Hawthorn for Heart Health

Comes as no surprise that so many people worry about heart health in the US: almost 60 million people suffer some form of cardiovascular trouble. The good news: many can use hawthorn, an herb with an impressive track record in cardiac care.

European, Asian and Native American herbalists have long used hawthorn to treat conditions ranging from kidney stones to digestive upsets. However, modern medical research has focused on this thorny tree's reputation as a heart tonic.

Heart Aid

Hawthorn's greatest strength lies in its ability to support a failing heart. (Heart failure occurs when the heart cannot pump enough blood to keep the body supplied with oxygen and nutrients.) In the lab, hawthorn extracts help human heart muscle beat more forcefully (*J Cardiovasc Pharmacol* 2000; 35(5):700-7).

The German Commission E, arbiter of all things herbal in that herbally advanced country, approves of hawthorn use by people with stage II (relatively mild) heart disease. People suffering stage II feel OK when they rest but have trouble moving around. (Blumenthal M. et al., *Herbal Medicine: Expanded Commission E Monographs*, Integrative Medicine Communications 2000, p. 183).

Commission E based its findings on an impressive series of studies. The folks supplied with hawthorn in these studies were able to exercise for longer periods of time with less fatigue and shortness of breath (*Z Phytother* 1994; 15:73-81; 5th Congress of Phytotherapy, 1993). Others who took hawthorn had less ankle swelling and saw their blood pressure readings drop (*Fortschr Med* 1993; 111(20-21):352-4).

According to Commission E, hawthorn is also effective at easing the chest tightness and pressure associated with angina.

Circulation Booster

The most common cardiovascular problems involve blood pressure that's too high and arteries narrowed by atherosclerosis. Hawthorn may help both conditions.

Hawthorn contains oligomeric proanthocyanidans (OPCs), the powerful antioxidants also found in grape seeds and pine bark. Hawthorn's antioxidant action helps it fight atherosclerosis, in which LDL (bad) cholesterol gathers into plaques on artery walls. LDL is believed to only cause problems when it oxidizes, or gathers on artery walls; antioxidants fight this process. Hawthorn also promotes the conversion of LDL cholesterol into HDL (good) cholesterol (Rister R., *Japanese Herbal Medicine*, Avery 1999, p. 60).

Hawthorn's strength lies in its ability to support a failing heart. The German Commission E, arbiter of all things herbal in that herbally advanced country, approves of hawthorn use by people with stage II (mild) heart disease.

In addition, hawthorn keeps cholesterol from accumulating in the liver by encouraging production of cholesterol-laden bile, which passes into the intestines (where it aids fat digestion) and out of the body.

Hawthorn's antioxidants relax blood vessels, resulting in lower blood pressure (*Life Sci* 2000; 67(2):121-31). This herb also reduces blood pressure by counteracting angiotensin converting enzyme (ACE), a vessel-constricting substance that accumulates in some people and may contribute to high blood pressure (*Altern Med Rev* 1998; 3(2)).

Relaxing blood vessels may aid stroke sufferers by helping tiny brain blood vessels survive high blood pressure or small clots (Rister, p. 292). And it has shown an ability (as part of an herbal combination) to allay anxiety (*Fundam Clin Pharmacol* 1997; 11(2):127-32).

Bountiful Variety

The existence of nearly 300 species in the hawthorn family partly accounts for this herb's worldwide appeal. Of these many species, herbalists in this country generally use either *crataegus laevigata* (also called *c. oxyacantha*) or *c. monogyna*.

Compounding occasional hawthorn confusion: various parts of the hawthorn tree are employed by various herbalists.

If you're not sure which hawthorn product best meets your needs, consult an herbally trained health practitioner. You should also talk to a practitioner if you think you suffer heart disease or you're already taking a heart or blood pressure medication, since hawthorn can produce an additive effect.

CoQ-10:

NUTRIENT FOR THE YOUNG AT HEART

Enzymes are protein substances found in plants, animals, humans and all living things, and are necessary for the building and rebuilding of tissues and cells. They are made up of at least two parts: the protein portion and the cofactor portion. Either mineral ions, vitamins or both make up the cofactor portion of the complete enzyme. The vitamin portion is usually called the coenzyme.

Molecular formulations ranging from coenzymes Q-6 to Q-10 are found in animals, while only Q-10 is found in humans. The different coenzyme numbers refer to the number of isoprene units in the molecular chain.

The nutrient Coenzyme Q-10 is found in every cell in the body, thus its other name, ubiquinone (from the word ubiquitous and the coenzyme quinone). Ubiquinone is a naturally-occurring substance with a molecular structure that is similar to vitamin K. Because the body must have energy available to perform even the simplest operation, coenzyme Q-10 is considered essential for the body's cells, tissues and organs.

