Cholesterol Control

Modern scientists have known for a long time that cholesterol levels in the body are related to coronary heart disease and that diet affects these levels. The following material helps to explain this relationship and discusses what you can do to help keep your heart healthy. Not all cholesterol is bad. *Low-density lipoprotein* (LDL) cholesterol is the “bad” cholesterol which may cause fatty deposits to build up inside your arteries. *High-density lipoprotein* (HDL) cholesterol is “good”. It helps to remove the “bad” LDL cholesterol from your blood. Cholesterol is a very important risk factor for coronary heart disease. Other risk factors are high blood pressure, smoking, stress, heredity, and weight.

The heart muscle gets its supply of blood through the coronary arteries. If your LDL (“bad”) cholesterol is high and your HDL (“good”) cholesterol is low, you have a risk factor for fatty deposits accumulating in your coronary arteries (a vessel providing blood to the heart). This leaves less room through which blood can flow. Without sufficient blood and the oxygen, the heart muscle cannot function properly, and you may feel chest pains (called *angina pectoris*). When a coronary artery closes up entirely, a part of the heart muscle may die (called a *myocardial infarction*).

CHECKING CHOLESTEROL

When your caregiver sends your blood to a lab to be analyzed for cholesterol, they may do a complete *lipid* (fat) profile. With this test the total amount of cholesterol, as well as levels of LDL and HDL, are determined. The chart below describes what the numbers should be:

Test	**Goal**
Total Cholesterol	Less than 200 mg/dl
LDL "bad cholesterol"	Less than 160 mg/dl for those at low risk for heart disease Less than 130 mg/dl for those at intermediate risk for heart disease. Less than 100 mg/dl for those with diabetes or at high risk for heart disease Less than 70 mg/dl for those at very high risk for heart disease
HDL "good cholesterol"	Women: Greater than 50 mg/dl Men: Greater than 40 mg/dl
Triglycerides	Less than 150 mg/dl

Reference: AmericanHeart.org/Numbersthatcount 1/15/08

CONTROLLING CHOLESTEROL WITH DIET

Although such factors as exercise and life-style are important, the “first line of attack” is diet. That is because certain foods are known to raise cholesterol and others to lower it. So the goal for most Americans is to balance foods for their effect on cholesterol and, even more important, to replace saturated fat with other types of fat, such as monounsaturated and polyunsaturated fats, and omega-3 fatty acids.

The average American takes in about 500 to 600 milligrams (mg) of cholesterol and about 40 grams (g) of saturated fat daily. Ideally, these figures should be reduced to 300 mg of cholesterol and 15 to 17 g of saturated fat, or even lower in people who have coronary artery disease or a history of heart attack. But that does not mean you have to sacrifice all your favorite foods. Today, as the table at the end of this document shows, there are good-tasting, low-fat, low-cholesterol substitutes for most of the things you like to eat. Which foods should you choose? Choose low-fat or non-fat alternatives. Choose round or loin cuts of red meat as these types of cuts are lowest in fat and cholesterol. Chicken (without the skin), fish, veal and ground turkey breast are excellent choices. Eliminate fatty meats like hotdogs and salami. Even shellfish have little or no saturated fat and so, despite their high cholesterol content, are allowable in moderation. When you eat lean meat, poultry, or fish, have a 3 oz. portion.

For baking and cooking, oils are an excellent substitute for butter. The monounsaturated oils are of particular

benefit since it is believed they lower LDL (the bad cholesterol) but raise HDL. The oils you should avoid entirely are the saturated tropical oils such as coconut and palm.

Remember to eat liberally from food groups that are naturally free of cholesterol and saturated fat, including fish, fruit, vegetables, beans, grains (barley, rice, couscous, bul-gur wheat), and pasta (without cream sauces).

IDENTIFYING FOODS THAT LOWER CHOLESTEROL . . .

Soluble fiber found in fruits such as apples; vegetables such as broccoli, potatoes, and carrots; legumes such as beans, peas, and lentils; and grains such as barley may lower your cholesterol. Foods fortified with plant sterols, or phytosterol, may also lower cholesterol. You should eat at least 2g per day of these foods for a cholesterol lowering effect.

How can you identify low-cholesterol, low-fat foods at the supermarket? The key is to read package labels. Select cheeses that have only 2-3 g saturated fat per ounce. Use a heart healthy tub margarine free of partially hydrogenated oil such as Promise® or Smart Balance®. When buying baked goods (cookies, crackers), avoid partially hydrogenated oils. Breads and muffins should be made from whole grains (whole wheat or whole oat flour, instead of just "flour" or "enriched flour"). Buy non-creamy canned soups with reduced salt and no added fats.

FOOD PREPARATION TECHNIQUES . . .

Never deep fry. If you must fry, either stir fry, which uses very little fat, or use the non-stick cooking sprays like Pam®. When possible, broil, bake, or roast meats, and steam vegetables. Instead of dressing vegetables with butter or margarine, use lemon and herbs, applesauce and cinnamon (for squash and sweet potatoes), non-fat yogurt, salsa, and low-fat dressings for salads.

See the following table for food, cholesterol, and fat information.

FOODS HIGH IN CHOLESTEROL AND/OR SATURATED FAT			**LOW CHOLESTEROL/LOW-FAT SUBSTITUTES**		
	Cholesterol (milligrams)	Saturated Fat (grams)		Cholesterol (milligrams)	Saturated Fat (grams)
Steak, marbled (3 oz)	90	11	Steak, lean (3 oz)	50	4
Hamburger (3 oz)	80	7	Hamburger, lean (3 oz)	50	5
Ham (3 oz)	53	6	Ham, lean cut (3 oz)	35	2.4
Chicken, with skin (3 oz)			**Chicken, skin removed, 3 oz**		
Dark meat	90	4	Dark meat	80	2
Light meat	80	2.5	Light meat	70	1
Egg (1 Large)	200-300	1.7	Egg substitutes ("Eggbeaters")	0	0
Whole Milk (1 cup)	33	5	Low-fat milk (2%) (1 cup)	18	3

			Low-fat milk (1%) (1 cup)	10	1.5
			Skim milk (1 cup)	trace	0.3
Hard Cheese (1 oz)	30	6	Skim milk cheese (1 oz)	16	2-3
Cottage Cheese (1 cup) (4% fat)	35	6.5	Low-fat cottage cheese (1 cup) (1% fat)	10	1.5
Ice cream (1 cup)	60	9	Sherbet (1 cup)	14	2.5
			Non-fat frozen yogurt (1 cup)	0	0.3
			Frozen fruit bars	0	trace
Whipped cream (1 tbsp)	20	3.5	Non-dairy whipped toppings (1 tbsp)	trace	1
Mayonnaise (1 tbsp)	5	2	Low-fat mayonnaise (1 tbsp)	5	1
Butter (1 tbsp)	30	7	Extra light margarines (tbsp)	0	1
Oils (1 tbsp)			**Oils (1 tbsp)**		
Saturated			**Monounsaturated**		
Coconut oil	0	11.8	Olive	0	1.8
			Polyunsaturated		
			Corn	0	1.7
			Safflower	0	1.2
			Sunflower	0	1.4
			Soybean	0	2.4

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