



Healthy Choices For A Better Life

The 6 Essential Ways **To Protect Yourself Against**

HEART ATTACKS AND STROKES



Introduction

Cardiovascular diseases are diseases of the heart, blood vessels, and circulatory system, such as coronary heart disease, heart attack, high blood pressure, stroke, angina (chest pain), and rheumatic heart disease.

Coronary heart disease (CHD) is a disease of the blood vessels in the heart that causes heart attacks. A heart attack occurs when an artery becomes blocked, preventing oxygen and nutrients from getting to the heart. A stroke results from a lack of blood to the brain, or bleeding in the brain.

Almost 65 million Americans, it's estimated, have one or more types of cardiovascular disease (CVD).

Cardiovascular disease is mistakenly thought to primarily affect men and older people, but it's a major killer of women and people in the prime of their lives. More than half of all cardiovascular disease deaths, each year occur among women.

Yes, these are very frightening statistics. Now that we know the facts – the cold, hard facts – we can make changes to potentially avoid or reduce the risk of developing life-threatening heart disease.

We can't pinpoint a single cause of heart disease but we know several factors can increase the risk for CVD or CHD, including high blood pressure, high cholesterol levels, high fat diets, and so on, as they can cause coronary arteries to narrow. In addition, a combination of risk factors including genetics, sex, age, elevated blood lipid levels, hypertension, cigarette smoking, lack of physical activity, obesity and diabetes may trigger the disease.

Get started now!

There may not always be a tomorrow or next week. If you are continually putting off heart-smart, lifestyle changes, it's time to dig in and

start now. Young or old, adopting a heart-smart, healthy lifestyle makes sense. It's never too early or too late to start taking good care of your heart. In fact, you're taking the first step towards a longer life by reading this booklet. Consider your action-plan underway. Congratulations.

Stroke Prevention Guidelines

Stroke is one of the most disabling diseases because it damages the brain. This damage leads to problems with memory, thought processes, movement, and speech. You can help to prevent stroke by controlling your risk factors.

Control High Blood Pressure

High blood pressure, also called hypertension, is the strongest risk factor for stroke that you can control. Controlling your blood pressure requires diligent lifestyle adjustments, use of medicines, and regular use of supplements and vitamins. While high blood pressure is found in about 50 million Americans, only about 30% of those being treated have reduced their blood pressure below 120/80. Several studies have proven that you can reduce your risk of stroke by almost half by lowering your blood pressure just five points.

If your blood pressure's top number (systolic) is from 120 to 139, or your bottom number (diastolic) is from 80 to 89, you have "pre-hypertension," a recently added category that says, "You may be heading toward full-blown high blood pressure." Because you are at risk of stroke and heart disease, it is important that you, like all people with high blood pressure, alter your eating habits and lifestyle. Here's how:

Lose weight. Even modest weight loss will reduce your blood pressure.

Exercise.

Reduce your salt intake.

If you have high blood pressure and your numbers remain above 140 (systolic) or above 90 (diastolic) after you make lifestyle changes, your doctor might prescribe one or more medications to lower your blood pressure. These are very common drugs but, as with all drugs, you do run the risk of experiencing negative side effects.

Control Your Cholesterol and Plaque Problems

If you've had a heart attack, your risk of having a stroke is about 10% higher than average. The same factors that cause a heart attack (high blood pressure and a build up of plaque and cholesterol in the arteries) also cause stroke. The risk of stroke is highest within the first few weeks after a heart attack. About 31% of people who have a heart attack go on to have a stroke.

You can improve your cholesterol by changing your diet and/or by taking medicine. In a recent study in the *American Journal of Clinical Nutrition*, it was found that fruits and vegetables cut the risk of ischemic stroke and "an increased intake of fruit may reduce the risk of stroke."

The *Journal of the American Medical Association*, July 2003, reported that eating a diet high in soy protein, viscous fiber, almonds and plant sterols is as effective in managing cholesterol as taking a starting dose of cholesterol-lowering drugs.

For one month, the study directly compared three randomized groups of patients with high cholesterol. One group of 16 people ate the National Cholesterol Education Program's step 2 diet, which is a very low-saturated fat diet based on whole wheat cereals and low-fat dairy foods. Another group of 14 people ate this diet in addition to taking a 20 mg dose of lovastatin, a cholesterol-lowering drug, each day. And a third group of 16 people ate a Portfolio eating plan

diet high in plant sterols, soy protein, viscous fibers and almonds.

For the statin and Portfolio groups, the drop in LDL cholesterol was described as comparable, with no significant differences - there was a 31% drop for the statin group and a 29% drop for the Portfolio group. However, for the Step 2 (control) group, the researchers recorded a reduction of just 8%.

Dr D. Jenkins of the Clinical Nutrition and Risk Factor Modification Center at St. Michael's Hospital in Toronto and the University of Toronto's Department of Nutritional Sciences, Faculty of Medicine, says, "on their own, these heart healthy types of foods have been studied individually and recognized by the Food & Drug Administration [FDA] for their cholesterol-lowering effects."

He continued: "This research showed that when we combined these heart-healthy foods into one eating plan, the effect was equal to that of the starting dose of statins, or cholesterol-lowering drug therapy - and yielded better results than previous dietary recommendations for cholesterol reduction." Clearly, these results support recommendations that dietary intervention should be the first line of therapy for high cholesterol.

Your Healthy Diet Should Include:

Your diet can affect your risk of stroke just as it affects your risk of heart attack.

Eat your fruits and veggies. The optimum diet for preventing stroke is rich in fruits and vegetables. Two large studies that observed the long-term food habits of more than 100,000 doctors and nurses revealed dramatic findings in the *Journal of the American Medical Association* in 1999: Every serving of fruits or vegetables per day was associated with a 7% lower risk for stroke in women and a 4% lower risk in men.

Avoid the two “bad” fats. A stroke-conscious diet should be low in saturated and trans fats. Foods high in saturated fat include full-fat dairy products, meat and poultry, coconut oil, cocoa butter, palm kernel oil and palm oil. Trans fats, found in commercially deep-fried foods and in processed foods that contain “hydrogenated” or “partially hydrogenated” vegetable oils, should also be limited.

Lower your caloric intake. A reduced-calorie diet will help you maintain a healthy weight, which can help to prevent diabetes, a major risk for stroke.

Cut the salt. Too much salt can cause high blood pressure. Cutting down on salt can lower your blood pressure significantly and reduce the risk of stroke. Most dietary sodium does not come from the saltshaker, but is hidden in packaged foods.

Eat more fish. Research has shown that eating two to four servings of fish weekly can lower your risk of stroke.

Take a multivitamin. People with vitamin deficiencies, particularly the elderly, may have high levels of homocysteine, an amino acid that may lead to a clogging of the arteries (atherosclerosis). A vitamin supplement with folic acid, vitamin B₆ and vitamin B₁₂ may help reduce homocysteine levels and reduce the risk of stroke.

Alcohol in Moderation

Interestingly, light-to-moderate drinkers, which scientists define as a maximum of two drinks a day for a man and one drink per day for a woman, has been shown to have a protective effect against ischemic stroke. Alcohol may provide this benefit by increasing the levels of “good” cholesterol (HDL) and by decreasing the tendency of blood to clot.

While the American Heart Association does not recommend that people who don’t drink should start, it does urge people who do drink to

keep it within the beneficial zone of one or two drinks a day.

Your First Step

Can folic acid cut your risk of heart disease? Studies haven’t yet proven that conclusively, but what they have shown is that it can reduce the level of the amino acid homocysteine in the body – and high homocysteine levels have been linked to some heart diseases. In fact, high homocysteine levels are similar in terms of heart-related risk to smoking, elevated cholesterol and high blood pressure.

Although homocysteine metabolism is partly controlled by folic acid and other dietary B vitamins, including B₆ and B₁₂, organizations such as The Heart and Stroke Foundation of Canada don’t recommend routine homocysteine testing for healthy people. Instead, they urge adopting a healthy diet to ensure adequate intake of B vitamins.

Vitamin B9 (folic acid)

Folate is an important element in red blood cell formation. Folate occurs naturally in foods, while folic acid is the synthetic form found in supplements and fortified foods. Folate and folic acid can reduce blood levels of homocysteine.

Some studies have shown a decreased risk of heart disease among people with the highest intakes of vitamins B₉ and B₆, either from diet or multivitamin supplements. Supplementation with 400 micrograms (mcg) a day of folic acid, which is the typical amount in many multivitamins, has little risk and should be considered for people with heart disease despite the current lack of proof of benefit.

Folic acid: 400-800 mcg. Folic acid helps maintain normal homocysteine levels. Among

other things, homocysteine accelerates the oxidation of LDL (“bad”) cholesterol and damages arteries.

Researchers report that Americans could live longer lives if more of us got the recommended daily level of folic acid and vitamin B₁₂ in middle age and beyond from inexpensive multivitamins.

Findings published in the December 11, 2000, *Archives of Internal Medicine*, back up recent calls for middle-aged Americans to get more of both nutrients. It’s based on a computer model that takes into account what’s known about homocysteine’s harmful effects, folic acid’s ability to lower levels of homocysteine in the blood, and observations that people with lower homocysteine tend to have lower heart risk.

Soy and Heart Health

In terms of heart health, soy has been heralded as an important supplement in lowering and maintaining cholesterol levels and reducing the production of plaque deposits. Studies investigating the role of isoflavones in soy products have shown that genistein, a component of soy, interferes with the action and accumulation of platelets by reducing platelet-derived growth and by inhibiting the action of thrombin, an enzyme that converts fibrinogen into fibrin to form a blood clot. Research also indicates that soy protein with naturally occurring bioactives is effective in delivering consistent, favorable results on blood cholesterol (*J Nutr*, 126:43-50, 1996) (*Int Med*, 159: 2070-2076, 1999).

There have been numerous studies on soy and most of them indicate that daily consumption of 25 g of soy protein can reduce high cholesterol and heart disease risk.

Soy is the latest addition to a growing list of foods, including orange juice, bananas, leafy green vegetables and oatmeal, that experts recommend eating every day to lower the risk of heart disease and stroke. Soy protein may also help reduce saturated fat and decrease cholesterol.

Potassium as Leverage

High blood pressure, or hypertension, is the most prevalent cardiovascular disorder in the United States, affecting almost a quarter of all adults. Most people using dietary means to control hypertension usually think of decreasing sodium intake. The potassium heart health claim offers an additional strategy. By increasing the intake of foods that are rich in potassium, individuals can leverage their blood pressure. “We have known that potassium is a key player in blood pressure and stroke regulation for some time,” said Lawrence Appel, M.D., M.P.H, associate professor of medicine at John Hopkins University.

The report *Diet and Health: Implications for Reducing Chronic Disease Risk* specifically claims, “epidemiological and animal studies indicate that the risk of stroke-related deaths is inversely related to potassium intake over the entire range of blood pressures, and the relationship appears to be dose dependent. The combination of a low-sodium, high potassium intake is associated with the lowest blood pressure levels and the lowest frequency of stroke in individuals and populations. Although the effects of reducing sodium intake and increasing potassium intake would vary and may be small in some individuals, the estimated reduction in stroke-related mortality for the population is large.” In another report, it stated, “vegetables and fruits are also good sources of potassium. A diet containing approximately 3.5 g of elemental potassium daily may contribute to reduced risk of stroke.”

Soy protein, with naturally occurring bioactives, can lower cholesterol and may decrease plaque formation in the arteries. Plant sterols and plant stanol esters absorb cholesterol from the diet, also lowering cholesterol levels. And, omega-3 can reduce irregular heartbeats associated with sudden cardiac death and lower triglycerides, a type of fat in the blood associated with low levels of HDL.

