

IS YOUR CHILD "HEART HEALTHLY"?

Children who have risk factors for cardiovascular disease (for example those who are overweight or obese, have abnormal blood fats, elevated blood pressure and/or who smoke, are at higher risk for health problems as they become adults.

- 1. Most** children with risk factors for cardiovascular disease will have them as an adult.
- 2. Being** overweight or obese often results in weight related to health risks such as:
 - Diabetes
 - High blood pressure
 - Injury to bones and joints
 - Disturbed sleep
 - Fatty liver disease
 - Abnormal blood fats
 - Isolation and Depression

It is important to determine what, if any, cardiovascular risk factors your child may have, and begin working with our healthcare team in finding safe and effective long term solutions.

Small changes at a young age can make a big difference in making sure your child's has a healthy future!

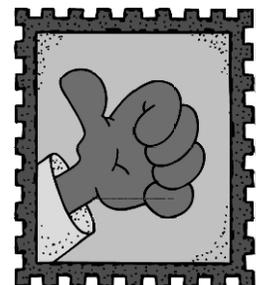
Things you can't change:

- **B**eing male
- **B**orn unusually small or large at birth.
- **F**amily members with diabetes, high blood pressure or abnormal blood fats.



Opportunities to improve! Here are some things you can change:

- **C**igarette smoking
- **H**igh blood pressure
- **O**verweight or obese
- **I**nsulin resistance
- **C**holesterol
- **E**xercise



WHY BE CONCERNED?

Genetic or acquired (especially becoming overweight/obese) leads to a variety of physical (high blood pressure, increased blood fats, and diabetes) as well as emotional problems (feelings of isolation, depression and sadness). Over time these risk factors increase your child's chances of a heart attack or stroke as an adult.

1

What is Your Child's Genetic Background?

Genetic inheritance makes some groups of people, and their children, more likely to develop diabetes and early heart disease.

These include

| Lower risk | Higher Risk | Highest Risk |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| <input type="checkbox"/> Non-Hispanic Whites | <input type="checkbox"/> Hispanics <input type="checkbox"/> Asians <input type="checkbox"/> Pacific Islanders <input type="checkbox"/> African Americans | <input type="checkbox"/> Native Americans |

2

Is Your Child Overweight or Obese?

The risk is highest in overweight / obese children with visceral obesity, i.e. increased fat in the abdomen rather than the hips. For those at highest risk:

- **Diabetes is 3 times higher**
- **Heart Disease is 2 times higher.**

Body Mass Index (BMI) and Waist Circumference (WC)

| Lower risk | Higher Risk | Highest Risk |
|--------------------------------------------------|------------------------------------------------------|--------------------------------------------------|
| Ideal | Overweight | Obese |
| <input type="checkbox"/> BMI <85 th % | <input type="checkbox"/> BMI 85 – 94 th % | <input type="checkbox"/> BMI ≥95 th % |
| <input type="checkbox"/> WC <85 th % | <input type="checkbox"/> WC 85 – 94 th % | <input type="checkbox"/> WC ≥95 th % |

| Your Child's Body Fat | Kg | | | | | % Body Fat | | | | | |
|-----------------------|-----|-----|-----|-----|------|------------|------|------|------|------|------|
| | 2yr | 4yr | 6yr | 8yr | 10yr | 12yr | 14yr | 16yr | 18yr | 20yr | 22yr |
| Average % Body Fat | | | | | | | | | | | |
| Males | 20 | 16 | 14 | 13 | 14 | 19 | 18 | 14 | 13 | 13 | 14 |

Females

| | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|
| 20 | 18 | 16 | 17 | 20 | 24 | 25 | 24 | 23 | 25 | 25 |
|----|----|----|----|----|----|----|----|----|----|----|

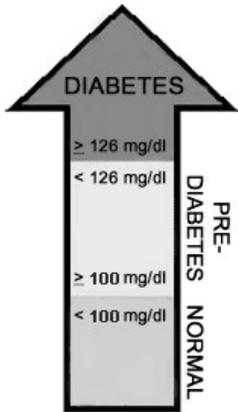
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Does your child have diabetes?

