she has to do, but make it an inviting family activity. Consider walking together in your neighborhood or buying a family membership to a gym or joining the YMCA.

- ★ Consider signing your child up for activities he or she enjoys. Your child may not want to run a marathon, but might like swimming or horseback riding. Try to focus on activities your child actually enjoys rather than what you think is best for him or her. By lessening the amount of time your child watches television and playing video games and increasing his/her physical activity, the better off he or she will be – remember any activity is better than no activity at all.
- ★ Work out at home. If your child is overweight and sensitive about working out in public, consider investing in some exercise tapes or home gym equipment. Work out at home together.
- ★ Set a goal and work towards it together. Maybe you and your child can sign up for a 5K running race, or one-mile fun run. Develop a workout plan and train together. Or plan an active vacation, such as a canoe or hiking trip, and work out a plan for getting in shape for the trip.
- ★ Keep it fun! Whatever you do, keep in mind that your child needs a lifestyle change more than a quick fix. Make small, gradual changes, and try to include meals and activities that are enjoyable for your child and your family.

www.diabetes.org/main/community/forcast/page79.jsp

I hope this has been informative for you. Please let me know if you have any questions!!