Nutrients for Heart Health

Much has been written in recent years about the proposed role of antioxidants in preventing cardiovascular disease. Several studies have been conducted to evaluate the presumed functions of naturally occurring antioxidants such as vitamins E and beta-carotene, a precursor of vitamin A. These antioxidants fight free radicals that can cause oxidation of lipoproteins and wreak havoc in veins and arteries. Vitamin E, for example, is considered one of the most beneficial antioxidants relative to heart disease prevention and is said to reduce inflammatory damage to endothelial cells, thus preventing the production of plaque. Beta-carotene also carries LDL particles and is proposed to act as an antioxidant in protecting the body against cardiovascular disease.

In addition, nutrients such as L-carnitine, astaxanthin and grape seed extract have also been touted to help in maintaining good cardiovascular health and protect against heart disease and stroke.

L-carnitine has been said to dilate blood vessels to sustain cardiac contractions and reduce the lipids that are related to heart disease.

Grape seed extract's antioxidant properties are said to play an important role in fighting heart disease. Several studies on Activin, a trademarked grape seed extract manufactured by InterHealth Nutraceuticals, demonstrated that the extract reduced vascular cell damage and secretion of cell adhesion molecules in human endothelial cells, a root cause of many inflammatory skin, joint and cardiovascular disorders. Another study sponsored by the company found that when the extract was combined with Chromate®, a niacin-bound chromium complex, total cholesterol levels and LDL cholesterol levels decreased by 16.5% and 20%.

The antioxidant properties of Astaxanthin are said to be similar to beta-carotene. Kuazunaga

Yazawa, Ph.D., of the Shonan Institute of Tokyo University noted that astaxanthin acts as an antioxidant by scavenging free radicals that may cause hypertension and arteriosclerosis.

Vitamin E and Tocotrienols Protect the Heart and Brain

In a lot of patients with high cholesterol, vitamin E compounds called tocotrienols proved to be powerful medicine. The cholesterol-lowering effects of tocotrienols are likely due to their ability to increase the breakdown of an enzyme involved in the production of cholesterol. Tocotrienols have actually been shown to reverse atherosclerosis — the narrowing and stiffening of arteries due to the buildup of plaque and cholesterol. That's important news for patients who are at risk of heart disease or stroke.

More Reasons to Supplement with Tocotrienols as Part of Vitamin E

It's heartening to see tocotrienols and vitamin E get the attention they deserve. Not only do these powerful antioxidants help lower cholesterol and protect against atherosclerosis, they also decrease the stickiness of blood cells, reducing the risk of blood clots that can cause a heart attack or stroke. In addition, their antitumor activity is actually greater than that of d-alpha-tocopheryl.

For overall health, everyone should be taking 800 IU of vitamin E daily. Look for natural vitamin E with mixed tocopheryls and tocotrienols. For patients with high cholesterol, supplementing with 50 mg of tocotrienols per day for two months, tapering down to 25 mg per day, is recommended. Tocotrienols are sold in health food stores.

Vitamin E (as d-alpha tocopherol, mixed tocopherols): 400-800 IU. Vitamin E acts as an antioxidant that helps to lower LDL ("bad") cholesterol levels. It also helps prevent blood

platelets from clumping together. It is most effective when taken with selenium.

Tocotrienols: 10 mg. Preliminary research suggests this antioxidant may decrease LDL-cholesterol oxidation and maintain arterial health.

Antioxidants

Antioxidants are substances that slow oxidation by neutralizing free radicals. Free radicals are unstable molecules that can oxidize, or damage, other molecules. Oxidation causes the cells in your arteries to more easily absorb the “bad” low-density lipoprotein (LDL) cholesterol in your blood. The more LDL cholesterol absorbed, the greater your risk of plaque formation and narrowed arteries. By slowing the oxidation process and reducing the amount of LDL absorbed, antioxidants, in theory, may reduce your risk of heart disease. Vitamin C, vitamin E, beta-carotene and coenzyme Q₁₀ are antioxidants.

Here’s a list of some of the other key antioxidants and other important nutrients:

- Magnesium can be found in nuts, legumes, dark green vegetables and whole grains. Although magnesium is not an antioxidant, it tends to be low in men who have heart attacks. Magnesium helps reduce arterial constriction and blockage – the forerunners of heart attack – and it is often used to treat heart-attack victims.
- Vitamin C can be obtained from citrus, tropical fruits, melons, berries, peppers, and broccoli. A study in *Epidemiology* found that increased ascorbic acid, vitamin C, was associated with a decreased risk of coronary heart disease and stroke. A study in the *Journal of the American College of Cardiology* found that lower amounts of ascorbic acid in the blood predicted an unstable coronary condition, such as angina or heart attack.
- Folic acid is found in dark green, leafy veg-

etables, legumes, citrus fruit such as oranges, tomatoes, strawberries, peanuts and folic acid-fortified cereals. RDA for an adult male or female is 400 micrograms per day.

- At-risk populations may need to take vitamin C and E and folic acid supplements, since it’s hard to get a sufficient amount in the normal diet.
- Selenium is present in seafood, cereals, meats, whole grains and brazil nuts.
- Zinc can be found in oysters, whole grains, seafood and organ meats.
- Carotenoids and other phytochemical antioxidants can be obtained from sweet potatoes, papaya, apricots, and dark yellow and green vegetables.
- Lycopene – a cousin to beta carotene – is found in tomatoes or is available as a supplement. A study in *Nutrition Metabolism and Cardiovascular Disease*, 1997, found that lycopene and vitamin E help protect cholesterol from oxidation.
- Coenzyme Q₁₀ is found in eggs, rice bran and wheat germ. Supplemental amounts – in addition to dietary CoQ₁₀ – have been associated with clinical improvements in scientific study.
- L-carnitine is a nutrient that is produced by the body. However, supplemental amounts might aid in the recovery from a heart attack or as a preventive in those at high risk for heart disease.

Antioxidants may help reduce normal wear and tear on your blood vessels and reduce the risk of potentially dangerous inflammation and blockages. New research shows that vitamins can improve blood flow and prevent the long-term development of atherosclerosis, or hardening of the arteries, when given in combination with an amino acid known as L-arginine.

Antioxidants, such as vitamins A, B, C, and E, are found in many fruits and vegetables.

Although previous studies have suggested that the nutrients might protect against heart disease, recent research has cast doubt on some of those initial claims.

Researchers say narrowing of the arteries most often begins in these areas because they are subject to the greatest stresses from blood rushing around their tight corners, like water gradually eroding a riverbank. These cells eventually may become damaged from the rushing forces and cause potentially dangerous inflammation within the blood vessel, leading to the atherosclerosis.

But researchers found that cells under this kind of stress were less likely to cause inflammation after a dose of antioxidants and L-arginine. Instead, the cells produced more of a substance that encourages healthy blood flow and prevents clotting. They also stopped accumulating certain proteins that are thought to promote atherosclerosis.

However, this study shows that although antioxidants may not reverse or repair pre-existing damage within blood vessels, they may slow the long-term progression of atherosclerosis, and more research is needed to see if the use of antioxidants in young adults might prevent the disease in later life.

Cayenne is known for balancing and stimulating the circulation system and as a tonic for the heart valves. Cayenne and garlic contain properties that help to dissolve blood clots. Cayenne: 50 mg. Like other chili peppers, cayenne contains the compound capsaicin, which helps maintain healthy cholesterol and triglyceride levels.

Garlic and Red Clover contain chemicals that stop the red blood cells from sticking together and thereby cleanse the blood. The garlic in the formula is known to dilate blood vessels, reduce blood pressure and reduce cholesterol. Garlic and cayenne act as solvents to liquefy impurities and mucus, which acts as a sludge in the

blood. Garlic: 600 mg. Garlic supports the heart's healthy fat metabolism and helps maintain proper cholesterol and triglyceride levels. It also helps raise good HDL cholesterol blood levels.

Garlic, especially the aged garlic extract, possesses antioxidant effects, which may explain its beneficial effects on the heart, the brain and in cancer prevention. Unfortunately, American doctors and clinicians have largely abandoned garlic in the clinical setting, while European physicians and researchers continue to use and do clinical trials with garlic.

How does garlic work and what are some of the active ingredients in garlic?

The active ingredient in garlic is alliin, which is later converted to allicin and other compounds when the bulb is ingested or crushed. The amount of alliin in whole garlic ranges from 2.8 to 7.7 milligrams/gram fresh weight. When you crush or cut garlic, an enzyme called allinase comes in contact with alliin, turning it into allicin. Then, the allicin itself rapidly breaks down into an entirely different compound. Allicin contains sulfur compounds such as ajoene, methyl ajoene and dithiins. While garlic contains the usual complement of carbohydrates, proteins, lipids, vitamins, minerals, and nucleic acids found in other plants, it also contains approximately 5% dry weight of sulfur-containing, non-protein amino acids, which are responsible for both its characteristic flavor and biological activity.

Although selenium is present at far lower concentrations than sulfur, relative to other common vegetables, garlic is comparatively rich in selenium. Selenium in garlic is derived from soil selenite and selenate, which is transformed into the amino acid, L-selenocysteine.

What are some of the potential health benefits of garlic?

There are many clinical trials conducted with garlic. Only a few of these clinical trials are of

high quality but the overwhelming evidence is clear.

Lowers cholesterol

There are over 30 clinical studies on the effects of garlic on serum lipids and some of them suggest that garlic can lower serum cholesterol by about 6-12%. Because of the characteristic odor, it was impossible to conduct truly blinded studies and, there may be a gender effect with women showing greater beneficial effects than men.

In one study, forty-two healthy adults with a serum total cholesterol level of greater than or equal to 220 mg/dL received, in a randomized, double-blind fashion, 300 mg three times a day of standardized garlic powder in tablet form or placebo. The results showed a baseline serum total cholesterol level of 262 was reduced to 247 after 12 weeks of standard garlic treatment. Corresponding values for placebo were 276 before and 274 after. Jain AK, et al. "Can garlic reduce levels of serum lipids? A controlled clinical study." *Am J Med* 1993;94:632-5.

Thirty-seven randomized trials consistently showed that, compared with placebo, various garlic preparations led to small, statistically significant reductions in total cholesterol at 1 month, and 3 months. Garlic preparations that were studied included standardized dehydrated tablets, or noncommercial enteric-coated tablets, dehydrated tablets, "aged garlic extract," oil macerates, distillates, raw garlic, and combination tablets.

Lowers blood pressure

On the basis of clinical trials of moderate to poor quality, the use of garlic supplement, 600-900 mg/day for 1-3 months is associated with a drop in systolic (upper number) and diastolic (lower number) blood pressure, assuming the upper limits of normal being 140/90 mm Hg.

Garlic lowers blood pressure through the actions of methyl allyl trisulfide, which dilates blood vessels. It thins the blood by inhibiting

platelet aggregation, which reduces the risk of blood clots and aids in preventing heart attacks.

Only randomized, controlled trials of garlic preparations that were at least 4 weeks in duration were deemed eligible for inclusion in the review. The results suggest that garlic may be of use in patients with mild hypertension. Silagy CA, et al. "A meta-analysis of the effect of garlic on blood pressure." *J Hypertension*. 1994;12:463-68.

Protects against hardening of the arteries

Preliminary evidence from clinical studies of high quality suggests that taking garlic significantly slowed the development of arteriosclerosis or hardening of the arteries. The beneficial effect is independent of garlic's effects on lowering blood cholesterol or blood pressure. Also, there is preliminary evidence to show that garlic cuts the rate of a second heart attack by about 50%.