Diabetes occurs more commonly when there is a family history of diabetes. Some children have "pre-diabetes", i.e. an early sign that diabetes is likely to develop in the future. Family member with diabetes?

| Lower risk | High Risk | Highest Risk |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> No family members with diabetes | <input type="checkbox"/> Grandparents <input type="checkbox"/> Aunts <input type="checkbox"/> Uncles | <input type="checkbox"/> Mother <input type="checkbox"/> Father <input type="checkbox"/> Brother/Sister |

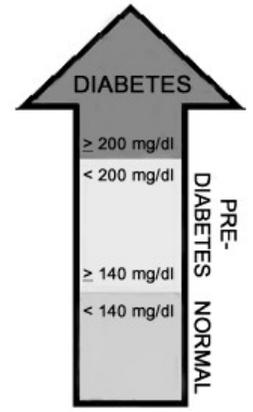
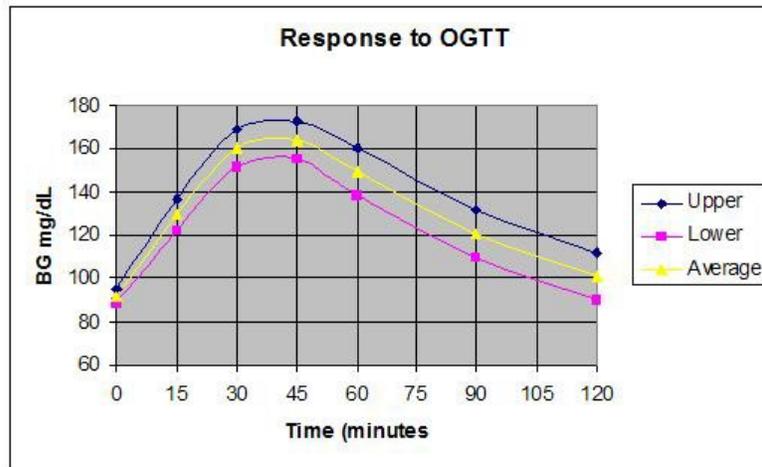
The oral glucose tolerance test (OGGT). How did your child do?



Fasting

Goal: Less than 100 mg/dl

mg/dl
mIU/ml



2 Hour

Goal: Less than 140 mg/dl

mg/dl
mIU/ml

| | | HgbA1c | |
|-----|--|--------------------|--------------|
| %"> | | Greater than 6.5 % | Diabetes |
| | | 5.7 – 6.5 % | Pre-diabetes |
| | | Less than 5.7 % | Normal |

4

Does Your Child Smoke? Adding fuel to the fire...

| Lower risk | High Risk | Highest Risk |
|---------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Never smoked | <input type="checkbox"/> Tried smoking, but quit <input type="checkbox"/> Second-hand smoke | <input type="checkbox"/> Smoke regularly |

5

Does Your Child Have High Blood Fats?

The body normally has a certain amount of fat in the bloodstream. After eating, the amount of fat in the blood increases. There are many different kinds of fat in the blood. The ones that are usually measured are cholesterol and triglycerides.

| Definitions | DESIRED | WORRISOME | HIGH |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|---------------|
| Total Cholesterol: The total amount of cholesterol in the blood. | Less than 170 | 170-194 | More than 200 |
| Bad Cholesterol (LDL-C): High levels cause injury to the blood vessels, resulting in hardening of the arteries (atherosclerosis). | Less than 110 | 110-130 | More than 130 |
| Good Cholesterol (HDL-C): Helps to protect the blood vessels from damage. It is often called "good cholesterol." | More than 45 | 40 - 45 | Less than 45 |
| Triglycerides: Large particles of fat in the blood used by the body as a source of fuel. High levels of triglycerides can damage the pancreas and has been | Less than 150 | 150-200 | More than 200 |

Know Your Numbers! 5th % 25th % 50th % 75th % 95th % Your result

| STANDARD LIPID PROFILE ¹ | | | | | | | |
|-------------------------------------|-------|-------|-------------|------------|-----|--|--|
| Test | Units | Lower | ← CV Risk → | Higher | | | |
| Total Chol | mg/dl | 120 | 142 160 | 170 200 | | | |
| Triglycerides | mg/dl | --- | --- | 60 80 | 115 | | |
| HDL-c | mg/dl | 35 | 45 50 | --- | --- | | |
| LDL-c | mg/dl | 50 | 70 95 | 110 | 130 | | |

EXPANDED LIPID PROFILE²

Modified from ¹ NHANES 1999 -2006 data; Lipid Research Clinics Prevalence Study

6

Is Your Child's Blood Pressure Too High?

