

## CHOLESTEROL SCREENING

Cholesterol is the primary form of fat in the bloodstream. While it is important for normal cellular functions, an excess amount increases the risk of heart disease. About 50% of children with high cholesterol will continue to have high levels in adulthood. Reduction in intake of dietary cholesterol and unsaturated fats can reduce *serum cholesterol* (cholesterol in the bloodstream). A 1% decrease in cholesterol leads to a 3% decrease in risk of heart disease. Cholesterol screening provides an important measure of risk, and follow-up testing helps to guide therapy.

**Types of cholesterol.** Cholesterol is composed of *high-density lipoprotein* (HDL), *low-density lipoprotein* (LDL), and *triglycerides*. The HDL is called "good" cholesterol since it carries cholesterol away from the arteries and to the liver for elimination. LDL is called "bad" cholesterol, since excess LDL deposits cholesterol on arterial walls over time. It is best to increase your HDL and decrease your LDL.

**Normal & abnormal cholesterol level.** Normal cholesterol is between 120 and 170 in childhood, and after age 18, they tend to rise about 1 point per year.

**What age to test?** The American Academy of Pediatrics and the American Heart Association agree that all children who have risk factors for CAD (coronary artery disease) should be screened soon after age 2. Before age 2, the diet needs to be high in fat for growth and development. Two main risk factors should be considered: (1) a family history of high blood cholesterol and (2) a family history of CAD. The latter includes an early (less than age 50 in men or less than age 60 in women) history of heart attack, angina, stroke, or bypass surgery. Cholesterol testing of all children is controversial, since it is costly, high levels do not persist into adulthood 50-60% of the time, healthy diets can be started in all children without knowing cholesterol levels, and it requires blood drawn from a vein, which is difficult in a child. Routine testing may be done between ages 2 and 5.

**Retesting children with high cholesterol levels.** If your child's cholesterol value is borderline high, the test will be repeated in 1 to 2 weeks. If the level remains high, it is assumed to be accurate. Children with confirmed high cholesterol levels (over the 95th percentile) should have a lipid profile or panel performed, including LDL, HDL, and triglycerides. Diet and exercise treatment should be initiated and the level repeated in about 2-4 months. If high normal levels, treatment can be started without further tests, and will likely be repeated yearly. In addition, it is recommended to test other family members, since in over 80% of cases it will show high values for other members too.

**Treating high cholesterol levels is based on healthy eating and a sound exercise plan.** It is easier to start these habits as a child, rather than adopt them as an adult. In children with high cholesterol levels, it is essential. Medications are rarely used in children unless they have a rare form of high cholesterol related to disease rather than diet. If your child's level remains high, request a consultation with a nutritionist.

**Low fat diet.** The American Heart Association recommends that all children over age 2 be on a low cholesterol and low saturated fat diet. Most Americans take in 40% of daily calories as fat. A healthy diet keeps fat to 30% of total calories. The goal is to eat fat in moderation. Lowering a child's fat intake to 30% of daily calories has no risk in children over age 2. Foods of plant origin (fruits, vegetables, and grains) do not contain cholesterol. Foods of animal origin (meats, eggs, and milk products) do contain cholesterol. Consuming cholesterol or saturated fats stimulates cholesterol production. Even without any fat intake, the liver produces enough cholesterol daily.

**Family exercise program.** Exercise is the best way to raise HDL, the good cholesterol. Every family member could benefit from a routine exercise program. Your goal should be 20 to 30 minutes of vigorous exercise 3 to 5 times per week. The exercise should involve the large muscles of the legs and cause the heart to beat faster (*aerobic exercise*). This improves the heart's response to a workload.

**Ideal body weight.** Overweight children tend to have low HDL and a high LDL level. Returning to ideal body weight will improve blood cholesterol. A low fat diet and exercise are also the keys for losing weight.

**Setting a good example.** Reducing cholesterol, healthy eating, routine exercise, maintaining ideal body weight and quitting or not smoking are the ingredients to keeping your cholesterol under control. These are excellent goals for all family members. By setting an example and helping your child establish good habits now, you are giving him the keys to a long and healthy life.