Two, double-blind trials in participants with atherosclerotic lower extremity disease evaluated whether garlic increased pain-free walking distance at 12 to 16 weeks compared with placebo. Pain-free walking increased by approximately 40 meters with standardized, dehydrated garlic compared with approximately 30 meters with placebo. In another trial, with 100 participants, the maximum walking distance increased significantly (114 percent) among persons randomized to a combination treatment of garlic oil, macerate, soya lecithin, hawthorn oil, and wheat germ oil, compared with those on a placebo (17 percent).

Garlic can enhance your health. For hundreds of years, garlic has been reputed to help in these ways.

- Protects the liver from various chemicals and toxins
- Enhances the immune system
- Protects from the harmful effects of radiation treatment and chemotherapy
- Improves recovery from stress
- Improves memory retention and learning
- Improves asthma

- Improves diabetes control
- Reduces the risk of pre-eclampsia (raised blood pressure and protein in the urine)

How safe are garlic supplements?

In general, there were no serious side effects of garlic supplements from over 40 clinical studies with aged garlic extracts, even at high dosages (i.e. 2000 mg/kilogram of bodyweight for 6 months). Minor side effects in less than 10% of people included stomach upset, heartburn, nausea, diarrhea, flatulence, nausea, and body odor.

What are some of the important drug interactions I should be aware of?

If you're taking the following medications or dietary supplements, you need to be careful:

- Taking garlic combined with ginkgo or high-dose vitamin E may cause a greater risk of bleeding problems. Supplementation should be stopped two weeks before any surgery.
- Garlic will interact with blood thinning drugs such as Coumadin (warfarin), heparin, aspirin, or Trental (pentoxifylline). Garlic tends to extend the benefits of these medications and may cause unwanted side-effects.
- Garlic may cause gastrointestinal toxicity when combined with some HIV medications.

What are some of the different forms of garlic supplements on the market and how much should I take?

There are several forms of garlic: cooked, dried, aged, or deodorized, available in capsules, gelcaps, powder or straight off the plant. The aged garlic extract is well-established, safe and very popular.

There is some controversy about the "proper" daily dose of garlic. However, most experts agree that one to ten raw garlic cloves per day are healthful. If you're taking a supplement form of garlic, 300 – 600 mg/day is recommended.

A dose of 4 grams of fresh garlic per day is needed to lower blood lipids. A very important

number on the label of a garlic supplement is, 4-5 mg of "allicin potential." The most potent, standardized garlic tablet contains 4800 micrograms of allicin and 270s microgram of SAC per tablet, which means that 2-4 tablets per day are required for cardio-protection.

Hawthorn berries are frequently used to strengthen and protect the heart. It is a heart and circulatory tonic. It is used for heart weakness, heart palpitations, high blood pressure, arteriosclerosis and angina pectoris. Hawthorn binds to the heart cells and makes them require less oxygen and blood. The active compounds in hawthorn have been shown to help promote healthy endothelial lining of the heart cavities and blood vessels, and the smoothness of artery walls.

Commission E — an expert committee on herbal remedies established by Germany's Federal Institute for Drugs and Medical Devices — has approved hawthorn with flower to relax heart muscle and improve circulation to the heart muscle; it may be used to treat cardiac insufficiency.

According to Commission E, **ginkgo biloba leaf** extract can improve blood flow in blocked arteries.

Motherwort is known as an anti-spasmodic, a cardiac tonic, and reduces tension and anxiety. Cayenne and ginger stimulate cerebral circulation. Cayenne works on the heart while ginger works on the smaller blood vessels, capillaries and increases the peripheral circulation.

Coenzyme Q10 (ubiquinone)

This antioxidant, produced by your body, also has many dietary sources, including meat and seafood. Its antioxidant effects are similar to those of vitamin E.

According to Amy Harker-Murray, a Mayo Clinic internist who has researched coenzyme Q₁₀ and its relation to heart failure, "Some

research indicates that the heart of patients with congestive heart failure is lower in coenzyme Q₁₀ compared to healthy controls, but this has not been consistent.” At this point, more research is needed on coenzyme Q₁₀ before making any recommendations.

CoQ₁₀: 50 mg. One of the most important functions CoQ₁₀ performs is to facilitate the production of cellular energy. In every cell of your body there are small “stations” called mitochondria. Ninety-five percent of the total energy created within your body comes from these mitochondria, which cannot take place without CoQ₁₀.

Mend Your Broken Heart with CoQ₁₀

CoQ₁₀, one of its code names, is a benzoquinone compound created naturally in our bodies. It’s also known as ubiquinone, from the word *ubiquitous*, which means it is found everywhere in the body. For interest’s sake and for party conversation, the “Q” and the “10” in the name refer to the quinone chemical group and the 10 isoprenyl chemical subunits, respectively.

The major use for CoQ₁₀ is the prevention and treatment of cardiovascular diseases including chronic heart failure and heart attacks. Other popular uses include therapy for periodontal disease, cancer, neurodegenerative diseases, diabetes, and to enhance athletic performance. It’s not a drug. It acts like a vitamin, but can be manufactured in our bodies. Is this the most versatile substance in our bodies? Almost...

Coenzyme Q₁₀ is used by cells in our bodies in a process known as aerobic respiration, aerobic metabolism, oxidative metabolism, or cell respiration. Energy for cell growth and maintenance is created inside cells in compartments called mitochondria. Mitochondria are the parts of the cell that produce energy from food. CoQ₁₀ is found in every cell in our body, especially in heart muscle cells because they require the greatest amount of energy. In fact, Japanese scientists discovered its therapeutic effects in the 1960s, and most heart

patients in Japan are prescribed coenzyme Q₁₀.

The manufacture of coenzyme Q₁₀ in our bodies requires other vitamins, cofactors and amino acids such as folate, vitamin C, B₁₂, B₆, pantothenic acid and trace elements. It is stored in the liver, kidneys, pancreas, and heart. The lowest concentration of Q₁₀ is found in the lungs and tissue levels decrease as we age, due to increased requirements, decreased production, or insufficient intake of the chemical precursors needed for synthesis. In humans, normal blood levels of coenzyme Q₁₀ should range between 0.30 to 3.84 micrograms per milliliter.

There are several disease states and conditions that reduce the amount of Q₁₀ in our bodies including, viral illness, shock, heart diseases, cancer, high-intensity exercise, and overactive thyroid glands. Medications such as cholesterol-lowering drugs like lovastatin (Mevacor) and beta-blockers such as propranolol (Inderal) and metoprolol (Toprol XI) also reduce the amount of Q₁₀ in our bodies.

Interestingly, there is no U.S. Dietary Reference Intake (formerly known as the RDA) established for this important nutrient, since the body can make it from scratch. We do get a small amount of CoQ₁₀ from our diet, in particular from liver and other organ meats. However, this amount hardly approaches the therapeutic dosages needed.

Coenzyme Q₁₀ is also used by the body as an antioxidant. An antioxidant is a substance that protects cells from free radicals, which are highly reactive chemicals, often containing oxygen atoms, capable of damaging important cellular components. In addition, the plasma level of coenzyme Q₁₀ has been used, in studies, as a measure of oxidative stress, a situation in which normal antioxidant levels are reduced.

Coenzyme Q₁₀ is used for congestive heart failure, angina, diabetes, hypertension, periodontal disease, preventing cardiotoxicity, Huntington’s disease, Parkinson’s disease, muscular dystro-

phy, increasing exercise tolerance, and reducing symptoms of chronic fatigue syndrome. It's also used for stimulating the immune system of people with HIV/AIDS, life extension, male infertility, and migraine headaches.

Supports Your Heart

Congestive heart failure is a serious condition in which the heart muscles become weakened due to untreated high blood pressure or repeated heart attacks resulting in an enlarged heart. Shortness of breath is a key symptom, which occurs during exertion and sometimes wakes the patient in the middle of the night. Patients with heart conditions have significantly lower levels of coenzyme Q₁₀ in their heart muscle cells.

Lowers Blood Pressure

Patients with high blood pressure often have coenzyme Q₁₀ deficiency.

The upper limit of systolic blood pressure is 140 mmHg and for diastolic blood pressure is 90 mmHg. In a clinical trial involving 147 patients with high blood pressure, a significant decrease in both upper and lower values of blood pressure was seen with supplementation of 225mg/day of coenzyme Q₁₀. Moreover, in this study, at least 50 % of the patients were weaned off one to three of their antihypertensive medications. This study was published in *Molecular Aspects of Medicine*.

Prevents the Deterioration of Neurodegenerative Diseases: More Evidence

There is growing evidence that neurodegenerative diseases or premature aging of the brain and nervous system may be related to oxidative stress from free radicals and excitotoxic mechanisms resulting in the death of nerve cells. Coenzyme Q₁₀ has the capability to improve energy production and has a protective effect on brain cells due to its antioxidant properties. Interestingly, the following studies illuminate some of the positive

effects of CoQ₁₀ supplementation.

- Japanese researchers found that 60 mg of coenzyme Q₁₀ daily, combined with vitamin B₆ and iron, prevented the progression of dementia for 18 months in patients with familial Alzheimer's disease. Published in *The Lancet*.
- Parkinson disease is a neurological disease characterized by tremor, rigidity, postural abnormalities, shuffling gait, and a generalized slowness in movement. In a recent placebo-controlled, double-blind study published in the *Archive of Neurology*, higher dosages of coenzyme Q₁₀, up to 1200 mg/day, resulted in reducing the deterioration of this disease.
- Successful double-blind clinical studies with coenzyme Q₁₀ in muscular dystrophies and neurogenic atrophies were reported in *Biochim Biophys Acta* 1995.

How safe is coenzyme Q10?

Coenzyme Q₁₀ is a safe dietary supplement and no significant side effects have been reported, even when it is taken for up to one year. In a study published in the *Journal of Clinical Pharmacology*, among 5,000 patients, a very small percentage of patients had gastrointestinal complaints: stomach pain (39 individuals), decreased appetite (23 individuals), nausea (16 individuals) and diarrhea (12 individuals). Side effects are reported in less than 1% of patients and can often be relieved by dividing the dose into two.

How much coenzyme Q10 should I take?

For heart health, 100 to 200 mg/day has been used with positive effects. It's best to divide dosages and take your supplement twice a day. Daily doses of as little as 30 to 100 mg/day have also demonstrated positive effects. I'd suggest, depending on your symptoms and disease state, that you start with a daily dose of 50 mg/day. It's recommended that you take coQ₁₀ with meals, as it's best absorbed with some fats or oils. To be

on the safe side, you should ask your physician about the amount of coenzyme Q₁₀ to take.

Vitamin C (ascorbic acid)

Studies have shown that people who eat foods high in vitamin C have lower rates of heart disease. Vitamin C appears to regenerate oxidized vitamin E. Because of the many potential ‘non’ heart-related health benefits of vitamin C, such as reducing cold symptoms, maintaining skin integrity and reducing your risk of cataracts, you may consider taking 500 to 2500 mg daily, whether you have heart disease or not.

Vitamin C helps promote proper HDL (“good”) cholesterol levels and the production of collagen and glycosaminoglycans, which provide structural strength to arterial walls.

Vitamin C, also known as ascorbic acid or dehydroascorbic acid, is an essential, water-soluble vitamin that our bodies can’t manufacture. It must come from foods or supplements. Fruits and vegetables are the richest food sources of vitamin C, but cooking removes a large percentage of this nutrient.