The richest food source of the coenzyme is beef heart, while other meats and fish, especially mackerel and sardines, are high in CoQ-10. Other good sources are: cereals, particularly brans; nuts, especially peanuts; dark green vegetables such as spinach and broccoli; soybeans and rapeseed; and soy and sesame oils.

Even though the body has the ability to produce CoQ-10, deficiencies have been reported in a range of clinical conditions. Dr. Karl Folkers was a pioneer researcher in the synthesis of CoQ-10, and according to him, the substance is safe and effective. The Japanese have used a fermentation process to produce the coenzyme for the mass market, enabling people to use the supplement every day inexpensively.

Supplementation of the coenzyme helps one guard against a possible deficiency. Aging is considered one reason for a deficiency, since the liver loses its ability to synthesize CoQ-10 as one gets older. Besides aging, poor eating habits, stress and infection affect the body's ability to provide adequate amounts of CoQ-10. The need for supplemental CoQ-10 could arise from a genetic or acquired defect in coenzyme synthesis or from increased tissue needs resulting from a particular condition. Because it is necessary for energy production, a deficiency of CoQ-10 could cause or aggravate many medical conditions.

SUPPLEMENTAL RESULTS

Known results of using CoQ-10 as an oral supplement are energy increase, improvement of heart function, prevention and cure of gum disease, a boost to the immune system and possible life extension. The greatest amount of the coenzyme (and, therefore, the greatest need for the enzyme) is contained in the heart and liver, which accounts for its positive results in the treatment of cardiovascular disease, angina pectoris, congestive heart failure, cardiomyopathy, hyperthyroid heart failure, mitral valve prolapse and hypertension.

As for as extending one's life span, the following purposes that may be connected to the aging process are served by CoQ-10: increases energy and exercise tolerance; corrects age-related declines in the immune system; and defuses peroxides from within and without the body. In studies done with laboratory animals, the coenzyme extended lifespan up to 56%.

In studies of patients with periodontal disease, it was found that there was a deficiency of CoQ-10 in gum tissue. Patients with advanced periodontal disease who received the coenzyme showed a quicker postsurgical healing time — two to three times faster than usual.

A number of studies with laboratory animals have proven the immune-enhancing effect of CoQ-10. In older animals, the depression that occurs in the immune system was partially reversed with coenzyme Q-10 supplementation, so it is possible that using it on a regular basis may help to reverse age-related immunosuppression. In human studies of patients with various diseases, significant increases in the level of immunoglobulin G were found in the patient's serum. This increase could represent a correction of the immunodeficiency or an increase in immunocompetence.

Coenzyme Q-10 has been used by millions on a daily basis, in maintenance doses of 10 to 30 mg. a day, while therapeutic doses have been administered in doses of 100 mg. or more. No serious adverse effects have been reported with long-term use, but CoQ-10 shouldn't be used during pregnancy or lactation simply because its safety during these periods has not yet been proven. One to three months or longer may be necessary to saturate deficient tissues, because the synthesis of new coenzyme Q-10-dependent enzymes is a slow process.

(Sources: *Coenzyme Q-10*, by William H. Lee, R.Ph., Ph. D., A Good Health Guide, #1987; *The Miracle Nutrient: Coenzyme Q10*, by Emile G. Bliznakov, MD and Gerald L. Hunt, 1987; and *Nutrition News*, 1987 Vol. X, No. 8)

Red-Yeast-Rice & Cholesterol Reduction

By Gene Bruno, BS, CN

According to the American Heart Association, approximately 1 million American adults die annually of heart attacks. An estimated half million Americans suffer a stroke annually, and over thirty percent of them die as a result. Truly, cardiovascular disease is the number one cause of death among Americans today. As a matter of fact, more Americans will die of cardiovascular disease this year than died in all of our wars combined. Among the primary risk factors in cardiovascular disease are high serum (blood) cholesterol levels, high blood pressure, heavy cigarette smoking, obesity and physical inactivity.

Cholesterol control

Research indicates that for every one percentage point that cholesterol levels are reduced, the risk for cardiovascular disease is reduced by 2 points. Consequently, a 10% reduction in cholesterol could result in a 20% reduced risk for cardiovascular disease. Since there is a significant benefit to be gained from reducing cholesterol levels, the following methods should be incorporated into a program for controlling cholesterol: 1) Dietary modification (reduce intake of cholesterol containing foods and increase complex carbohydrate/fiber foods); 2) An aerobic exercise program (endurance type activities such as jogging, bicycling, hiking, brisk walking); 3) The use of specific dietary supplements. That's where *red-yeast-rice* comes into the picture.

Red rice yeast

Red-yeast-rice (monascus purpureus Went yeast fermented on rice) is a traditional botanical used in Chinese medicine. Recent research indicates that red-yeast-rice can actually help to reduce serum cholesterol in combination with dietary modification. Red-yeast-rice yeast has this benefit because it naturally contains HMG-CoA reductase inhibitors.

