AU InforMed

SEPTEMBER IS CHOLESTEROL EDUCATION MONTH
Cholesterol 101: A non-pharmacological approach to lowering cholesterol.

Killer Cholesterol!!

Approximately 105.2 million American adults have high cholesterol (total cholesterol >200 mg/dL) and out of these Americans 35% have a total cholesterol of greater than 240 mg/dL, which puts them at high risk for developing coronary heart disease.[1,2] The two main sources of cholesterol are the cholesterol made by the body and the cholesterol that comes from the foods you eat. Approximately 75% of blood cholesterol is made by the body (primarily the liver) and the remaining 25% comes from food. The cholesterol in your body to helps produce cell membranes and hormones and helps out with other bodily functions, but too much can lead to coronary heart disease.[1,2,3]

Cholesterol is transported through blood vessels as lipoproteins. There are two main types of lipoprotein: high-density lipoprotein (HDL) also known as "good" cholesterol and low-density lipoprotein (LDL) also know as "bad" cholesterol. HDL cholesterol is considered "good" because it transports cholesterol away from the arteries and back to the liver, thus helping to reduce build-up of cholesterol in the arteries. LDL is considered "bad" because it is responsible for transporting cholesterol from the liver to the rest of the body, where it can build up in the arteries. Elevated LDL and total cholesterol (TC), and low HDL have each been associated with ischemic heart disease.[1,2,3,4]

Cardiovascular disease accounts for approximately one million deaths in the United States per year. Out of these deaths 48% are due to ischemic heart disease. Therefore, it is important to control your cholesterol levels. The following is a table that was derived from the Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III, or ATP III) guidelines to show you what your cholesterol levels should be:[4]

Table I: Recommended Cholesterol Levels

Type	Level
Total Cholesterol	< 200 mg/dL
LDL-Cholesterol	<100 mg/dL
HDL-Cholesterol	>50 mg/dL in women >40 mg/dL in men
Triglycerides	< 150 mg/dL

1. DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM. Pharmacotherapy. 6th ed. New York: McGraw-Hill; 2005.
2. American Heart Association [homepage on the Internet]. American Heart Association, Inc; c2007 [updated 20 August 2007; cited 21 August 2007]. Available from: http://www.americanheart.org/presenter.jhtml?identifier=4506.
3. American Heart Association [homepage on the Internet]. American Heart Association, Inc; c2007 [updated 20 August 2007; cited 20 August 2007]. Available from: http://www.americanheart.org/presenter.jhtml?identifier=3046105.
4. National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). National Heart, Lung, and Blood Institute. National Institutes of Health. 2002 September. Available from: http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3full.pdf.

FAT FACTS:

A diet low in fat has been shown to reduce the risk of cardiovascular disease.[1] The first step in reducing your risk of cardiovascular disease is knowing which fats increase your total cholesterol, LDL-cholesterol, and triglycerides. Only 25-35% of one's total daily calories should come from fat.[2]   The different types of fats found in foods and food sources of these fats are listed below:

- Saturated Fat: Diets high in saturated fat can increase cholesterol levels by 20%, therefore it is recommended that saturated fats make up only 10% or less of your daily calories. Saturated fat can be found in foods such as butter, cheese, whole milk, eggs, seafood, ice cream, fatty meats, palm oil, kernel oil, and coconut oil.[3]
- Unsaturated Fat: This type of fat is known to reduce cholesterol levels, although the mechanism remains unknown. However, they still contain an abundant amount of calories and therefore consumption of unsaturated fat should also be limited. There are two main types of unsaturated fats: polyunsaturated and monounsaturated.
  - Polyunsaturated Fat: Nuts, soybeans, vegetable oil, seeds, and fish are examples
  - Monounsaturated Fat: olive oil, canola oil, peanut oil, margarine butter spreads, and nuts are examples.[4]
- Trans Fatty Acids: This form of fat is produced when the hydrogenation (production of a liquid to a semisolid form) of vegetable oil takes place. Trans fatty acid has also been shown to increase the risk of cardiovascular disease. Some examples are deep-fried fast food, packaged snack foods, margarines, crackers, and bakery products.[5]

By limiting the amount of fat in your diet (especially in the form of saturated and trans fat), you can help lower LDL-cholesterol levels and reduce the risk of developing heart disease.

1. DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM. Pharmacotherapy. 6th ed. New York: McGraw-Hill; 2005.
2.. Guyton AC, Hall JE. Textbook of Medical Physiology, 10th ed. St. Louis: W.B. Saunders Company; 2000.
3. Medline [database on the Internet]. Bethesda (MD): National Library of Medicine (US); 2007 – [cited on 2007 Aug 21]. Fat. [about 3 p.] Available from: http://www.nlm.nih.gov/medlineplus/ency/article/002468.htm
4. BetterHealthChannel.vic.gov [homepage on the Internet]. Fats and Oils. Victoria: © State of Victoria 2006 [cited on 2007 Aug 21]. Available from: http://www.betterhealthchannel.vic.gov.au/BHCV2/bhcarticles.nsf/pages/Fats_and_oils?OpenDocument
5. Mozaffarian D, Katan MB, Ascherio A, Stampfer MJ, Willett WC. Trans fatty acids and cardiovascular disease. N Engl J Med. 2006 Apr 13;354(15):1601-1613.

Beans for thought…

The debate over whether or not coffee is good or bad for your health has been going on for years. While many attribute the possible negative effects on coffee to its caffeine content, studies have been published that link coffee consumption to increased LDL-cholesterol. It has been found substances in unfiltered coffee (such as French-press coffee, Turkish coffee, or Scandinavian boiled coffee, or coffee prepared in a percolator), specifically two diterpenes, cafestol and kahweol, can cause an increase in LDL-cholesterol levels when consumed over long periods of time.[1,2,3,4] The mechanism of how these two compounds increase LDL-cholesterol is unknown; one theory is that cafestol may suppress bile acid synthesis, causing an increased amount of regulatory cholesterol, which results in a decreased expression of hepatic LDL receptors, increasing levels of LDL-cholesterol.[1] Studies show that filtered coffee (what most Americans consume) diminishes the risk of increased LDL-cholesterol caused by cafestol and kahweol because they are trapped by the paper filter.[5] Studies are ongoing to examine the effects of coffee – filtered and unfiltered – on cholesterol levels.

1. Post, SM, de Roos B, Vermeulen M, Afman L, Jong MC, Dahlmans VEH, et al. Cafestol increases serum cholesterol levels in apolipoprotein e*3-leiden transgenic mice by suppression of bile acid synthesis. Aterioscler Thromb Vasc Biol. 2000; 20:1551-6.
2. de Roos B, van Tol A, Urgert R, Scheek LM, van Gent T, Buytenhek R, et al. Consumption of French-press coffee raises cholesteryl ester transfer protein activity levels before LDL cholesterol in normolipidaemic subjects. J Intern Med. 2000; 248:211-216.
3. Urgert R, Katan MB. The cholesterol-raising factor from coffee beans. Annu Rev Nutr. 1997; 17:305-324.
4. van Tol A, Urgert R, de Jong-Caesar R, van Gent T, Scheek LM, de Roos B, et al. The cholesterol-raising diterpenes from coffee beans increase serum lipid transfer protein activity levels in humans. Atherosclerosis. 1997; 132:251-254.
5. MSNBC [homepage on the Internet]. MSNBC.com; c2007 [updated 20 August 2007; cited 20 August 2007]. Available from: http://www.msnbc.msn.com/id/6242467/

Heart Healthy Romantic Dinner for Two!

Green Beans Almondine

1 tsp light tub margarine
1 pound fresh green beans
¼ cup low-sodium vegetable broth

1 tbsp chopped oregano
1 cup frozen pearl onions
2 tbsp sliced almonds
¼ coup plain dry bread crumbs

Heat a large skillet over medium-high. Add the margarine and swirl to coat the bottom. Cook the green beans for 1 to 2 minutes, stirring constantly. Stir in the broth, oregano and pepper. Cook for 20 to 30 seconds. Stir in the onions. Cook, covered, over medium-low heat for 6 to 8 minutes, or until the beans are tender-crisp. Meanwhile, in a small pan, dry roast the almonds over medium heat for 2 to 3 minutes, stirring occasionally. Sprinkle the cooked beans with almonds and the bread crumbs.

