

Elevated LDL (Low Density Lipoprotein)

Many things affect your child's chances of having heart and blood vessel disease as an adult. Some of these risk factors, such as family history, age, and gender, cannot be changed. Some of the risk factors **can** be changed, such as:

- Unhealthy weight
- Tobacco use
- High blood pressure
- Low HDL cholesterol

Cholesterol build-up can start in children as young as 2 years of age. By making wise food and lifestyle choices now, your child can lower the risk of many health problems when they are older. These health problems include:

- A **stroke** caused by blocked arteries that lead to the brain.
- A **heart attack** caused by blocked arteries around the heart.
- **Peripheral vascular disease** caused by blocked arteries in the legs.

Cholesterol is found in all cells. It is needed for many body functions. Two types of cholesterol are HDL and LDL. Increased **LDL** levels have been found to increase the risk of heart and blood vessel disease. LDL can collect in the arteries. This is why it is called "lousy" cholesterol.

Fat is a big source of energy and helps move vitamins throughout your body. Fat is also needed to make certain hormones. Some fats can lead to a type of heart and blood vessel disease which can increase the risk of a heart attack, stroke, leg pain or other problems.

Food choices which raise LDL levels:

- Too much saturated and trans fats
- Not enough fiber in the diet

Food choices which reduce LDL level:

- Increase your fiber intake
- Decrease saturated and trans fat intake

Saturated fats tend to raise blood cholesterol levels. Eat less saturated fats which are found in animal foods (fatty meats, whole milk, butter) and tropical oils (palm and coconut oil).

Trans fats are made when liquid vegetable oils are hardened to make shortening or margarine. They raise your "lousy" LDL cholesterol. They also decrease your "happy" HDL cholesterol. Try to eat as little trans-fat as you can.

Fiber is the edible part of plant foods. Eating 25-35 grams of fiber per day (focus on soluble fiber) can help lower LDL by 3-5%. Soluble fiber is found in fruits and vegetables, barley, corn, peas, beans and oats.

To Increase Fiber Intake

- Eat more fresh, frozen or canned fruits and vegetables (aim for at least 5 servings per day).
- Eat whole grain breads, pasta and cereals.
- Plan some meatless meals using beans or lentils as a protein source.

Plant sterols/stanols block cholesterol from being absorbed in the intestine. Eating 2 grams of plant sterols per day can reduce LDL levels by 10% or more. Plant sterols are found in fortified margarine (Promise[®] Take Control[®]), yogurt (Supershots[®]) and in plant sterol capsules.

Tips to Lower LDL

| | Choose | Avoid |
|-----------------------------|---|---|
| Milk and Dairy Foods | <ul style="list-style-type: none"> • Skim or 1% white milk • Low-fat/part-skim cheese: mozzarella, swiss, farmer's cheese • Low-fat/non-fat frozen yogurt, sherbet, fruit sorbet • Low-fat/non-fat sour cream • Low-fat/non-fat cottage cheese or yogurt • Low-fat/non-fat cream substitutes | <ul style="list-style-type: none"> • Whole, 2% white milk • Full-fat natural cheeses, any processed cheeses • Full-fat ice cream • Full-fat sour cream • Full-fat cottage cheese or yogurt • Cream, half & half |
| Protein Foods | <ul style="list-style-type: none"> • Lean beef: lean ground beef (90/10 or higher), top sirloin, tenderloin, rump, flank • Lean pork: loin chop, tenderloin, ham • Turkey sausage or turkey bacon • Lean lunch meats • Baked or grilled chicken and fish • Eggs • Vegetable/broth soups • Turkey/chicken hot dogs or bratwurst • Tofu, peanut butter, dried or canned beans, lentils, hummus, nuts and seeds | <ul style="list-style-type: none"> • Fatty beef: high-fat ground beef (80/20), T-bone, prime rib • Fatty pork: spare ribs, sausage • Pork sausage, bacon • Lunch meats with more than 3 grams fat/ounce • Deep-fried meats and seafood • Egg prepared in butter • Creamed soups • Regular hot dogs or bratwurst |
| Fats | <ul style="list-style-type: none"> • Margarine: soft tub or squeeze type (with 0 grams trans-fat), margarines fortified with plant sterols • Liquid oils: canola, olive, peanut, sesame, sunflower, safflower, soybean, cottonseed or flaxseed oils • Oil-based salad dressings • Mayo and sandwich spreads (light/reduced calorie) | <ul style="list-style-type: none"> • Butter, margarine with trans-fat • Coconut and palm oils, lard, cream cheese, vegetable shortening that contains partially hydrogenated vegetable oil • Creamy salad dressings • Mayo (full-fat) |

Other Ways to Reduce LDL

- **Physical activity.** Exercise can strengthen the heart. It can also help with weight control. Experts say to aim for 60 minutes of vigorous play or aerobic activity daily such as jogging, walking, biking, dancing and swimming or playing at a park or outside with friends.
- **Limit screen time.** Limit screen time to no more than 2 hours daily for all children over 2 years of age. Screen time includes phone, tablet, computers, video games and TV.

Teach Back

What is the most important thing you learned from this handout?

What changes will you make in your diet/lifestyle, based on what you learned today?

Who to Call

If you are a UW Health patient and have more questions please contact UW Health at one of the phone numbers listed below. You can also visit our website at www.uwhealth.org/nutrition.

Nutrition clinics for UW Hospital and Clinics (UWHC) and American Family Children's Hospital (AFCH) can be reached at: **(608) 890-5500**.

Nutrition clinics for UW Medical Foundation (UWMF) can be reached at: **(608) 287-2770**.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 12/2019 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Clinical Nutrition Services Department and the Department of Nursing. HF#601