HMG-CoA reductase

Humans and all other mammals produce the enzyme 3-hydroxy-3-methyl-glutaryl coenzyme A reductase (HMG-CoA reductase). This enzyme is involved in the production of thousands of molecules, including cholesterol. HMG-CoA reductase inhibitors are substances which can interfere with the action of HMG-CoA reductase, including cholesterol production.[1] Studies involving yeast indicate that certain species provide HMG-CoA reductase inhibitors,[2] and modulate cholesterol biosynthesis.[3]

The research

In 1999, the UCLA School of Medicine conducted a 12-week, double-blind, placebo-controlled study on the cholesterol-lowering effects of a red-yeast-rice supplement in a group consuming a diet similar to the American Heart Association Step I diet (i.e., 30% of calories from fat, <10% from saturated fat, and <300 mg cholesterol daily). Eighty-three healthy subjects (46 men and 37 women aged 34-78 y) with high cholesterol levels were treated with red-yeast-rice or

placebo. Their blood fats were measured at weeks 8, 9, 11, and 12. The results were that total cholesterol concentrations decreased significantly between baseline and 8 wk in the red-yeast-rice-treated group compared with the placebo-treated group (from 254+/-36 mg/dL to 208+/-31 mg/dL). LDL cholesterol and total triacylglycerol were also reduced with the supplement. The authors of the study concluded that "red-yeast-rice significantly reduces total cholesterol, LDL cholesterol, and total triacylglycerol concentrations compared with placebo and provides a new, novel, food-based approach to lowering cholesterol in the general population."[4]

A previous 1997 study at Dongzhimen Hospital (Beijing University of Traditional Chinese Medicine) found similar results over a period of eight weeks in 446 patients—324 of whom were given a red-yeast rice supplement. Specifically, total cholesterol decreased by 22.7% and LDL cholesterol by 30.9%. Furthermore, the subjects experienced an 19.9% increase in HDL cholesterol (the "good cholesterol") and a 34.1% decrease in serum triglycerides. The authors of the study concluded that "this traditional Chinese rice preparation used as a dietary supplement is extremely effective and well tolerated in reducing elevated serum cholesterol and tiglycerides."[5]

Dosage

In the aforementioned UCLA study, the subjects used 2,400 mg daily of a red-yeast-rice extract standardized to provide 0.4% HMG-CoA reductase inhibitors—a total of 9.6 mg. This amount was given as two capsules, twice daily. Other red-yeast-rice supplements that are standardized to provide a greater percentage of HMG-CoA reductase inhibitors would not require as many capsules. For example, some red-yeast-rice supplements are standardized to provide 4% (not 0.4%) HMG-CoA reductase inhibitors. Consequently only 240 mg would need to be taken to provide the same 9.6 mg of HMG-CoA reductase inhibitors; but this should still be taken as two separate doses to emulate the protocol used in the study.

Conclusion

Since the HMG-CoA reductase enzyme is involved in other metabolic processes besides cholesterol production, there are a few situations when red-yeast-rice products shouldn't be used. This includes if you are at risk for liver disease, have active liver disease or any history of liver disease; if you have a serious infection; if you have undergone an organ transplant; or if you have a serious disease or physical disorder or have recently undergone major surgery. Even so, red-yeast-rice is a remarkably safe and effective dietary supplement for the majority of the population who desires to better control their cholesterol levels.

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Homocysteine

By Morton Walker, D.P.M.

Although there are many suspected causes for the high incidence of atherosclerosis (hardening of the arteries) around the world, the medical profession still remains puzzled as to the specific source – as if there's only one, which is doubtful.

A combination of hereditary and environmental factors hold center stage just now, as the reason for yellowish plaques of cholesterol, fats, and other remains of metabolism to be deposited in the walls of large and medium-sized arteries.

These plaques are the most significant indication that atherosclerosis is present. Blood vessel walls become thickened and hardened, and they narrow. The narrowing lessens blood flow to organs and other areas normally supplied by the affected artery. Such plaques (called atheromas) are major reasons for the development of heart disease, chest pain (angina pectoris), heart attacks, and other disorders of the blood circulation.

So, how atherosclerosis develops remains unclear. Previously, many factors were blamed: injury to the artery, an increase of muscle in blood vessel walls, excess saturated fats in the diet, faulty carbohydrate processing, free radical attack of arterial walls, and/or genetic defects. Now a relatively new cause – *the homocysteine theory* – is pinpointed by Kilmer McCully, M.D., professor of pathology at Harvard Medical Schol.

The Homocysteine Theory

Dr. Kilmer theorizes that the initial damage to blood vessels that eventually leads to the development of atherosclerosis is caused by the accumulation of the toxic amino acid *homocysteine.* When, for example, during laboratory experiments homocysteine is infused directly into the veins of baboons, it produces clogging of their arteries.