HIGH BLOOD PRESSURE is a risk factor for heart disease and stroke.

| Age Group | DESIRED | WORRISOME | HIGH | YOUR CHILD'S LEVEL |
|-------------------------|--------------------------------------------------|-----------|-----------------|--------------------|
| Children | Normal levels vary with age, gender, and height. | | | |
| Adults | | | | |
| Top # (Systolic BP) | Less than 135* | 135-140 | Higher than 140 | |
| Bottom # (Diastolic BP) | Less than 85* | 85-90 | Higher than 90 | |

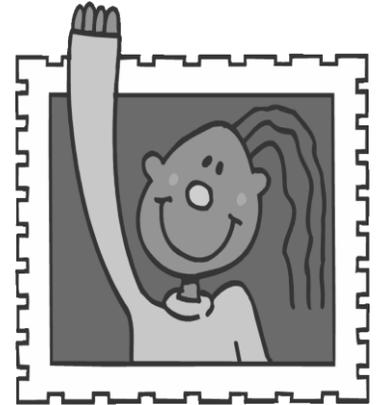
* The BP number should be lower for people who have diabetes.

BUILDING A HEALTHY FUTURE

What can I do to help my child be healthier?

Parents should help their children become better informed about healthier food choices and the benefits of daily exercise. As a concerned parent, you can:

1. Get involved.
 - a. Help set realistic goals for weight, food and activities.
 - b. Talk about your child's food:
 - ✓ Preference: What does he or she eat?
 - ✓ Preparation: How are the foods prepared?
 - ✓ Portions: Are the portion sizes appropriate?
2. Increase physical activities for the entire family.
3. Avoid smoking or, if you smoke, quit. Suggest your child do the same.
4. Make healthy living a family affair.
5. Be a good role model for your child!



Lifestyle Modification

The most effective and safe way to help your child lose weight and stay healthy is by encouraging him/her to stay active and choose healthy foods for meals and snacks. Here are some helpful guidelines:

Are your family ready for change? Everyone has the ability to become healthier. The decision to do so is up to you. There are several key steps in successfully adopting a heart healthy lifestyle:

- ✓ Be aware of the health risks associated with lack of physical activity, excessive weight gain, high blood pressure and blood fats, insulin resistance and smoking.
- ✓ Success starts with a "can do" attitude. Be ready to change!
- ✓ Avoid "going it alone". Seek the support of family and friends.

Become more active! A healthy heart requires an active lifestyle.

- ✓ Limit sedentary activities such as watching TV, using a computer and talking on a phone.
- ✓ Find 30 – 60 minutes each day to have FUN! Engage in activities that you enjoy and that will increase your heart rate and breathing for 30 continuous minutes or more.
- ✓ Little things add up. Remote parking, climbing 1 – 2 flights of stairs, or a short walk after dinner can all add up at the end of the day! Find activities that you do every day that can help you achieve a healthier heart.

Choose healthier foods for meals and snacks. We all enjoy eating – but what you choose to eat and the amount of food you consume make a big difference in the way you feel and your long term risk of developing diabetes and premature heart disease.

- ✓ **Learn** which foods to choose and which ones to limit or avoid.
- ✓ **Start slowly**, but be consistent in changing the way you eat.

- ✓ **Practice makes perfect!** Whether is playing the piano or eating properly, learning new skills take practice. Be patient with yourself and don't become upset if you make a few mistakes. Mistakes are a part of the way we learn. With practice, you will soon be able to make fewer mistakes and can start enjoying the benefits of healthier eating.

Some children... either for a short period of time when they are first getting started, or over a longer period of time, may benefit from dietary supplements. Here are a few suggestions for your child:

Vitamins and Supplements – What's the role of vitamins and dietary

supplements? In addition to a healthy lifestyle some children may benefit from one or more vitamins or dietary supplements. Although you can purchase these products without a prescription, you should always talk with your child's doctor before giving your child vitamins or dietary supplements.

