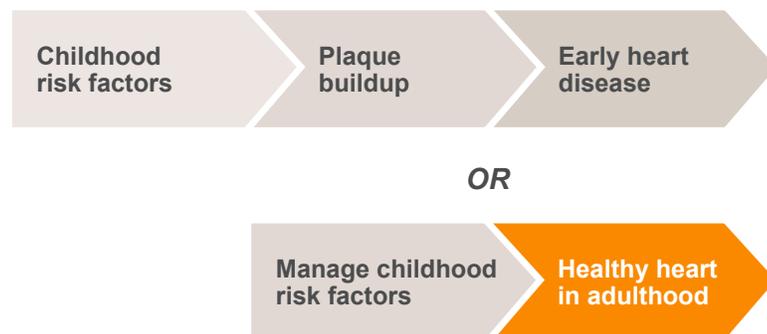


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Heart Health Starts in Childhood

Most children don't have heart disease. Usually only older adults have problems with their heart. But the fact is, what happens during childhood affects heart disease risk in adulthood. During childhood, fat can begin to build up in the arteries. Over the years, fatty plaques increase in size until they rupture or block the artery. This causes a heart attack or stroke. The more fat that builds up during childhood, the greater the risk of heart disease at a relatively young age. And it may lead to early death.

Here's another fact. It's the good news! Doctors can spot children at risk of building up lots of plaque by looking for heart disease risk factors. If a child has one or more of these risk factors, the doctor can work with the child and parents to decrease or get rid of them. Such action can delay or prevent heart disease in adulthood.



Heart disease risk factors in children

- Family history of heart disease
- Overweight or obese
- Dyslipidemia: high total cholesterol and/or triglycerides, low HDL cholesterol
- High blood pressure
- Physically inactive
- Diabetes
- Tobacco use or secondhand smoke exposure

Children who have multiple risk factors have an even greater risk of heart disease.



Heart disease risk factors—prevalence in children¹

- 3.6% of children 3 to 18 years old have high blood pressure.
- About 7% to 8% of teens have high total cholesterol, high LDL cholesterol, and/or high triglycerides.
- About 22% of teenage boys and 10% of teenage girls have low HDL cholesterol.
- 32% of American children and teens are overweight or obese.
- Obese teens have a 16-fold increased risk of being obese adults.
- 18% of students in grades 9 through 12 smoke cigarettes.
- Only 28% of students get the recommended amount of physical activity.
- Children's diets tend to be high in processed meats, sugar-sweetened beverages, and sweets and bakery desserts. They tend to be low in whole grains, vegetables, fruit, fish, nuts, legumes, and seeds.
- About 0.2% of children have diabetes, but more are being diagnosed with type 2 rather than type 1; type 2 is usually not diagnosed until age 40 or older.
- 4% to 9% of teens have multiple heart disease risk factors.

Helpful tests

Experts recommend these tests to identify heart disease risk factors in children²:

- A **BMI**, or body mass index, can be used to see if a child is overweight or obese. It is based on the child's age, sex, height, and weight. All children should be screened for BMI beginning at age 2 years.
- A **fasting lipid profile** is used to find out how much fat is in the blood. All children should be tested when they are 9 to 11 years old. They should be tested again when they are 17 to 21 years old. A **nonfasting HDL cholesterol** test can be used instead of the fasting lipid profile.
- All children should have their **blood pressure** taken once a year starting at age 3.
- A **fasting plasma glucose** or a **hemoglobin A1c** test should be used to check for diabetes. All children should be tested every 2 years, beginning at age 10. The test should be done before the child is 10 years old if puberty happens earlier.

Roadmap to a healthy heart

Here are some specific things that will help *reduce* heart disease risk factors. They will also help *prevent* heart disease risk factors. So, they are good for all children.

Exercise²

- Starting at age 5 years, get at least 1 hour of moderate to vigorous exercise each day.
- Limit sedentary time to less than 2 hours per day.

Diet and nutrition²

- Until 6 months of age, feed babies with mother's milk only.
- 6 to 12 months of age: continue mother's milk but gradually add solid foods; give no more than 4 ounces of 100% fruit juice.
- 12 to 24 months of age: consider changing from whole milk to 2% or fat-free milk; change to table food.
- 2 to 21 years:
 - Beverages: give fat-free, unflavored milk and water; limit juice to ≤4 - 6 ounces (no added sugar); avoid sugar-sweetened beverages.
 - Eat fiber-rich foods like fruit, vegetables, and whole grains.
 - Eat lean meat, poultry, and fish.
 - Eat fat-free or low-fat cheese, cottage cheese, and yogurt.
 - Avoid trans fat (hydrogenated oils) and foods high in saturated fat.
 - Limit refined carbohydrates (sugar, white rice, white bread).
 - Limit fast food.
 - Limit salt to <1500 mg/day; these foods are often high in salt because of the ways they are processed: breads, cold cuts and cured meats, pizza, chicken, soup, sandwiches.

Experts recommend all infants and children get a daily pill with 400 IU of vitamin D. They don't recommend any other vitamin or mineral pills for children.²

Additional information

- Blood pressure norms for children: http://pediatrics.aappublications.org/content/128/Supplement_5/S213.full.pdf
- BMI calculator and percentile distributions for children: http://www.cdc.gov/healthyweight/assessing/bmi/childrens_BMI/about_childrens_BMI.html
- Dietary guidelines and nutrition:
 - <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/DG2010Brochure.pdf>
 - <http://www.eatright.org/Public/landing.aspx?TaxID=6442451979>

References

1. Go AS, Mozaffarian D, Roger VL, et al for the American Heart Association Statistics Committee and Stroke Statistics Committee. Heart disease and stroke statistics—2013 update. *Circulation*. 2013;127:e6-e245.
2. Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: summary report. *Pediatrics*. 2011;128:S213-S256.