In humans, *homocystinuria* may develop in which there is excessive homocysteine in the urine even in well nourished people. This is a genetic disorder characterized by a deficiency in the enzyme needed to break down the poisonous amino acid. Complicating symptoms include mental retardation, softening of the bones leading to skeletal abnormalities, dislocated lenses of the eyes, and blood clots in the veins.

Homozygous homocystinuria, a disease inherited from both parents, is rare, but approximately one out of 70 persons do show *heterozygous homocystinuria.* These people have inherited the defective gene of homocystinuria from one parent and are predisposed to developing coronary heart disease.

Dr. McCully blames the Western diet of industrialized countries for promoting homocysteine accumulation and its consequences. He points out that not only does modern food processing destroy vitamin B6 (pyroxidine), but animal protein has two to three times as much methionine (a sulfur-containing amino acid) as plant protein by weight and is lower in B6. This is significant because homocysteine comes from methionine.

To the detriment of Americans, we stuff ourselves with fatty hamburgers from fast food restaurants which assuredly sell heart disease and cancer as byproducts. Vegetarians experience a decreased risk of coronary heart disease most likely because of their avoidance of meat with its concentrations of methionine.

Treating Excessive Homocysteine

The treatment of excessive physiological homocysteine as manifested in the blood and urine is a diet low in methionine, large doses of vitamin B6, vitamin B12, and folic acid. The three nutrients and an antimethionine diet work to break down homocysteine. In contrast, inadequate supplies of the three vitamins tend to promote coronary heart disease in the general population by fostering homocysteine accumulation.

To learn whether somebody is subjected to excessive physiological homocysteine, Melvyn Werbach, M.D., of Tarzana, California recommends that a patient should ask the family physician to have his or her clinical laboratory measure blood plasma and urine homocysteine levels.

He advises those with elevated levels to follow a nutritional program designed to lower those levels. After staying with the program for several weeks, a repeat study would assess that individual's progress.

Dr. Morton Walker, a professional medical journalist specializing in alternative methods of healing, is the author of Olive Leaf Extract, The New, Natural and Nontoxic Way to Eliminate All Infectious Illnesses, *to be published in September 1997 by the Kensington Publishing Corp.*

Soy for a healthy Heart

Although cancer, diabetes, and osteoporosis garner plenty of headlines, heart disease remains the No. 1 killer disease in the United States. An estimated 954,000 people die of cardiovascular disease annually. This scourge is blamed for 42 percent of all deaths in the United States every year.

Furthermore, heart disease costs the U.S. economy $214.7 billion a year. That includes $105.9 billion in direct treatment costs, and $108.8 billion in lost productivity due to illness or death.

Fortunately, we now recognize the potent impact that diet has on cardiovascular function and overall health. The American Heart Association (AHA) has established easy-to-follow dietary guidelines that can reduce your risk of heart disease. These include limiting your intake of sodium, cholesterol, and saturated and polyunsaturated fats.

In addition, the Food and Drug Administration (FDA) has highlighted soy foods as a critical component of a heart-healthy diet. On October 26, 1999, the FDA began allowing food products containing soy protein to carry a label promoting soy's benefits for the cardiovascular system. Foods that contain at least 6.25 grams of soy protein per serving are permitted to include information on their labels about soy's heart-protective properties. The effective amount of soy is believed to be 25 grams per day—approximately four servings of soy foods.

The FDA stated that its approval was based on evidence that soy protein—in a diet low in saturated fat and cholesterol—may help reduce the risk of heart disease. Foods eligible for these labels include soy beverages, tofu, soy-based meat alternatives, and some baked goods.

"Because soy protein can be added to a variety of foods, it is possible for consumers to eat foods containing soy protein at all three meals and for snacks," FDA officials noted.

Because of soy's potent phytochemicals and nutritional attributes, it has been causing quite a stir in scientific circles.

The common soybean first became a food staple in ancient China about 5,000 years ago. In the United States today, health-conscious consumers are catching on to the many health-promoting properties of soy. The FDA's approval of soy's heart healthy benefits on labels is still another great reason to incorporate more soy into your daily diet.

Lowering cholesterol

Research on soy's benefits for the cardiovascular system dates back to the early 1900s. For the past 20+ years, the Italian National Health Service has provided soy protein free of charge to physicians who treat patients with high cholesterol.

Several studies have demonstrated that daily consumption of soy can lower cholesterol levels and blood pressure, strengthen blood vessel walls, reduce the risk of blood clotting, and protect against oxidation of LDL ("bad") cholesterol. LDL that is not oxidized is less likely to build up along artery walls.

The *American Journal of Clinical Nutrition* reported in 1993 that a 12 percent drop in cholesterol was achieved when 20 to 25 grams of soy protein and fiber were included in the diet.