Dietary supplements of vitamin C are readily available and are typically sold as ascorbic acid, calcium ascorbate (Ester-C®), sodium ascorbate, or a combination of these forms. Supplements also commonly contain natural sources of vitamin C, such as rose hips and/or acerola (a cherry-like fruit). In fact, many excellent sources of vitamin C also contain other ingredients, such as magnesium, zinc, potassium, and bioflavonoids.

What It Does:

Vitamin C helps the body produce collagen, a basic component of connective tissue, muscle and ligaments. Collagen is also a structural component of blood vessel walls, gums, and bones, making it particularly important to anyone recovering from wounds or surgery. Vitamin

C also acts as an antioxidant, scavenging potentially harmful molecules or free radicals. Clinical trials, published in journals like the *American Journal of Clinical Nutrition*, *The Lancet*, and the *British Journal of Nutrition*, have revealed vitamin C as an antioxidant that may boost immune function and protect against heart disease, cancer, cataracts, age-related macular degeneration, and other chronic diseases. Vitamin C intake may be particularly helpful to smokers, who may suffer from oxidative stress and cell damage. Vitamin C also enhances iron absorption from supplements and plant foods.

Vitamin C helps thyroid hormone production and the metabolism of folic acid, tyrosine, and tryptophan, and in the synthesis of various hormones including norepinephrine, and epinephrine, which are stress hormones. Vitamin C plays an important role in the synthesis of the neurotransmitters, norepinephrine and serotonin. Neurotransmitters are critical to brain function and are known to affect mood. Prolonged stress depletes vitamin C in the adrenals and decreases blood levels.

Research also suggests that vitamin C is involved in the metabolism of cholesterol to bile acids, which may have implications for blood cholesterol levels and the incidence of gallstones.

Vitamin C is also a highly effective antioxidant. Even in small amounts, vitamin C can protect indispensable molecules in the body, such as proteins, lipids (fats), carbohydrates, and nucleic acids (DNA and RNA) from damage by free radicals that are created during normal metabolism, as well as through exposure to toxins and pollutants. Vitamin C may also be able to regenerate other antioxidants such as vitamin E.

Both natural and synthetic vitamin C are equally recognized and used by the body, so all-natural rose-hip or acerola products provide no added benefit if you just want vitamin C. In fact, some products stating “with rose hips” but not indicating the amount may contain far more

synthetic vitamin C than any amount from the rose hips.

Ester-C®, or calcium ascorbate, is a non-acidic form of vitamin C, causing less gastrointestinal irritation, making it preferable if you're taking larger doses, like 5 – 8 grams/day. Ester-C® may also be better absorbed than regular ascorbic acid. If acidity is a problem, products containing an equal mixture of sodium ascorbate and ascorbic acid offer reduced acidity and are sometimes called “buffered vitamin C.”

How much is enough?

In April 2000, the Dietary Reference Intake (DRI) for vitamin C was increased. The present DRI is 90 mg/day for adult males and 75 mg/day for adult females. An additional 35 mg/day is recommended for smokers. For pregnant or older women, it's 85 mg/day and for breast-feeding women they recommend 120 mg/day. The Upper Tolerable Intake Level (UL) for vitamin C in adults is 2,000 milligrams of vitamin C a day.

These RDAs are achievable by eating a healthy, varied diet and are adequate for normal collagen production. However, our vitamin C requirements increase with age and some health-care professionals recommend higher daily doses of vitamin C, to stimulate the immune system, to protect against free radical damage, and to help prevent some chronic diseases.

Dr Linus Pauling, a Nobel winning scientist, recommended 1000 mg/day of vitamin C or more. So, who's right? Well, here's the scoop on the RDA values. The RDA for vitamin C is the amount that the Food and Nutrition Board figured would prevent scurvy, the most obvious deficiency disease. Actually, the RDA is based on the amount of vitamin C in the “average” diet. And, since scurvy is rare these days, then 90 mg/day must be just fine.

A team of medical researchers at the National Institute of Health recently found that a minimum intake of 1000 mg/day was required to

saturate the blood with adequate vitamin C. Numerous trials and clinical studies have confirmed that higher doses of vitamin C can provide enormous benefits.

Cardiovascular diseases (heart disease and stroke)

Seven out of 12 prospective studies, which examined large numbers of people (700 to 87,000) over a number of years (3 to 20), found a significant relationship between higher levels of vitamin C intake and a lower risk of heart disease and stroke.

In other studies, vitamin C doses from 1 – 2 grams/day has been shown “to hinder platelet aggregation and adhesion,” which may help to clear arteries of dangerous plaque. Also, people who took 1500 mg/day of vitamin C had reduced levels of cholesterol because vitamin C encouraged the conversion of cholesterol into bile acids, which are more easily removed from the body.

Other potential vitamin C benefits:

Wound healing: 1- 6 grams/day showed potential for both internal wounds, such as ulcers of the intestines, and external wounds of the skin. Vitamin C is useful for any condition in which epithelial cells are involved, such as periodontal disease, macular degeneration, gingivitis, canker sores, easy bruising, ulcerative colitis, and cervical dysplasia. (Marz, p. 239, 1997)

Common Cold or Flu: Over 100 studies have been conducted on vitamin C and cold viruses. Regular vitamin C supplementation, in the majority of studies, has consistently reduced the incidence and duration of colds (although the degree of benefit has varied significantly). In one large study, involving over 700 students, vitamin C reduced cold and flu symptoms by 85%, especially in those people under physical stress.

Lower back pain: especially if they have disc degeneration, 1-3 grams/day, long term.

Improved soreness after physical activity: 1-3g

when taken before and after activity, has been shown to decrease soreness and reduce recovery time compared to placebo.

Diabetes mellitus: Localized tissues in diabetics are often very low in vitamin C. It has also been shown that vitamin C decreases glycosylation of albumin, which can significantly reduce the risk of development of atherosclerosis and generally protect other tissues susceptible to damage.

Heavy metal detox: Large doses of vitamin C have been shown to increase excretion of heavy metals and other toxins such as nicotine and lead.

Gout: Vitamin C can reduce urine acid levels. Vitamin C promotes urinary excretion of uric acid. It is best to start off at lower doses (500 mg/day) as to not mobilize uric acid too quickly and precipitate kidney damage or gout attack. **Stress:** High dose (3 x 1000 mg/day) for lowered blood pressure, stress hormones (cortisol) and acute psychological stress in 60 healthy people. (Psychopharmacology 2002)

Typical Adult Dosage: 500 mg/day to 5000 mg/day, depending on the person. It's best to take vitamin C in divided doses with food over the course of a day. Vitamin C is considered very safe. Extremely high doses of vitamin C (10 grams or more) have been associated with GI disturbances and kidney stones in people with kidney impairment.

Concerns and Cautions:

- Bowel tolerance is often used as a way to measure an appropriate intake amount of vitamin C. Start slowly and progressively increase your dose to 2000 mg/day. When you experience diarrhea and slight GI discomfort, you'll have reached your bowel tolerance. Ease back to a lower amount of vitamin C.
- Vitamin C may interfere with the absorption of tricyclic antidepressants and anticoagulants.

- Vitamin C raises blood levels of aspirin, acetaminophen and NSAIDs.
- Excess vitamin C can interfere with diagnostic tests for cholesterol and blood sugar levels. A study has also suggested that vitamin C might reduce the effectiveness of statin-type cholesterol lowering drugs — although this has not been conclusively demonstrated.
- Vitamin C decreases the absorption of beta-blocking drugs often used for high blood pressure.
- Because vitamin C improves iron absorption, people with diseases that cause them to store too much iron should use vitamin C with caution.

The Busy B's

A number of the B vitamins, B-3 (niacin), B-6, B-9 (folic acid) and B-12, have been associated over the years with improved heart health. These vitamins may become even more important as the role of homocysteine is determined.

The higher your homocysteine blood level, the greater your risk. Several vitamins, particularly B₆, B₁₂ and folic acid, can reduce blood levels of homocysteine.

Vitamin B3 (niacin)

Sometimes doctors prescribe large doses of niacin to help people improve the levels of fat in their blood. Niacin can:

Lower LDL cholesterol by raising HDL cholesterol.

Raise high-density lipoprotein (HDL) cholesterol. HDL cholesterol is often referred to as "good" cholesterol because it can remove cholesterol deposits from your artery walls and take

it to your liver for disposal.

To achieve these effects, niacin must be taken in doses greater than 1,000 mg a day. At this level, niacin is considered a medication, not a supplement, and should only be taken under your healthcare provider's supervision. Side effects can include flushing, headaches, cramps, nausea, itching, gastrointestinal upset, liver damage, high blood sugar and irregular heartbeats.

Niacin works by reducing the liver's production of lipoproteins needed to carry cholesterol and triglycerides in the blood.

Vitamin B6 (pyridoxine)

Vitamin B₆ works with vitamin B₁₂ and folic acid to reduce blood levels of homocysteine. According to the National Academy of Sciences, the optimal intake of vitamin B₆ for disease prevention falls between 1.5 mg and 50 mg a day.

Vitamin B₆: 50 - 120 mg. In addition to helping to keep homocysteine levels in check, Vitamin B₆ helps promote healthy adrenal function and maintains proper potassium balance. Potassium helps support normal heart rhythms and regulate blood pressure levels.

Vitamin B₁₂: 100-200 mcg. Vitamin B₁₂ works along with folic acid and vitamin B₆ to convert homocysteine into a harmless compound that the body can eliminate through the urinary tract.

Calcium/Magnesium as oxide, aspartate, ascorbate: 500-800 mg. Magnesium supports the heart's ability to expand and contract and to pump blood efficiently.

Gynostemma pentaphyll: 150 mg. This herb from China has been used for years in traditional Chinese medicine. It has been shown to support blood pressure levels that are in the normal range, helps to relax blood vessels, reduce free radicals, and increase blood flow.

L-carnitine: 100-150 mg. Increased levels of the amino acid-like compound L-carnitine promote more efficient heart function.

L-aurine: 200-400 mg. L-aurine helps support proper heart function by normalizing potassium flow in and out of the heart muscle and aiding in free radical elimination.

Green Tea: 50-100 mg. Green tea contains several active bioflavonoids, which promote capillary and small vessel strength.

Green tea offers protection against heart attacks, strokes, tooth decay, and cancer—and can even assist with weight loss. And it's the drink with the longest history. The Chinese and Indians have been drinking green tea to promote good health for at least 5,000 years.

You might know *Camellia sinensis* by its more common names: black tea, Chinese tea, oolong tea, or green tea. Green tea is made from the steamed and dried leaves of the *Camellia sinensis* plant, an evergreen shrub native to Asia. Black tea is also made from this plant, but unlike green tea it's made from leaves that have been dried, heated, fermented and allowed to oxidize.

Purported Health Benefits Of Tea:

- Cancer prevention
- Cancer treatment
- Cardiovascular disease
- Liver disease
- GI disorders
- Osteoporosis
- Infection
- Hypertension
- Weight loss

Constituents:

- Caffeine
- Flavonoids
- Methylxanthines: Theophylline, theobromine, and theanine
- Polyphenols: Gallic acid and catechins: galocatechin (GC), epigallocatechin (EGC), epicatechin (EC), and epigallocatechin gallate

(EGCG)

- Polysaccharides
- Proanthocyanidins (tannins)
- Vitamins: Ascorbic acid, tocopherol
- Other: Fluoride, chlorophyll, organic acids

Antioxidants

Our bodies constantly produce unstable molecules called oxidants or free radicals. To become stable, oxidants steal electrons from other molecules and thereby damage other cell proteins and genetic material. This damage may leave the cell vulnerable to many age-related diseases including cancer. Antioxidants are substances that allow your body to scavenge oxidants.