Fish with Mustard Sauce over Spinach

¼ cup fat-free or light ranch salad dressing
3 tbsp fat-free plain yogurt
1 ½ tbsp prepared mustard
8 oz fresh spinach

4 mild fish fillets (your choice of fish)
Preheat the oven to 400°F. Rinse the fish and pat dry with paper towels. Place in a 12x8x2 inch glass baking dish. In a small bowl, stir together the salad dressing, yogurt, and mustard. Spoon evenly over the fish. Bake for 8 to 10 minutes, or until the fish flakes easily with a fork. Meanwhile, remove the stems from the spinach. Rinse the spinach thoroughly. Drain well. Heat a skillet over medium-high heat. Cook the spinach for 30 seconds, or just until wilted, stirring constantly. Arrange the spinach in a single layer on serving plates. Top with baked fish. Serve immediately.

Apple Rhubarb Crisp

Filling:
2 cups fresh unsweetened sliced rhubarb
2 medium cooking apples, cored, peeled and sliced
½ cup sugar
1 tbsp cornstarch

½ cup all-purpose flour
¼ cup firmly packed light brown sugar
3 ½ tbsp light tub margarine

Topping:
2/3 cup uncooked regular rolled oats
In a large bowl, stir together the filling ingredients to mix well. Let stand for 1 hour. Spoon into an ungreased 8 inch square baking pan or 1 qt casserole dish. Preheat the oven to 375°F. In a medium bowl, stir together the topping ingredients except the margarine. Using a pastry blender, cut the margarine into the topping until the mixture resembles coarse crumbs. Sprinkle the topping over the apple-rhubarb mixture. Bake, uncovered, for 30 to 40 minutes, or until the topping is light brown. Let cook for about 20 minutes before serving.

**All recipes were taken from the American Heart Association (www.americanheart.org).

How Much Do You Know About Cholesterol? Quiz

1. The majority of cholesterol is produced by:
        a) The foods you eat   c) Your liver
        b) Your heart   d) None of these
2. "Bad" cholesterol is:
        a) LDL-cholesterol   c) Both a. and b.
        b) HDL-cholesterol   d) Neither a. nor b.
3. According to the ATPIII Guidelines, total cholesterol should be *less than*:
        a) 150 mg/dL   c) 250 mg/dL
        b) 100 mg/dL   d) 200 mg/dL
4. The recommended dietary cholesterol intake per day is:
        a) less than 50 mg/day   c) less than 200 mg/day
        b) less than 75 mg/day   d) less than 500 mg/day
5. Which of the following can help lower cholesterol levels?
        a) Exercise   c) Eating a diet low in fat
        b) Eating a diet rich in vegetables   d) All of these

Answers:

1. c, 2. a, 3. d, 4. c, 4. d

If you got all 5 questions correct, you are on your way to living a heart-healthy lifestyle!!

FYI:
Table II: Cholesterol Content of Popular Foods:

Item	Cholesterol content (mg)[1,2,3,4,5]
McDonald's Quarter Pounder® with cheese	90 mg
Chick-fil-A® Chicken Biscuit	35 mg
Chick-fil-A® Chicken Sandwich	60 mg
6" Subway Club®	35 mg
1 slice Papa John's Pepperoni Pizza (14" pizza)	20 mg
Bruster's® Chocolate Ice Cream	30 mg

1. McDonald's® [homepage on the Internet]. McDonald's; c2005-2006. [updated January 2007; cited 20 August 2007]. Available
    from: http://www.mcdonalds.com/app_controller.nutrition.index1.html
2. Chick-fil-A® [homepage on the Internet]. CFA Properties, Inc. c2002. [cited 20 August 2007]. Available from:
    http://www.chickfila.com/MenuTable.asp
3. Subway® [homepage on the Internet]. Doctor's Associates, Inc. c2007. [cited 20 August 2007]. Available from
    http://www.subway.com/applications/NutritionInfo/index.aspx
4. Papa John's Pizza® [homepage on the Internet]. Papa John's International, Inc. c2007. [cited 20 August 2007].
    Available from: http://www.papajohns.com/menu/productshots/createyourown.html
5. Bruster's Real Ice Cream® [homepage on the Internet]. Bruster's Ice Cream, Inc. [updated 26 2005 March; cited 20 August
    2007].Available from: http://www.brusters.com/flavors/nutr_chocolate.htm

The last "dose" …

"The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function."
F. Scott Fitzgerald (1896 - 1940), "The Crack-Up" (1936)