FISH OILS

- Fish oils help to lower triglyceride levels. Studies in adults have shown a number of other health benefits such as an improved blood pressure and better blood vessel functioning.
- Sources: Many preparations of fish oils are sold over-the-counter. It is best to ask your child's doctor for advice about the potential benefits to your child and, if recommended, which brand would be best.
- Potential Side Effects: Nausea, gas, fishy-tasting burps

PLANT STEROLS AND STANOLS

- By binding the bad cholesterol (LDL-c) in the intestine, plant sterols and stanols decrease the absorption of cholesterol from the diet.
- Sources: Margarine (e.g. "Take Control" and "Benecol"). Minute Maid orange juice also contains plant sterols and stanols.

FIBER

- Eating more fiber can help to lower the LDL ("bad") cholesterol. For some people, taking a fiber supplement makes it easier to get more fiber in the diet.
- Sources: Oatmeal breakfast cereal, breads and crackers made with oatmeal. Bran breakfast cereals. Daily Metamucil fiber supplement may also help.

ANTI-OXIDANTS

- Vitamin C and E have the ability to lower blood fat levels and also make the body's heart and blood vessels healthier.
- Sources: Nonprescription at your local pharmacy.
- Potential Side Effects: Few, if any, reported when given at above doses.

Although these supplements have not been thoroughly evaluated in children, safety and effectiveness has been shown through use in adults. These products should be used with caution , since some may interfere with the action of prescription medications.

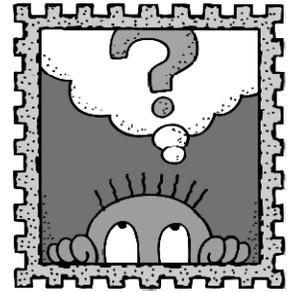


MEDICATIONS - Are medications available to help my child? There are no safe and effective medications for weight loss. The best and most lasting way for your child to lose and maintain a healthy weight is to adopt a healthier lifestyle. Some children, however, may benefit from medications on a short or long-term basis to help with weight related health risks such as insulin resistance, abnormal blood fats and high blood pressure. One of the most helpful medications to help improve your child's sensitivity to insulin is metformin. When combined with a healthy lifestyle, this medication may be helpful in preventing the onset of diabetes.

There is a growing list of prescription medications to help lower cholesterol levels in children and adolescents, starting as young as 8 years of age, help maintain a healthy heart and avoid heart disease as they grow into adult. Studies have shown no significant adverse side effects from use of the medications in the pediatric population.

Surgery – Is surgery available to help my child lose weight? Bariatric (weight loss) surgery is available for adults and children who are severely overweight/obese (BMI greater than 40-50) and who have significant health threats. While this approach may be beneficial to some, surgery is associated with many long-term medical health concerns as well.

Putting it all into perspective ... What have you learned?



When present in children and adolescences, risk factors such as...

- ✓ a lack of daily physical activity
- ✓ being overweight/obese
- ✓ high blood pressure and blood fats
- ✓ insulin resistance
- ✓ smoking

...greatly increase the chances that my child will develop diabetes and premature heart disease.

For the best results, the time to get started is **NOW**.

Next Steps...

There are a variety of learning opportunities designed to help your family get started on the path to good health. For more information, click on the REACH Clinic link below:

Need to add web link here

For more information about education and schedules:
Cook Children's Medical Center
Division of Pediatric Endocrinology and Diabetes
REACH Clinic
1500 Cooper Street
Fort Worth, Texas 76104-2724

Phone: (682) 885-7960

Helpful web sites:

- *The FH Foundation* – <https://www.thefhfoundation.org> Get information about diagnosis and management and how to be involved in the FH community to raise awareness. Use the Find an FH Specialist Tool.
- *Foundation of the National Lipid Association (FNLA)* – <http://www.learnyourlipids.com> Find general information about high-cholesterol management, including classes and forums about high cholesterol treatment, nutrition, and other special considerations.
- *CASCADE FH Registry* – <https://thefhfoundation.org/fh-research/registry/> Join a secure patient database used by researchers looking for better ways to diagnose and treat FH.
- **For Healthcare Professionals**
- Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents (<http://www.nhlbi.nih.gov/health-pro/guidelines/current/cardiovascular-health-pediatric-guidelines/summary>)
- Find a lipid specialist: (<http://www.lipidfoundation.org/professionals>)