Polyphenols

Some reports indicate green tea may have the ability to help prevent certain cancers from developing, including prostate, stomach, and esophageal cancers. Green tea contains chemicals known as polyphenols, which have antioxidant properties. Most of the polyphenols in green tea are flavonoids, commonly called catechins. The principal active catechin in green tea is epigallocatechin-3-gallate (EGCG), which accounts for 40% of the total polyphenol content of green tea extract. Epigallocatechin-3-gallate (EGCG) is believed to block production of an enzyme required for cancer cell growth. EGCG may work by suppressing the formation of blood vessels, a process called angiogenesis, thereby cutting off the blood supply to cancer cells.

Researchers from the Shanghai Cancer Institute and the National Cancer Institute conducted a large population study in 1994 comparing green tea drinkers to non-green tea drinkers. They found that green tea drinking was associated with 60% fewer cancers of the esophagus for people who did not smoke. However, a review of 31 human studies and four review articles found mixed results. One of the dilemmas and reasons

for this discrepancy is that large population studies are difficult to control for environmental factors such as diet, environment, etc.

Although tea is consumed in a variety of ways and varies in its chemical makeup, one study showed steeping green or black tea for about five minutes released over 80% of its catechins. The catechins found in tea selectively inhibit specific enzyme activities that lead to cancer. They may also target and repair DNA damage caused by free radicals. And, not surprisingly, instant iced tea contains negligible amounts of catechins.

Green tea also inhibits blood clotting, which, left unchecked, promotes arteriosclerosis, strokes, and heart attacks.

Another potential benefit of green tea is its help with weight loss. As opposed to our other favorite hot drink—coffee—which actually promotes weight gain. As little as one cup of green tea daily can increase your metabolism and may help you burn more calories thanks to its thermogenic or heat-producing effect.

Antioxidant Activity of Tea Unaffected by Milk

The antioxidant activity of green and black tea is well established, but an important question remains: Does the addition of milk to tea inhibit the bioavailability of antioxidant tea polyphenols? Not according to the results of this Dutch study, which showed that a single dose of either black or green tea with or without milk caused a significant rise in antioxidant activity (Leenan et al., 2000).

Japanese research has revealed that L-theanine crosses the blood-brain barrier and induces several chemical changes that can reduce feelings of stress. After your cup of tea, L-theanine stimulates production of alpha waves, which can create a feeling of being both alert and deeply relaxed.

Green tea is generally considered safe. However, some people may develop allergic reactions. Drinking very large amounts of tea

(more than 6 – 7 cups) may cause problems because of the caffeine content and the strong binding activities of the polyphenols. Because caffeine acts as a stimulant, people with irregular heartbeats or who have anxiety attacks should not drink more than 2 cups a day. Women who are pregnant or breast-feeding should not drink green tea in large amounts.

In Asian countries, approximately three cups a day is the average amount consumed. Green tea is usually brewed using 1 to 2 teaspoons of the dried tea in a cup of boiling water, or is steeped for 3 to 15 minutes. Green tea extracts are also available in capsule form.

Quercetin: (a bioflavonoid): 50-100 mg. The bioflavonoid quercetin helps to stop oxidization of LDL cholesterol and reduce the stickiness of platelets in the bloodstream.

Bromelain: 100 mg. Bromelain supports the conversion of plasminogen to plasmin, which in turn helps break down fibrin clots.

Alfalfa Leaf Powder: 100 mg. Alfalfa helps support healthy fat metabolism and normal cholesterol and triglyceride levels.

In addition, you should increase your intake of amino acids like L-arginine (3 grams twice daily). Substances like L-arginine will allow the smaller arteries to open up and flush more life-sustaining blood through an area. Note: Toxicity to L-arginine is around 40 grams or more a day.

Siberian ginseng: 180 to 300 milligrams. Increases the conversion of L-arginine to nitric oxide can also help the heart in two ways: First, it improves blood flow to the muscle in times of low oxygen. Second, the Chinese have found that nitric oxide is a potent antioxidant that combats free radical injury to the heart muscle.

Heart disease requires immediate attention and continuous follow up from a trained health professional. To avoid confusion about underlying problems, or interference with any ongoing therapy, the use of vitamin or herbal supplements must be discussed with your doctor or

primary healthcare provider before you start any therapeutic regimen.

Your Second Step: Eat sensibly

Cooking

Planning and cooking meals aimed at reducing blood cholesterol doesn't have to be complicated. Here are some suggestions:

- Choose fish, poultry and lean cuts of meat, and remove fats from meats and skin from chicken before eating. Eat up to 6 ounces per day.
- Broil, bake, roast, or poach foods rather than fry them.
- Cut down on sausage, bacon, and processed high-fat cold cuts.
- Limit organ meats such as liver, kidney, or brains.
- Instead of whole milk or cream, drink skim or 1% milk. Try non-fat or low-fat yogurt in place of sour cream. Use non-fat or low-fat cheeses. Sherbet and non-fat or low-fat frozen yogurt can be delicious replacements for ice cream.
- Eat plenty of fruits and vegetables, as well as cereals, breads, rice, and pasta made from whole grains (for example, rye bread, whole wheat spaghetti, bran cereal). These foods are good sources of starch and fiber, and usually contain no cholesterol and little or no saturated fat.
- Liquid vegetable oils are a good choice for sautéing vegetables, browning potatoes, popping corn, and for making baked goods, pancakes, and waffles. Use small amounts or try using a vegetable oil cooking spray.

Butter Vs. Margarine

In 1869, a French food chemist succeeded in making a cheap substitute for butter, which had become scarce and expensive. The word margarine came from the Greek for “pearl,” because the original version was hard, white, and glossy. It was probably less than appetizing too, since it was made from beef fat, milk, and chopped sheep’s stomachs and cows’ udders, all treated with heat, lye, and pressure. However, it was somehow cheaper than butter so became quite popular.

Vegetable and fish oils then became raw materials for margarine and manufacturers bought up the cheapest oils they could find, reduced them to bland neutrality through chemical processing, and hardened them into margarine.

By the 1920s, vegetable oils, exclusively, went into margarine, and over the next 30 years food chemists used chemical additives to improve the spreadability, appearance, and especially the flavor of margarine. Interestingly, the market demanded a greater resemblance to butter.

During the last 25 years or so, people have come to see margarine not just as a cheap substitute for butter, but as a healthy alternative to it. North Americans now consume four times as much margarine as butter.

Fats and Cholesterol

This *new* perception of margarine developed alongside a growing awareness of saturated fat and cholesterol contributing to atherosclerosis, the degenerative condition of arteries, or “hardening of the arteries,” that predisposes us to heart attacks, strokes, and other circulatory diseases. As doctors became convinced of the dangers of saturated fat and cholesterol, they began to recommend margarine to patients, and the margarine industry cashed in by emphasizing new formulations made exclusively from polyunsaturated vegetable oils, like safflower, corn, and soy. Producers also stressed that margarine contains no cholesterol. So, doctors, like other

health-conscious folks, switched from butter to margarine. Many of these people will admit that they prefer the taste of butter but consider margarine better for them.

However, the health risks are still present. It’s the total fat in the diet that increases the risk of premature death and disability from the major diseases in our society. If there is one undisputed fact that emerges from nutritional research, it’s that **typical high-fat diets are killing us**.

Although the danger to our hearts and arteries from saturated fat is clear, many people do not understand that the process of hardening vegetable oils by artificial hydrogenation *creates* saturated fat. In fact, the chemical term “saturation” refers to the percentage of carbon atoms in fats that are bound with hydrogen atoms. The more saturated a fat, the higher the temperature at which it will liquefy.

When stored in the refrigerator, polyunsaturated vegetable oils, like olive oil or soy oil, remain clear and pour easily. Saturated fats like beef suet, bacon grease, and butter become opaque and hard in the cold. No matter what oils go into margarine, they are made more saturated by the very process that turns them into a harder spread. Most brands of margarine do not disclose the percentage of saturated fat they contain, and even though they contain no cholesterol, they stimulate your body to make cholesterol. **The “heart-friendly” perception of margarine over butter is not as advertised.**

The heat and chemicals used to transform vegetable oils into margarine change fatty acids into unnatural forms that may be unhealthy to eat. Eating *trans*-fatty acids in margarine, vegetable shortening, and partially hydrogenated vegetable oils probably increases cancer risks, promotes inflammation, and accelerates aging and degenerative changes in tissues.

The most significant area of comparison is the different chemical structures of the component fatty acids of the two. Butter is basically a natural

product, and its fatty acids are structurally similar to the fatty acids in our bodies.

So, our question shouldn't be "what's better?" We should be asking "what's worse to eat?" Butter and margarine are both concentrated fats that contribute to the unhealthy excess of fat in our diets. One way to cut down on fat is to *avoid both butter and margarine*.

Sources of polyunsaturated fats include safflower, sesame, soy and sunflower seed oils; monounsaturated fats come from olive, canola and peanut oils. Although these fats should be used in place of saturated fats, there are unclear links to other health problems such as gallstones and cancer.

Red Wine

There is strong evidence that drinking alcoholic beverages has a positive impact on the heart. A 1999 analysis revealed that moderate drinking could translate into an almost 25% reduction in risk of coronary heart disease.

Among other things, alcohol may increase HDL cholesterol and inhibit the clumping together of platelets. The benefits of drinking alcohol apply to all types of alcohol—not just red wine.

Some alcoholic beverages may contain compounds such as antioxidants that are especially good for the heart. But experts advise that healthy adults imbibe no more than two drinks per day, with a weekly limit of nine for women and 14 for men.

Better Choices

Eat more whole grain products. Better choices include: 100% whole wheat bread, bagels, pita, rolled oats, brown rice, barley, whole grain hot and cold cereals, crisp breads and pasta. Choose less often: granola, croissants, donuts, pastries, scones, biscuits and commercial muffins.

Eat more vegetables and fruit. Eat vegetables

raw, in salads, steamed, microwaved, or stir "fried" with broth (limit regular salad dressings as well as sauces made with butter, margarine, and cheese). Better choices include: dark green and orange vegetables such as broccoli, spinach, romaine lettuce, carrots, squash and sweet potatoes; and orange fruits such as papaya, cantaloupe and oranges.

Select smaller, leaner portions of meat and alternatives. Eat 2 small servings of lean choices each day (1 serving = the size of a half to a full deck of cards). Choose fish at least twice per week (fresh, frozen or canned in water) instead of meat. Choose baked beans, chick peas, split peas, or lentils at least once a week. Choose less often: bacon, bologna, salami, sausages, marbled meat, egg yolk, organ meats, regular hamburger, and pâté.

A Fishy Matter

A more controversial heart health claim is based on omega-3 fatty acids and its potential effects of reducing the risk of CHD.

The qualified FDA claim for omega-3s focuses specifically on a potential relationship between the long-chain omega-3 fatty acids eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA) and low rates of CHD. The FDA was very clear in stating that the evidence is not sufficient to suggest that LNA (linolenic acid found in flaxseed) may reduce the risk of heart disease. According to the new claim, any product that provides only LNA and uses the health claim could be considered misbranded and subject to FDA enforcement.

Studies in the general population have looked at diets containing fish and it is not known whether diets or omega-3 fatty acids in fish may have a possible effect on a reduced risk of CHD.

Tuning Up Your Body's Engine With Omega-3s

Remember the days when we were told “cut the fats out of your diet”? We dutifully cut down on all fats... and now we know better. Not all fats are created equal. Yes, we should cut out “bad” fats such as trans fats, hydrogenated fats, and the over consumption of saturated fats. But, there's a whole class of fats that our bodies need, every day, to function at optimal levels. These are the “good” fats or “essential fatty acids” (EFAs) such as omega-3s.