A meta-analysis featured in a 1995 issue of the *New England Journal of Medicine* examined 38 controlled clinical trials on soy and serum lipid (fat) concentrations in humans. Researchers found that "consumption of soy protein, rather than animal protein, significantly decreased serum concentrations of total cholesterol, LDL cholesterol, and triglycerides, without significantly affecting HDL ['good'] cholesterol concentrations."

One study focused on 1,242 men and 3,596 women who participated in an annual health checkup program in Takayama City, Japan. A food-frequency questionnaire was used to assess their intake of soy products and other foods. Blood samples were drawn from fasting subjects to measure serum total cholesterol.

Researchers found lower cholesterol levels in men and women whose diets were rich in soy. This was after they factored in age, smoking status, and diet in men; and age, menopausal status, body mass index, diet, and vitamin C intake in women. They concluded, "These data suggest a role for soy products in human cholesterol homeostasis [i.e., balance]."

Another study investigated the impact of soy on 32 individuals diagnosed with coronary heart disease. They were divided into three groups and put on a soy-enriched, vegetarian diet for 11-17, 19-22, and 30-40 days, respectively. At the conclusion of the study, patients' lipid levels had normalized, and they were able to discontinue their hyperlipidemic medicines. The most pronounced effect was found in the group who followed this diet the longest.

Soy supports cardiovascular health even beyond cholesterol control. Soybeans are a rich source of lecithin and vitamin E, natural antioxidants that protect against oxidation of LDL cholesterol.

Other heart-healthy properties

Although soy is best known for its effect on cholesterol, it also appears to promote healthy blood pressure. In one laboratory study, spontaneously hypertensive rats (SHR) were fed either soy protein or casein (i.e., a phosphoprotein of milk). After five weeks, the soy-fed rats demonstrated healthier blood pressure, as well as lower serum total cholesterol levels, than the casein rats.

Nutritionist Patti Tveit Milligan, M.S., R.D., from California, points out that cholesterol reduction is only one of the ways that soy promotes heart health. Soybeans provide a wealth of lecithin and vitamin E, natural antioxidants that shield LDL cholesterol against oxidative damage.

Soy also contains magnesium, an essential nutrient for the arteries and heart muscle. Genistein, an important isoflavone in soy, appears to reduce blood clotting. Although some blood clotting is necessary to prevent uncontrolled bleeding, too much clotting can block the flow of blood and oxygen.

Soy may also protect against the multiplication of cells that make up artery plaque. Milligan states that, while it may take two or more servings of soy per day to lower blood cholesterol levels, it may take only one serving a day to reduce blood clotting, plaque formation, and cholesterol oxidation.

Sources of soy

Milligan recommends the following soy foods:

- **Fresh green (immature) soybeans:** They look like large pea pods; called Edamame in Japanese restaurants or markets; make a delicious snack.

"Researchers found lower cholesterol levels in men and women whose diets were rich in soy."

"In addition to providing heart-healthy benefits, soy may also protect against cancer and osteoporosis and help ease menopausal symptoms."

- **Tofu:** Made from soy milk; many different textures; low-fat version is also available.
- **Tempeh:** Made from whole-cooked soybeans and often with another grain such as barley; great for grilling or even in a sandwich or salad.
- **Soy milk:** A combination of ground soybeans and water; used like dairy milk; varies in protein and calcium content.
- **Textured vegetable protein:** Made from soy flour; used as a meat extender; is the basis of many veggie burgers.
- **Soy flour:** Basically has no starch because it contains no gluten; usually replaces only 15 to 25 percent of wheat flour in yeast-based products.
- **Isolated soy protein:** Made from defatted soy flour and is almost devoid of carbohydrates and fat; blends well with fruit shakes, muffins, pancakes, etc.

"Keep in mind that isoflavones are present in all soy-containing foods, except for soy protein concentrates and isolates that have undergone alcohol extraction," explains Milligan. "It has been suggested that 50 mg daily or more of isoflavones would be prudent to consume through soy foods..."

It has been estimated that in Japan, the average person consumes 20 to 100 mg of isoflavones per day from soy foods.

Heart-healthy lifestyle

In the context of a plant-based diet, soy can help lower cholesterol levels, protect against the oxidation of LDL cholesterol, and support healthy blood pressure. However, you need a comprehensive strategy to keep your heart strong and healthy for years to come:

- Consistent physical activity strengthens the heart muscle, reduces blood pressure and triglyceride levels, and increases concentrations of HDL ("good") cholesterol. It's no surprise that sedentary individuals are twice as likely to experience a fatal heart attack as active people of the same age, even after other risks, such as smoking, are factored in. Regular exercise increases the heart's capacity to pump blood. It makes oxygen use more efficient. Twenty to 30 minutes of vigorous activity, three to five times a week, should be enough to support a healthy heart.

Note: Anyone who has not exercised for months or years, who is overweight or profoundly out of shape, or who has any chronic health problems, should get a thorough medical checkup before starting an exercise regimen.

