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Managing Cholesterol with Exercise

by Ralph La Forge, M.S.

APPROXIMATELY 38 PERCENT OF

Americans have excessively high blood cholesterol levels. The National Cholesterol Education Program (NCEP ATP III, 2001) states that a sound diet, weight loss and physical activity are the cornerstones of therapy for many individuals with cholesterol disorders. (Cholesterol-lowering drug therapy is reserved for those who have the very highest lipid levels or for those who have diabetes or coronary disease.)

Atherosclerosis is a costly and fatal disease. Although there is no known cure, new evidence suggests that intensive lowering of serum total cholesterol, or more specifically, LDL cholesterol may retard the progression of coronary artery disease.

The box, right, contains the NCEP cholesterol guidelines authored in 2001 by a panel of physicians and lipid experts.

Reducing cholesterol through exercise, particularly LDL cholesterol, can be quite labor intensive. When individuals accumulate a sufficient weekly volume of exercise they can lower both total cholesterol and LDL-cholesterol and increase HDL-cholesterol (the "good" cholesterol).

Exercise itself does not "burn off" cholesterol like it can with fat tissue. However, when exercise is of sufficient volume, for example, an adequate weekly frequency and duration, it can significantly reduce triglycerides and stimulate several metabolic enzyme systems in the muscles and liver to convert some of the cholesterol to a more favorable form, such as HDL-cholesterol. Reducing triglycerides decreases triglyceride-rich particles that are known to promote the growth of fatty deposits on artery walls.

For many people with cholesterol disorders the first choice of therapy is dietary modification. In general, reducing high-glycemic carbohydrates reduces triglycerides, and reducing saturated and trans-fat foods decreases LDL-cholesterol. If LDL cholesterol (the "bad" cholesterol) is high enough, dietary therapy is often supplemented with cholesterol-lowering drug therapy. Exercise is of tremendous benefit when used in combination with either of these two forms of therapy. For those who maintain a frequent and sufficient level of exercise, it is possible that their physician will reduce their cholesterol-lowering medication and in some cases stop it altogether.

Here are guidelines that outline a systematic

National Cholesterol Education Program Adult Treatment Panel III Guidelines

Total Cholesterol

<200	Desirable
200-239	Borderline high
≥240	High

LDL Cholesterol

<100	Optimal*
100-129	Near Optimal
130-159	Borderline High
160-189	High
>190	Very High

* <70 mg/dL is a therapeutic option for very high-risk patients (i.e., those with established CHD plus diabetes or multiple risk factors such as the metabolic syndrome)

HDL Cholesterol

<40	Low
>60	High

Triglycerides

<150	Normal
150-199	Borderline High
200-499	High
>500	Very High

Non-HDL Cholesterol (This is a secondary target of therapy when fasting triglycerides are >200 mg/dL)

Non-HDL Cholesterol is calculated as follows:

Total Cholesterol - HDL-C

Non-HDL goal: Same as LDL-C goal plus 30 mg/dL (e.g., if LDL-C goal <130 mg/dL, then Non-HDL goal is 160 mg/dL)

All values are expressed in milligrams per deciliter.

approach for favorably altering cholesterol levels with regular exercise:

- If you have a less-than-desirable cholesterol level, or your doctor has indicated you have a cholesterol disorder, have your physician establish your cardiovascular health status before engaging in a vigorous exercise program. Your physician may elect to perform additional blood tests (e.g., C-reactive protein) and/or a graded exercise test with an ECG (treadmill stress test) on you first.
- Choose dynamic forms of exercise that tend to last at least 20 to 30 minutes and are performed at moderate intensities. Moderate exercise intensities would be an

approximate effort of four to seven, on a scale of one to ten with ten being near maximal exercise.

- In general, for exercise to significantly lower cholesterol levels, a relatively high volume of exercise is recommended (e.g. 1,500 kcal or more per week). In 12 to 16 weeks this volume of exercise can reduce total cholesterol by 10 to 20 percent. Fifteen hundred calories expended during exercise is equivalent to three to four hours per week for the average unfit person performing moderate-intensity walking, swimming, walk-jogging or cycling.

This volume of weekly exercise is approximately the same volume of physical activity required to lose weight. As a result, fat weight loss tends to be associated with increases in HDL-cholesterol and reductions in total cholesterol and LDL-cholesterol levels, especially fat lost around the waist and abdomen.

A sample program would be to start with walking 20 minutes per day, four days a week. Over six to eight weeks, graduate this program to one hour, six to seven days a week of walking over hilly (variable) terrain or walk-jogging over relatively flat ground. An alternative would be to walk 50 to 60 minutes three days a week and take an aerobics class three days a week and perhaps two to three sets of singles tennis on the seventh day.

It is important to know that lower volumes of weekly exercise can still produce many other benefits, such as improved fitness and overall health, reduced blood pressure and increased psychological well-being. An ACE-certified Clinical Exercise Specialist can help you make the connection safely and effectively.

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