Essential Fatty Acids – Omega-3s and Omega 6s

In the 1970s and 1980s, research into heart disease, especially coronary heart disease, made a very important observation among the Natives of Greenland and Canada. These people, who ate a high fat diet, had a very low incidence of heart attacks and heart disease. Further investigation revealed that most of the fats in their diet came from cold-water fish with high contents of omega-3 fatty acids.

EFAs are essential, as their name implies, for the production of hormone-like substances called prostaglandins. Hormones, as we've learned, are integral to neurotransmissions between our brains and our nerves, muscles, and organs. Omega-3s help convey these messages by boosting the myelin sheath surrounding each nerve. That's why fish oils have been used in the treatment of attention deficit disorder (ADD).

Omega-6's, found in corn, soy, sunflower, and other oils, tend to dominate foods in our diets. The ideal ratio of omega-6 to omega-3 should be 1:1, but our typical diet's ratio is often 20:1, or even as high as 50:1. We need to restore the omega-3 balance in our bodies.

Both fish and flax seed are rich sources of omega-3 fatty acids, yet health experts consider fish oils a superior source for omega-3s. Flax contains a form of omega-3 fatty acids called alpha-linolenic acid (ALA).

Hundreds of studies confirm the benefits of EFAs and omega-3 fatty acids. The following lists some of the key findings:

- Lowers blood pressure (slightly)
- Improves the health of arteries
- Retards the growth rate of atherosclerotic plaque
- Lowers blood serum triglyceride levels
- Reduces the susceptibility of the heart to arrhythmias, which can lead to sudden cardiac death
- Protects against strokes
- Reduces thrombosis (blood clot formation) which can lead to heart attack and stroke
- Aids in the regulation of blood sugar levels

A Word About Fish

Recently, I've heard concern over fish poisoning and toxic levels of mercury in tuna and salmon. It's pretty well established that some tuna contains potentially toxic levels of mercury and health experts have cautioned against the excessive consumption of tuna. This manmade pollution is a horrible reality of the 21st Century. Salmon may not contain the same levels of mercury as tuna, but because most salmon today is commercially farmed, reports show higher levels of PCBs, pesticides, and other chemicals in salmon meat. Interestingly, my favorite fish oil is made from herring. Herring comes from the cold North Atlantic waters and do not pose a mercury risk. Why? Environmental toxins accumulate up through the food chain. Animals at the top of the food chain, like tuna, accumulate and contain the highest levels of toxins. Herring, sardines and some trout, on the other hand, are low on the food chain making it a safe food choice for human consumption.

Heart Disease

There are hundreds of clinical studies showing the protective effects of omega-3 fatty acids in heart disease. However, the strongest confirma-

tion comes from three double blind, placebo-controlled studies that reported definite benefits of omega-3 fatty acids. The most convincing study was the GISSI-Prevezione study in which 5654 patients with coronary artery disease were divided into those receiving 850 mg per day or placebo. After 3.5 years, those on the omega-3 fatty acid experienced a 20% reduction in overall mortality and a 45% decrease in risk for sudden death.

“The discovery that atherosclerosis (hardening of the arteries) can be cured or rendered harmless, as this study indicates, is ground-breaking,” said Dr Arne T. Høstmark from the Section of Preventive Medicine and Epidemiology at the University of Oslo, Norway.

Lipid Lowering

Omega-3 fatty acids from fish oils lower serum triglycerides. Using 4 g/day of omega-3 fatty acids, serum triglyceride concentrations were reduced 25 to 30% with accompanying increases of LDL cholesterol (bad cholesterol) of 5-10% and HDL cholesterol (good cholesterol) of 1-3%. In patients with very high serum triglyceride level (i.e. over 750 mg/dL), 3-5 grams per day of omega-3 fatty acids is found to be very effective.

Diabetes

In over 23 clinical studies using omega-3 fatty acids in type-2 diabetes (adult onset), fish-oil consumption lowered serum triglycerides significantly. Omega-3 fish oil also helps maintain blood sugar levels and aids digestion of glucose and proteins.

Eggs: Despite the negative hype, egg yolks are one of the richest sources of choline, which keeps the cholesterol in the egg moving through the bloodstream so it can't build up on arterial walls. Eggs are also rich in minerals, vitamins and essential amino acids.

Onions: If you want to help lower your blood pressure, improve your cholesterol picture, and dramatically lessen your chance of ever having a heart attack, start eating half a raw onion every

day.

Carrots: These nutritional powerhouses contain pectin and lecithin that help lower LDL cholesterol levels. Carrots also help reduce your risk of stroke, and they act as a natural diuretic that helps to safely rid the body of excess fluid that often leads to high blood pressure.

Soybeans: Including soybean products like tofu, roasted soy nuts, and tempeh in your diet can raise the good form of cholesterol (HDL) and even reverse arterial heart disease.

Oils: If you want to help keep your arteries clean, you should be aware of some beneficial uses of oils:

- Oils for salads and cooking: Use certified organic extra-virgin olive oil.
- Oil for baking: As with olive oil, buy unrefined, organic canola oil.
- Frying oil: I'd suggest that you try getting by without frying at all. Chicken without skin and fish with skin can be dipped in a milk and egg mixture and breaded with crushed bran flakes.

Nutrition and Diet Alternatives

Heart disease requires immediate attention and continuous follow up from a trained health professional. To avoid confusion about underlying problems, or interference with any ongoing therapy, the use of vitamin or herbal supplements must be discussed with your doctor before the regimen is begun.

The fats that travel around in our bloodstream have an ability to turn into troublesome compounds. When fats combine with oxygen in the wrong place at the wrong time, they can turn into compounds known as free radicals. These compounds tend to combine with whatever is nearby, turning that compound into a free radical as well. The result is a chain reaction that can end up damaging the lining of the blood vessel, the first step down the road to heart disease and

an eventual heart attack. A prudent nutritional defense strategy has, as its foundation, a high-fiber, low-fat plant-based diet that includes a hefty supply of antioxidant nutrients.

A study in the *Lancet*, June, 1994, reported that those who'd had a first heart attack and had subsequently adopted a so-called "Mediterranean diet" were 70% less likely to suffer a relapse than those following a standard low-fat diet.

The Mediterranean diet is distinguished by its emphasis on more whole grains, fresh fruits, more root and green vegetables, more fish and less meat (beef, lamb and pork to be replaced by poultry). They also consume more nuts, legumes and olive oil.

When the Mediterranean diet was analyzed, it was found, as expected, to contain more of the antioxidant vitamins than the low-fat diet. The antioxidant nutrients found in fruits and vegetables — vitamins A, E and C — are associated with a decreased risk of heart disease.

Antioxidant supplements may also play an important role for those who already have heart disease. A study in the *Journal of the American College of Cardiology* (August 1997) found that a daily dose of 800 IU of vitamin E, 1,000 mg of vitamin C and 24 mg of vitamin A was able to prevent the oxidation of low-density lipoproteins (LDLs; the bad cholesterol), an important adjunct to preventing further problems.

Your Third Step

The Healthiest Diet of All

The best approach to food is taken by people from Mediterranean countries—Spain, Italy, Greece, Tunisia, Turkey, Morocco—with a few twists. There are a remarkable number of large studies on disease patterns, as well as clinical investigation, to back Mediterranean peoples' healthy and delicious approach to nutrition.

Best of all, the Mediterranean diet is not a "diet" in the restrictive sense of the word. It's a lifestyle choice that's the foundation of an approach to health and healing.

The Menu:

If you "go Mediterranean" with your diet, you'll find plenty of fresh fruits and vegetables on your plate, including generous use of garlic and onions. The Mediterranean way of eating also emphasizes low-glycemic whole grains, beans, nuts, and seeds. Unlike in many other diets, you'll find fresh fish, eggs, and small amounts of meat (primarily for flavoring sauces) and dairy, as well as a fair amount of "healthy fats," especially olive oil. Mediterranean diets are naturally rich in omega-3 fatty acids, coenzyme Q₁₀ (CoQ₁₀) and the minerals potassium, calcium and magnesium.

The food group breakdown falls into these ranges:

- 20-25% protein
- 30-35% healthy fats
- 45-50% slow-burning carbohydrates (includes vegetables and some fruits)

The Carbohydrate Issue

By encouraging people to eat very little fat while indulging in lots of refined carbohydrates, their bodies were secreting excess amounts of the hormone insulin, causing them to store surplus carbs as fat. When chronically high levels of insulin are circulating throughout your body, the cells eventually become insulin resistant, which can lead to diabetes. Once a person is insulin resistant, they also become prone to high cholesterol, high blood pressure, weight gain, and even premature heart disease.

A very simplified version of the insulin-resistance chain reaction looks like this:

carbohydrate craving = carbohydrate overload
 = high blood sugar = high insulin levels = fat storage
 = more carbohydrate cravings = weight

gain = disease.

Research Supporting the Modified Mediterranean Diet

Don't be fooled by what many find to be a restrictive, ominous word—"diet." The Mediterranean diet is much more than that. It's a way of eating with proven benefits for heart health, as well as overall vitality. It's a way of eating that won't leave you hungry or craving "real" food.

Actually, the "Mediterranean Diet" is nothing new. It's a centuries-old tradition of eating that has mostly been associated with the people of Crete or Greece. These were a people who derived almost 40% of their daily calories from fat, yet they lived long lives with little incidence of coronary heart disease, cancer, and other chronic diseases.

Other surprises in the Mediterranean style of eating? It includes dairy products (mostly hard cheeses and yogurt), eggs, and even red meat in small amounts, primarily to flavor sauces. People from the Mediterranean region are also partial to a glass or two of red wine with meals, and they enjoy desserts sweetened with sugar or honey a few times per week.

Some compelling benefits of the Mediterranean Diet:

Helps protect against heart disease

A diet rich in complex carbohydrates and fiber, and high in essential fatty acids and monounsaturated fats, found primarily in olives and olive oil, lowers LDL and total cholesterol and is associated with a low incidence of heart disease.

Compared with typical Western diets, the Mediterranean style of eating has been shown to lower blood pressure.

Antioxidant nutrients found in fresh fruits and vegetables also have cardio-protective effects – they help minimize the oxidation of LDL cholesterol, and support healthy blood

pressure levels and capillary blood vessel elasticity and strength.

Helps protect against cancer

During a four-year follow-up of more than 600 patients with heart disease, those who followed a Mediterranean style of eating developed fewer cancers and were less likely to die from cancer. We also know that a high intake of fiber- and antioxidant-rich fruits and vegetables protects against cancers — especially cancers of the digestive and respiratory tracts, as well as those related to hormones.

High olive oil consumption is associated with a decreased risk for breast, colon, lung, and skin cancers.

Minimizes inflammation

Omega-3 fats found in cold-water fish decrease inflammation in various parts of the body. Fish oil is recognized as an effective treatment for early stages of rheumatoid arthritis and may help prevent inflammatory flare-ups of the digestive tract associated with Crohn's disease.

Studies show that the body metabolizes olive oil, a monounsaturated fat, into hormones that reduce inflammation. Likewise, nuts, flaxseeds, and other seeds contain essential fatty acids that the body converts to produce beneficial hormones with anti-inflammatory effects.

Assists with weight management

Not only are fats from olive oil, cold-water fish, eggs, and nuts and seeds healthy, they sustain your energy level longer and satisfy your appetite better than high-carbohydrate foods. This helps you lose weight and keep it off.