- Learn to manage stress. A stressed-out, "type A" person may indirectly increase the risk of heart disease through poor diet, excessive caffeine intake, and accelerated adrenaline output, which raises blood pressure.
- If you smoke, quit. Depending on how many years you have smoked, and how many years you have abstained from smoking, your risk factor after quitting may become no more than that of an individual who has never smoked.
- If you are overweight, make dietary and lifestyle changes that will help you slim down. By losing excess weight, you can lower your blood pressure, your total cholesterol levels, and your triglyceride levels.
- Family history. You can't choose a new family tree. However, knowing about your genetic risk can motivate you to take especially good care of your cardiovascular system and overall health.

Other health benefits of soy

In addition to providing heart-healthy benefits, soy may also protect against cancer and osteoporosis and help ease menopausal symptoms.

While more research is needed in the area of immune stimulation, presently researchers have isolated two compounds from soy, genistein and daidzein, that show promise in providing protection against cancer. Specific studies have been done involving breast and prostate cancer.

In one study involving 60 women with breast cancer, researchers concluded, "The results from this study support the hypothesis that a high intake of soy foods may reduce the risk of breast cancer."

Another study with more than 12,000 California Seventh-Day Adventist men showed that the more soy milk the men drank, the lower their risk of developing prostate cancer. The researchers explained, "Our study suggests that men with high consumption of soy milk are at reduced risk of prostate cancer."

Osteoporosis has reached near epidemic proportions in the United States. Soy is believed to help provide protection from this debilitating disease because it is a good source of calcium, magnesium, and boron, all nutrients that help strengthen bone. In addition, daidzen and genistein may work like estrogen in protecting bone loss.

There is some compelling evidence that soy foods can provide a safe alternative to helping ease the discomforts of menopause. In Japan, where soy foods are consumed daily, women are only one-third as likely to report menopausal symptoms compared to women in the United States and Canada.

One study demonstrated that women who incorporated soy flour into their daily diets, experienced about 40 percent fewer menopausal symptoms.

Final comments

Heart disease afflicts more than 12.2 million people in the United States. It is the single largest cause of death and premature, permanent disability.

This is a complex condition, with no simple solutions. However, we can develop an armamentarium of heart protectors. Soy foods and supplements are among these protectors. Soy is widely available, affordable, easy to include in your daily diet, and shown to promote healthy cholesterol levels and balanced blood pressure.

Naturally, if you have any reason to suspect that you may suffer from cardiovascular disease, consult a qualified healthcare professional without delay.

You know how to reduce your risk of heart disease: Eat a plant-based, soy-rich diet, exercise consistently, lose excess weight, quit smoking, and learn to manage stress. By following these guidelines, and getting regular medical checkups, you may avoid cardiovascular disease altogether.

In addition to strengthening your heart, research shows that adding soy to your daily diet may help create stronger bones, a stronger immune system, and ease uncomfortable menopausal symptoms.

controlling Cholesterol naturally

By Terry Grossman, M.D.

Heart disease kills more than two out of every five North Americans, with over 2,500 men and women dying of it every day. Each year in the United States, at least 250,000 people die of heart attacks before they even reach a hospital. Heart disease is responsible for an estimated 42 percent of all deaths in this country (Center for Disease Control and Prevention [CDC], 1999).

Although the incidence of heart-related fatalities has decreased in recent years, cardiovascular disease is still the number-one killer disease in the United States. It is believed that a primary risk factor for heart disease is a high level of low-density lipoprotein (LDL) cholesterol. By controlling cholesterol, you may reduce your risk of cardiovascular disease and premature death.

Cholesterol is a natural substance required for several bodily functions, including cellular health, hormone formation, and vitamin D metabolism. The liver manufactures most of the cholesterol in the body. LDL transports cholesterol and fat from the liver to the cells. Elevated LDL (above 130 mg/dl) may endanger health. In contrast, high density lipoprotein (HDL) cholesterol is considered the "good" cholesterol. It removes cholesterol from the lining of the arteries. Low HDL (below 35 mg/dl) poses a health risk.

High overall cholesterol readings (above 200 mg/dl) are considered a key contributing factor in heart disease.

According to 2001 CDC statistics, 20 million Americans have high blood cholesterol levels.

In recent years, the role of cholesterol in heart health has come into question. For decades, it appeared to be as simple as excess cholesterol clogging the arteries. However, now it appears to be more complicated.

Usually, LDL is harmless. It becomes a problem when unstable molecules called free radicals oxidize it. When LDL settles on artery walls, the wall membranes release damaging free radicals. The resulting oxidized LDL draws white blood cells to the site. These white blood cells form a fatty substance called plaque. They also trigger inflammation of the endothelium, the layer of cells that line the blood vessel walls.