Turmeric

Other Common Name(s): Indian Saffron, Indian Valerian, Jiang Huang, Radix, Red Valerian.
Scientific/Medical Name: *Curcuma longa*.

Turmeric is a spice grown in India and other tropical regions of Asia. It has a long history of use in herbal remedies, particularly in China, India, and Indonesia. The root of the plant contains the active ingredient, curcumin.

Turmeric is a common food flavoring and coloring in Asian cuisine. Animal and laboratory studies have found that curcumin, the active ingredient in turmeric, demonstrated some anticancer and anti-heart disease effects.

Turmeric is promoted primarily as an anti-inflammatory herb that is said to produce far fewer side effects than conventional pain relievers. Some practitioners prescribe turmeric to relieve inflammation caused by arthritis, muscle sprains, swelling, and pain caused by injuries or surgical incisions. It is also promoted as a treatment for rheumatism and as an antiseptic for cleaning wounds.

Supporters also claim that turmeric protects against liver diseases, stimulates the gall bladder and circulatory systems, reduces cholesterol levels, dissolves blood clots, helps stop external and internal bleeding, and relieves painful menstruation and angina (chest pains usually associated with heart disease).

An ointment made from turmeric can be applied to the skin. Although there is no standardized dose for turmeric, some practitioners recommend taking a teaspoon with each meal.

The History of Turmeric

The use of turmeric was described in traditional Chinese and Indian medicine as early as the 7th century AD. In various Asian folk medicine traditions, turmeric has been used to treat a long list of conditions, including diarrhea, fever, bronchitis, colds, parasitic worms, leprosy, and bladder and kidney inflammations. Herbalists have applied turmeric salve to bruises, leech bites, festering eye infections, mouth inflammations, skin conditions, and infected wounds. Some people inhale fumes of burning

turmeric to relieve chronic coughs. Turmeric mixed with hot water and sugar is considered by some herbalists to be a remedy for colds.

In India and Malaysia, there is a custom of pasting turmeric onto the skin, a practice now under study for the possibility that it may prevent skin cancer. Chefs frequently add turmeric to their creations because of its rich flavor and deep yellow color.

Researchers have studied turmeric extensively to determine if it is an effective antioxidant and anti-inflammatory agent, and whether it holds any promise as a heart disease or cancer drug.

A French laboratory study concluded that curcumin appeared to be a potent inhibitor of cancer development. Several additional laboratory studies also concluded that curcumin might prevent and slow the growth of some types of tumor cells. Two animal studies conducted in India found that curcumin slowed the growth and spread of cancer in mice. Controlled clinical trials are needed to determine what, if any, medical benefits turmeric offers to humans.

Your Fourth Step

What are all those fats in my food? Aren't some of them good for you?

Unsaturated fats are the "good" ones. Here's an easy way to remember them: they are usually liquid at room temperature. There are two types of unsaturated fats: polyunsaturated fats and monounsaturated fats.

Polyunsaturated fats are found mainly in vegetable oils. Excellent sources include corn, safflower, sesame, soybean and sunflower oils. Polyunsaturated fats are also found in some fish and shellfish and they help lower blood cholesterol levels.

Saturated and “Trans” Fats

Saturated fats come mostly from animals. “Trans” fats come mostly from vegetable oils that have been made solid through a process called hydrogenation. Both are risky to heart health. To limit “trans” fats, read ingredient labels and choose fewer foods that contain hydrogenated vegetable oils.

Monounsaturated fats are found in canola, olive, and peanut oils and in avocados. These fats tend to lower cholesterol and may also help the body maintain proper levels of HDL cholesterol (the “good” cholesterol). It’s preferable to eat monounsaturated fats up to about 20% of your diet.

Choose Healthy Snacks

Snacks, it seems, are part of our daily lives. However, many snacks, including cookies, cheese crackers, and chips, are high in saturated fat, cholesterol, and calories. So, we know they’re not good for us. However, that doesn’t mean you can’t enjoy an occasional between-meal treat.

Here are some fabulous, low-fat, snack attack foods:

- Frozen grapes or banana slices; other fresh fruits
- Bagels and bread sticks
- Unsweetened, ready-to-eat cereals
- Fruit leather or other dried fruit
- No-oil baked tortilla chips
- Fat-free or low-fat cookies such as animal crackers, fig and other fruit bars, ginger snaps, and vanilla or lemon wafers
- Fat-free or low-fat crackers* such as melba toast, rice, rye, and soda crackers
- Frozen low-fat or non-fat yogurt and fruit ices
- Fat-free pretzels or air-popped popcorn

Keep in mind that while these treats may be low in fat, many are not low in calories. So, watch how much you eat, especially if you are trying to control your weight.

Hold the Salt

It used to be that salt was a definite no-no in our diets. In fact, for years we were told to cut back on salt because it raised blood pressure and can lead to heart disease. And, refined table salt is still the “bad guy” when compared to sea salt... salt from the ocean, ripe with 92 essential minerals. We have to draw a line in the sand and delineate the “good” salt from the “bad” salt. It’s not exactly as cut-and-dry as that but you get the picture.

Sea salt is the best form of salt and contains minerals, like magnesium, calcium, potassium, sodium, chloride, sulfate, phosphate and many other trace minerals. Sea salt does not raise blood pressure and is, in fact, healthy. Our whole body functions on minerals, electrolytes, and neurological triggers. Sea salt and the accompanying minerals help trigger those functions including:

- making stomach acid and aiding digestion
- mineral absorption
- maintaining cellular water balance
- activating enzymes
- absorbing fats and fat-soluble vitamins

However, most of us are taking in far too much salt, table salt or sodium chloride, that is. It’s recommended that we consume no more than 5 grams of salt per day. Even that might be a little high, especially if you’re not using sea salt.

Consider that more than half of our salt intake doesn’t come from a table shaker but from processed foods including soups, breads, sauces, chips, cereals and so on. In fact, most ready-made foods contain salt.

Here are some ways to cut back on our favorite flavor-enhancer, table salt:

- be mindful of what sauces you’re using. Most are high in salt.
- cut down on salty snacks such as potato chips, nachos, and salted nuts
- try to eat less of heavily salted foods such as bacon, cheese, pickles, smoked fish and most ready-prepared meals
- avoid fast food restaurants, which are notori-

- ously dangerous salt zones
- choose canned vegetables and foods that are marked ‘no added salt.’ Check nutrition labels for the amount of sodium in foods, especially on cans, boxes, bottles, and bags. Look for products that say “sodium free,” “very low sodium,” “low sodium,” “reduced sodium,” “less sodium,” “light in sodium,” or “unsalted.”
 - prepare your own soups and stocks where you have control over how much salt goes into the recipe.
 - add less salt when you’re cooking. Add a no-salt dressing to water when you’re cooking pasta or boiling vegetables.
 - use herbs and spices to add flavor to cooking instead of salt

Despite their reputation for being a forbidden food for caloric reasons, nuts can actually be quite good for your heart. There is mounting evidence that nuts, including walnuts, pecans, and peanuts, lower total cholesterol and LDL cholesterol without lowering the health-promoting HDL cholesterol. Eating nuts, frequently, can lower the risk of coronary heart disease by up to 50%. Nuts are low in saturated fat and high in monounsaturated and polyunsaturated fats. They also contain plant protein, dietary fiber, plant sterols, and phytochemicals, all of which may protect the heart, and they are a good natural source of vitamin E.

Almonds are an excellent source of monounsaturated fats. Eating unsaturated fats is associated with a reduction in heart disease risk factors. To keep your calorie intake steady, eat almonds in place of — rather than in addition to — other snacks in your diet.

Nuts: They contain essential fatty acids like omega-6 and omega-9 monounsaturated that improve your blood-lipid profiles, cholesterol and triglyceride levels, significantly reduce heart problems, and help you lose weight.

Although recent studies have indicated that nut consumption may improve levels of blood lipids, nuts are not generally recommended as snacks for hyperlipidemic subjects because of their high fat content. Furthermore, the effective dose is still unknown.

The dose-response effects of whole almonds, taken as snacks, were compared with low-saturated fat whole-wheat muffins as a control in the therapeutic diets of hyperlipidemic subjects. In a randomized crossover study, 27 hyperlipidemic men and women consumed supplements of 22.2% of energy consisting of full-dose almonds, half-dose almonds plus half-dose muffins, and full-dose muffins. Fasting blood, expired air, blood pressure, and body weight measurements were obtained at weeks 0, 2, and 4. The full-dose almonds produced the greatest reduction in levels of blood lipids. Significant reductions from baseline were seen on both half- and full-dose almonds for LDL cholesterol with no significant reductions on the control diet.

Almonds used as snacks in the diets of hyperlipidemic subjects significantly reduce coronary heart disease risk factors, probably in part because of the non-fat, protein, fiber and monounsaturated fatty acid components of the nut.

Beware of the nuts that are salted and roasted in hydrogenated oils, both unhealthy heart additives.

The Wonders of Walnuts

Thanks to the omega-3 fats in walnuts, the California Walnut Commission can now legally claim that “eating 1.5 ounces per day of walnuts as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease.”

The US Food and Drug Administration (FDA) has approved a petition from the nut growers based on strong evidence that indicates people who eat walnuts have less cardiovascular disease. Scientists have confirmed that omega-3 fats are present in walnuts and that essential

fatty acids have been linked to reduced levels of heart disease. Of course, walnuts are healthy for lots of reasons, including their vitamins, minerals and antioxidant properties.

Interestingly, the California Walnut Commission represents 99% of the commercial US supply of walnuts and the majority of walnuts on the market, worldwide.

Your Fifth Step: High Blood Pressure – Know Your Numbers

If you have a close family member, a parent, brother, or sister, with heart disease, you're at higher risk for developing heart disease. Chronic diseases like diabetes also put you at higher risk, as does aging. If you're in a high-risk category, that's your cue to adopt a heart-healthy lifestyle.

Getting Your Cholesterol Checked

Blood cholesterol levels are measured by means of a small blood sample. The blood should be tested for total cholesterol and, if an accurate measurement is available, for HDL-cholesterol, as well.

Cholesterol is a soft, waxy substance we all make, naturally, in the liver and that is absorbed from the diet, to manufacture cell membranes and hormones. One of the lipids or fats found in the blood, cholesterol is a vital "building block" for the body. Without cholesterol, the body couldn't function.

Some people have too much cholesterol in their blood. This condition is called hypercholesterolemia, and it is a major risk factor for atherosclerosis, a disorder that can lead to circulation problems, heart attacks, and strokes.

When there is too much cholesterol in the blood, the excess can settle on the inside of the

blood vessels. Over time, fatty deposits called plaque build up in the blood vessels, clogging them so that blood can't flow properly. When this happens, chances of a heart attack or stroke are increased.

But, how do we know which kind or how much cholesterol is too much? There are two very different types of cholesterol – low-density lipoprotein (LDL) cholesterol and high-density lipoprotein (HDL) cholesterol. It circulates in the body in several complex forms, including LDL, or "bad" cholesterol, and HDL cholesterol, often referred to as "good" cholesterol.

LDL cholesterol is often called the "bad" cholesterol. It doesn't really deserve this name - our bodies need normal amounts of LDL cholesterol for cell growth and repair.

HDL cholesterol is often referred to as the "good" cholesterol because it actually helps to carry away LDL cholesterol from the blood vessel walls. Research indicates that HDL cholesterol may help to protect us from atherosclerosis and heart disease, so higher levels of this substance are considered good. HDL cholesterol protects arteries by scavenging and sending excess cholesterol back to the liver where it's metabolized into hormones and bile acids.

When individuals have both low LDL and low HDL levels, the risk for heart disease can increase three-fold.

Too much cholesterol, in the blood, can contribute to fatty buildup in the arteries, known as atherosclerosis, causing plaque deposits to narrow the arteries. This makes the heart work harder to force the blood through. If enough plaque gathers in the coronary arteries, which supply blood to the heart, the heart can become starved for oxygen, resulting in chest pain. If a blood clot or obstruction forms, a heart attack can occur.

Our bodies contain another type of fat called **triglyceride**. Triglyceride is the most common form of fat found within our bodies and is used

as an energy source. Research has shown that a large number of people who have heart disease also have high triglyceride levels. On the other hand, some people with very high triglyceride levels show no sign of plaque buildup. Unlike LDL cholesterol, triglycerides do not adhere to the walls of the blood vessels. Triglycerides are more like a “thick cream” in the blood and increase the tendency of the blood to clot.

Experts aren’t sure, however, if triglycerides are a direct cause of atherosclerosis. High triglyceride levels are often associated with excess alcohol consumption, excess weight, or poorly controlled diabetes. Their presence may therefore be a signal that additional heart disease risk factors are present or lifestyle changes are immediately needed.

Homocysteine is a natural amino acid that is found in your body. Higher levels of homocysteine in the blood are associated with an increased risk of heart disease, stroke, and peripheral vascular disease. It’s not completely clear how much benefit our hearts can get from lowering the level of homocysteine in our blood. But, evidence from the University of Michigan suggests that people at risk for heart disease should have their homocysteine levels checked and would benefit from nutrients that reduce homocysteine levels in the blood. High homocysteine levels may be associated with up to 6% to 10% of all heart deaths in the United States.

Why is knowing your cholesterol levels important?

A desirable total cholesterol level for adults without heart disease is less than 200 mg/dL (or 200 milligrams of cholesterol per deciliter of blood). A level of 240 mg/dL or above is considered “high” blood cholesterol. Levels in the “borderline-high” category (200–239 mg/dL) still increase the risk of heart disease.

Before age 45, the total blood cholesterol

level of women averages below 200 mg/dL. But between the ages of 45 and 55, women’s average cholesterol level rises to almost 220 mg/dL, and to nearly 240 mg/dL for women between the ages of 55 and 64. Women who have a cholesterol level over 240 mg/dL are more than twice as likely to develop heart disease as women with levels below 200 mg/dL.

Total and HDL cholesterol levels are usually measured first. Depending on what these initial measurements show, and whether you have any other heart disease risk factors, your doctor may want to measure your

LDL level as well. An LDL level below 130 mg/dL is desirable. LDL levels of 130–159 mg/dL are “borderline-high.” Levels of 160 mg/dL or above are high. The higher the LDL number, the higher the risk.

What’s all this about high blood pressure?

High blood pressure causes the heart to work harder pumping oxygenated blood to organs throughout the body. The arteries that deliver the blood become scarred, hardened, and less elastic. This happens to everyone as they age, but it happens more quickly to people with high blood pressure. As the arteries harden, the heart has to work even harder, and the heart muscle can become thicker, and weaker. When arteries are damaged by high blood pressure, the organs that they supply with blood can be damaged. For example, this type of damage can affect the heart (causing a heart attack), the brain (causing a stroke), and the kidneys (leading to kidney failure).

Blood pressure is a measurement of the pressure or force of the blood against the walls of the blood vessels. The pressure is measured in units called mm Hg, short for millimeters of mercury. Since the pressure changes when the heart contracts and relaxes, blood pressure is expressed as

two numbers:

Systolic pressure: the pressure when the heart contracts and forces blood into the blood vessels. This is the higher of the two numbers and is usually expressed first. E.g. a blood pressure of 120/70 means the systolic pressure is 120 mm Hg.

Diastolic pressure: the pressure when the heart is relaxed. This is the lower of the two numbers and is usually expressed second.

Blood pressure varies considerably throughout the day, depending upon whether you're at rest or active. An example of a "normal" blood pressure is 120 or less for the systolic reading and 80 or less for the diastolic reading, or 120/80. High blood pressure, or *hypertension*, is usually defined as a blood pressure that is consistently greater than 140 mm Hg systolic pressure, over 90 mm Hg diastolic pressure.

High blood pressure is often referred to as silent because there are usually no symptoms. High blood pressure can double or even triple your risk of heart disease, stroke, and kidney disease.

There are a number of factors that can increase your risk of developing hypertension or high blood pressure.

- Age: Blood pressure tends to rise with age. About half of people over the age of 65 have high blood pressure.
- Ethnicity: The incidence of high blood pressure is higher among members of some ethnic groups.
- Family History: If one of your parents has high blood pressure, you have a 1 in 5 chance of developing the condition. If both of your parents have high blood pressure, your risk is 1 in 3.
- Obesity: Excessive weight is a risk factor - especially if weight is stored around the abdomen.
- Diabetes: People with diabetes are at increased risk for high blood pressure.
- Stress: Repeated exposure to stress may

raise blood pressure levels or contribute to unhealthy lifestyle choices.

- Excessive Alcohol Consumption: Alcohol increases blood pressure.
- Cigarette Smoking: Smoking may cause high blood pressure in certain individuals.

Your Sixth Step: Quit Smoking and Exercise

Quit Smoking

If you smoke, for crying out loud, quit, now! Smoking is the single most preventable cause of death among North Americans. Think of it this way, smoking a pack a day is as bad for your health as gaining 65 pounds all at once.

Cigarette smoking has been described as "the most important, individual health risk in this country." Approximately 23 million American women smoke. Surprising as it may seem, smoking in the United States causes almost as many deaths from heart disease as from lung cancer. Women who smoke are two to six times as likely to suffer a heart attack as non-smoking women. Smoking also boosts the risk of stroke.

Inhaling tobacco smoke causes several immediate responses within the heart and its blood vessels. Within one minute of starting to smoke, the heart rate begins to rise. It may increase by as much as 30% during the first 10 minutes of smoking. Nicotine raises blood pressure. Meanwhile, carbon monoxide and other toxic chemicals in tobacco smoke reduce the blood's ability to carry oxygen. Carbon monoxide attaches itself to hemoglobin, the oxygen-carrying pigment in red blood cells, much more easily than oxygen does. This reduces the amount of oxygen available to the tissues. Components in cigarette smoke also increase the tendency of the blood to clot.

Smoking tends to increase blood cholesterol levels. Furthermore, the ratio of high-density

lipoprotein cholesterol (the “good” cholesterol) to low-density lipoprotein cholesterol (the “bad” cholesterol) tends to be lower in smokers compared to non-smokers. All of these factors make smokers more at risk of developing various forms of atherosclerotic disease.

The only safe and healthful solution is to not smoke at all.

Increase your activity or exercise level.

Be more active every day! Being more active helps control your weight and lower your blood cholesterol. Activities will improve your overall health and vitality. Find an activity you can enjoy regularly, like walking the dog, or riding your bike to work.

Your heart needs at least 30 minutes of exercise, four times a week. The type of exercise doesn’t matter as much as the intensity. Don’t worry, you don’t have to wear spandex to the gym, but you should work up a sweat. You can power walk, jog, garden or whatever. But at the end of your routine, you should be short of breath and sweating.

Most people know exercise is good for the heart; it can lower blood pressure and help control blood lipids, which are fats and oils that include triglycerides, phospholipids, homocysteine and cholesterol.

The only “rule” regarding effective exercise is that you must get your heart pumping. For real cardiovascular benefits, you have to increase your pulse rate from its normal working rate and keep it up long enough for the blood vessels to dilate. Almost any exercise can be used — walking, swimming, riding a bike, jogging in place. It doesn’t have to be for a long or intense period of time, but it should be on a regular basis.

Concentrate on activities that are simple and inexpensive, and don’t require excessive travel. If you’re able, take the stairs instead of an elevator. Taking a vigorous walk is a good, if not the

This just in... Exercise Like a Drug in Heart Disease, Study Finds

Researchers at the University of Pennsylvania indicate that exercise can act like a drug on the blood vessels, reducing the risk of heart disease by literally getting the blood flowing. It works in a surprising way, reducing inflammation, which has recently joined high blood pressure and high cholesterol as a leading known cause of heart disease.

The blood stresses the walls of blood vessels as it passes over them, reducing inflammation in a way similar to high doses of steroids, the researcher’s report in *Circulation Research*. Inflammation in blood vessels has been linked to atherosclerosis, hardening of the arteries, and through exercise, the physical force of blood flow can cause cells to produce their own anti-inflammatory response. Exercise provides the localized benefits of glucocorticoid, without all the systemic side effects of taking the drugs themselves.

best, form of exercise for you.

Exercise lowers the risk of heart disease. Men who regularly exercise vigorously enough to work up a sweat have a 20% decrease in their risk of stroke. In 2000, a study showed similar benefits in women who exercise. Exercise at a moderately intense level, such as walking briskly, bicycling or swimming, for at least 30 minutes on most days of the week.

Reduce stress.

Stress isn’t necessarily bad for the heart, it’s how you cope with stress. The “stress” hormones, adrenaline and cortisol, made by the adrenal

glands, flood the body, increasing the heart's need for oxygen as it prepares for vigorous action. Heart rate and blood pressure increase and blood vessels in your skin constrict. The tendency for blood to clot increases and the body's cells pour stored fat into the bloodstream. Add it all up and it puts additional strain on the heart and artery linings — and an increased risk of heart disease.

Lose weight.

We now know that obesity is a major risk factor for all forms of heart disease and many other fatal or life-threatening diseases. When body fat is centered on the abdomen, the risks are especially high. The World Health Organization defines obesity as having a body mass index (BMI) of 30 or higher, which translates into being about 30 pounds (66 kilograms) or more overweight.

In the American Heart Association journal, *Circulation*, it was reported that “obesity is emerging as an independent risk factor for diseases of the heart.” We’ve known for a long time that obesity was related to heart disease, because it contributes to the development of high blood pressure, high cholesterol, and diabetes. However, recent studies have shown that even small increases in a person’s body mass index (BMI) are associated with an increased risk of heart attacks, even if the person does not have other risk factors for heart disease.

Clearly, losing excess weight is helpful in reducing the risk of heart attacks and congestive heart failure for many people.

Managing High Cholesterol

- Eat white meat or lean cuts of red meat;
- Remove skin and fat from chicken;
- Use “low-fat” or “no-fat” dairy products, dressings, mayonnaise;

This just in... Relaxation Therapy's Effect On Heart Disease

Researchers at Duke University Medical Center are studying whether practicing meditation and relaxation techniques can lower blood pressure by reducing the effects of stress. High blood pressure, or hypertension, can lead to serious health problems, including strokes, heart disease, and kidney disease. Many researchers also believe that reducing stress may have the same beneficial effect.

The ‘Calm Down’ study is designed to test whether teaching people techniques of meditation and relaxation. According to a study in the *Journal of the American College of Cardiology*, motivation and persistence have rewards for coronary artery disease patients. One in five patients, 20.3%, on standard treatment, died or suffered a major cardiac event within five years. The cardiac event rate for those who stuck with maximal therapy including meditation and stress reduction therapies was lower than one in 6.6%.

- Eat regular well-balanced meals to avoid the urge to snack;
- Increase servings of fresh fruit, vegetables and grains (increase fiber);
- Reduce the amount of fat in your diet from all sources;
- Reduce the amount of sweet baked goods, chocolate, and other high-sugar foods;
- Discuss your level of alcohol intake with your doctor and reduce it if necessary; and
- Increase physical activity. ❖



Healthy Choices For A Better Life