In addition, oxidized LDL lowers levels of nitric acid. This important compound helps relax the blood vessels and promotes healthy blood flow. When there's not enough nitric acid, atherosclerosis (i.e., "hardening of the arteries") can develop, increasing the risk of heart attack.

The homocysteine connection

Scientific studies have now specified that elevated levels of homocysteine (a metabolite of the amino acid methionine) can attach to LDL cholesterol, making it more likely to stick to artery walls (Prasad K: Homocysteine, a risk factor for cardiovascular disease. *International Journal of Angiology* 8[1]:76-86, January 1999). High homocysteine levels appear to be linked to deficiencies of folic acid and vitamins B_6 and B_{12}.

A meta-analysis of 35 studies revealed higher homocysteine levels in individuals with atherosclerosis. In 23 studies, levels of homocysteine were 26 percent higher, on average, among patients with atherosclerotic disease than in healthy controls (Moghandasian M, *et al*: Homocysteine and coronary artery disease: clinical evidence and genetic and metabolic background. *Arch Inter Med* 157:2299-2308, 1997).

Heart-healthy ratio

Medical experts agree that total cholesterol is not as important as the ratio between HDL and LDL cholesterol. HDL levels above 40 mg/dL, and LDL levels below 130 mg/dL, are considered healthy (Berkow R [ed]: *The Merck Manual of Medical Information.* Whitehouse Station: Merck Research Laboratories, 1997). If you are concerned about your cholesterol levels, consult a qualified healthcare practitioner for a professional diagnosis and treatment plan.

Dietary guidelines

Keeping cholesterol levels within a healthy range requires a diet high in fiber and low in saturated and hydrogenated fats. The following guidelines can help you reduce the fat and cholesterol in your diet (Sifton DW [ed]: *PDR® Family Guide to Nutrition and Health.* Montvale: Medical Economics, 1995):

- **Don't use fat as flavoring.** Instead of butter, bake garlic in the oven for one hour with olive oil. Spread it on bread, pasta, or other foods. You can also use herbs or lemon juice to season vegetables.
- **Reduce your consumption of red meat.** Meat is high in saturated fat and methionine, the amino acid from which homocysteine is derived. Both are implicated in heart disease.
- **Choose fresh produce over fatty foods.** Instead of snacking on candy bars or potato chips, opt for fruits or vegetables.
- **Eat more high-fiber foods.** They have been proven to reduce cholesterol levels by promoting the body's elimination of cholesterol. Choose pasta, rice (or other whole grains), vegetables, and fruits as the focus of your meal. Specific foods especially high in fiber include apples, lentils, dried beans, peas, barley, citrus fruits, carrots, and oats.
- **Eat more soy.** Isoflavones—the key, health-promoting compounds in soy—appear to function like human hormones that regulate cholesterol levels.
- **Eat more fish.** In general, the more fish people eat, the less likely they are to develop heart disease. Fish provide a wealth of omega-3 fatty acids, which help reduce cholesterol levels. Omega-3s also keep blood platelets from sticking together and forming potentially deadly blood clots.
- **Eat more nuts.** Almonds, walnuts, peanuts, and others provide heart-friendly "good" fats and vitamin E. Support healthy blood pressure by choosing the unsalted variety.

Importance of exercise

Aerobic exercise includes activities such as walking, running, bicycling, in-line skating, swimming, cross-country skiing, and ice-skating. Consistent aerobic activity has been shown to lower LDL cholesterol and raise HDL cholesterol. Getting 20 to 30 minutes of aerobic exercise four or five days a week has been proven to reduce the risk of heart disease.

Strength training can also improve your HDL:LDL ratio. Lifting weights for half an hour twice a week is recommended.

"Heart disease kills more than two out of every five North Americans, with over 2,500 men and women dying of it every day."

Conventional treatment

Prescription drugs are often used to treat excessively high cholesterol levels. However, increasing evidence points to their potential toxicity and questionable effectiveness (Newman TB, *et al*: Carcinogenicity of lipid-lowering drugs. *JAMA* 275[1]:55-60, January 3, 1996).

Physician, researcher, and author Kilmer McCully writes, "The limited success in statin drugs in reducing cholesterol levels and vascular disease risk is tempered by the unpleasant side effects, expense, and potential toxicity of these drugs on muscles and optic lens, and from demonstrated carcinogenic effects in animals."

Recently, the safety of these drugs, known as statins, has again been questioned. In August 2001, Bayer recalled its cholesterol-lowering drug Baycol after more than 50 people died from rhabdomyolysis, a condition that causes skeletal muscle to degenerate. According to the Washington, DC-based consumer advocacy group Public Citizen, other statin drugs have caused this condition as well.

"While cerivastatin (Baycol) accounted for slightly more than half of the 772 reported cases of rhabdomyolsis between October 1997 and December 2000, 385 cases of rhabdomyolysis and 52 rhadbomyolysis deaths were reported in association with other statins," the group reported. "An additional 29 deaths from rhabdomyolysis in people using statins other than cerivastatin were reported to the FDA prior to October 1997, for a total of 82 deaths from rhabdomyolysis caused by statins other than cerivastatin."

The group has petitioned the US Food and Drug Administration seeking a black box warning, which is the strongest label caution that can be mandated by the FDA.

Fortunately, certain nutrients and herbs can help you control cholesterol levels.

> "Consistent aerobic activity has been shown to lower LDL cholesterol and raise HDL cholesterol."

Note: Never stop taking a medication without consulting your doctor.

Recommended nutrients

• **Niacin** has been shown to dramatically lower total cholesterol levels while increasing HDL. Research indicates that niacin provides better overall results than prescription lovastatin (Illingworth DR, *et al*: Comparative effects of lovastatin and niacin in primary hypercholesterolemia. *Arch Intern Med* 154:1586-1595, 1994).

In order to avoid the side effects associated with higher doses of niacin, many healthcare experts recommend inositol hexaniacinate, the safer form. Because of the potential for excessive liver toxicity, "time-release" preparations of niacin should almost never be used.

• **Vitamin C** can lower total cholesterol and raise HDL (Hallfrisch J, *et al*: High plasma vitamin C associated with high plasma HDL and HDL2 cholesterol. *Am J Clin Nutr* 60:100-105, 1994).

• **Vitamin E** helps prevent the oxidation of LDL, and protects the arteries from free-radical damage.

• **Vitamins B_6, B_{12}, and folic acid** help keep homocysteine levels in check, thereby protecting LDL from oxidation (Malinow MR: Homocysteine, vitamins and genetic interactions in vascular disease. *Can J Cardiol* 15[Suppl B]:31B-34B, April 1999).

• **Soy** can promote healthy cholesterol levels. In one study, researchers concluded that soy protein, in place of animal protein, lowered total cholesterol without affecting HDL cholesterol (Anderson JW, *et al*: Meta-analysis of the effects of soy protein intake on serum lipids. *New England Journal of Medicine* 333[5]:276-282, August 3, 1995).

• **Quercetin, fish oils, calcium, magnesium, L-carnitine,** and **chondroitin sulfate** (typically used for arthritis) have also shown some promise in stabilizing run-away cholesterol levels.

Recommended herbs

• **Hawthorn** (*Crataegus pinnatifida*) can help dissolve cholesterol deposits, as well as widen blood vessels and reduce blood pressure.

• **Garlic** (*Allium sativum*) is one of the most widely studied herbs/foods for heart health. Scientific studies have shown that garlic lowers cholesterol levels and thins the blood, thereby reducing the risk of dangerous blood clots (Jain AK, et al: Can garlic reduce levels of serum lipids? A controlled clinical study. *Am J Med* 94[6]:632-635, June 1993).

• **Psyllium** (*Plantago ovata*) fiber significantly lowered total cholesterol and LDL cholesterol levels in a study conducted at the University of Cincinnati Medical Center and the Washington University School of Medicine (Psyllium found to be effective in lowering cholesterol. *Natural Foods Merchandiser*, October 1994).

• **Gugulipid** comes from the mukul myrrh tree (*Commiphora mukul*), which is native to the Mideast and India. It is used to lower triglycerides, LDL, and total cholesterol levels, and to increase HDL. Its benefits are comparable to prescription drugs, without the side effects (Nityanand S, *et al*: Clinical trials with gugulipid, a new hypolipidaemic agent. *J Assoc Phys India* 37:321-328, 1989).

• **Red yeast tree** (*Monascus purpureus*) provides the same active ingredient (HMG-CoA reductase inhibitor) found in the most popular cholesterol-lowering drugs (Junxian W, *et al*: Multicenter clinical trial of the serum lipid-lowering effects of *Monascus purpureus* [red yeast] rice preparation from traditional Chinese medicine. *Current Therapeutic Research* 58[12], 1997).

Final thoughts

Sadly, poor eating habits, a sedentary lifestyle, and excess body fat are prevalent in Western society. These factors lead to out-of-balance cholesterol levels and a host of other ills. Fortunately, to a large extent, cholesterol levels, heart health, and overall wellness are within your control. You choose what you eat. You choose your level of physical activity. You choose whether to see your doctor at regular intervals. You choose which supplements and herbs you take to support a balanced ratio of LDL and HDL. If you choose good health, then your choices become much simpler.

Terry Grossman, M.D., is a practicing physician in the Denver area. As medical director of Frontier Medical Institute, he devotes most of his professional time to running a busy nutritional practice with an emphasis on anti-aging therapies. He is also associate professor of family practice at the University of Colorado School of Medicine. In addition, Dr. Grossman is the author of The Baby Boomer's Guide to Living Forever.