

# Heart Healthy Lifestyle

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# 1. Diet and Nutrition

## 1A. NCEP Step II Diet Guidelines

Nutrient	Step II NCEP diet goals
Calories	As determined by age, weight, height, and activity level
Total Fat	Average of no more than 30% calories
Saturated Fat	< 7% calories
Polyunsaturated Fat	Up to 10% calories
Monounsaturated Fat	Remaining total fat calories (~10-15% calories)
Carbohydrates	55% calories
Protein	15% calories
Cholesterol	< 200 mg

## 1B. Antioxidant Vitamins

### What are antioxidant vitamins?

Much research has recently shown how antioxidant vitamins may reduce cardiovascular disease risk. Antioxidant vitamins – E, C, and beta-carotene (a form of vitamin A) – have potential healthy-promoting properties.

### Background

Oxidation of low-density lipoprotein (LDL or “bad”) cholesterol is important in the development of fatty build-ups in the arteries. This process, called **atherosclerosis** (ath”er-o-skleh-RO’sis) can lead to heart attacks and strokes. Increasing evidence suggests that LDL cholesterol lipoprotein oxidation, and its biological effects, can be prevented by using antioxidants – both in diet and in supplements. These data are from various sources; basic science, epidemiology, experiments in animals, and clinical investigations, including limited clinical trials. The strongest evidence for using naturally occurring antioxidants to protect against the development of cardiovascular disease is for vitamin E. It’s weakest for vitamin C. Data on the role of beta-carotene are limited.

High intakes of vitamin E have been associated with a lower risk of coronary artery disease incidence, based on epidemiological studies. Animal studies also suggest that vitamin E can slow the development of atherosclerosis. Further, vitamin E inhibits LDL cholesterol oxidation in the test tube experiments and in human studies. Some epidemiological studies suggest that vitamin C, which also inhibits lipoprotein oxidation, is associated with reduced rates of clinical coronary heart disease.

One should not recommend using dietary supplements of antioxidants to prevent cardiovascular disease until their effect is proved in clinical trials that directly test their impact on cardiovascular end points. This caution is because the doses of these antioxidants that inhibited LDL cholesterol oxidation in some

studies are much larger than can be achieved by diet alone. Beneficial effects must be demonstrated in randomized, placebo-controlled clinical trials before recommending widespread use to prevent cardiovascular disease.

The EARLY Trial is a randomized, placebo-controlled clinical trial designed to study the effects of antioxidant vitamins and other supplements on factors which contribute to heart disease in children with high cholesterol levels.

Source: American Heart Association website (<http://www.americanheart.org/>) 2003.

## 1C. Fish Oils and Omega-3 Fatty Acids

### Omega 3 Fatty Acids\*

What are omega-3 fatty acids? All fats are made up of two compounds – glycerol and fatty acids. There are four fatty acid families, including omega-3 fatty acids. This particular group has gained attention because of its unique role as the building blocks for linolenic acid, EPA and DHA – all very important for brain formation, eye retinal function, and very specific body hormones. The human body is not able to make its own omega-3 fatty acids, so it is important that they are part of everyone's dietary intake.

One of the most positive effects of the omega-3 is that it helps build cell membranes in the brain. Failing to eat enough of this early in life may lead to such diseases as Alzheimer's and Lou Gehrig's disease. Omega-3 fatty acids may also decrease the likelihood of blood clots and stabilize heart function. They help to improve immune function, which is especially helpful during cold and flu seasons. More bonuses of the omega-3's include alleviating joint pain and rheumatoid arthritis, faster wound healing, and providing an excellent source of protein.

Omega-3 fatty acids first gained attention when health researchers realized that the Eskimo tribes had lower rates of cardiac diseases despite a diet high in whale fat. Follow-up studies identified omega-3 fatty acids in fatty fish as the protective factor. Other researchers studied omega-6 fatty acids, which appear to act, at least in part, as an adversary to omega-3 fatty acids. This is an important discovery because it has become clear that the ratio of omega-3 to omega-6 may be very important in overall heart health. There are many good sources for omega-6 fatty acids – vegetable oils, seeds, nuts, and whole-grains --- and almost everyone's intake is more than enough.

### Dietary Sources

How do you get omega-3 fatty acids? Seafood, especially fatty fish like salmon and trout, is virtually the only source of any significant amount of omega-3 fatty acids, so eating fish regularly is a very important part of every diet plan. Other fish like anchovies, oysters, tuna, sardines, mackerel, whitefish, and herring are also good choices. Crab, clams, halibut, perch, snapper, and cod contain less of these fatty acids, but enough that people who eat these fish often could easily meet their needs. Flaxseed, walnuts, leafy green vegetables, and canola oil also provide omega-3 fatty acids, but not as much as fatty fish do.

**What is the bottom line?** Health experts recommend regular dietary inclusion of fish. Studies continue to show that eating fish twice a week makes a positive difference. Certainly, seafood is an overall healthy source of protein, low in saturated fat, and therefore conducive to maintaining good cholesterol and blood pressure levels. Fish with bones – sardines and salmon – offer the added inducement of extra calcium in addition to their comparatively low cost and convenient availability in cans. Select or prepare broiled, grilled, baked, steamed, or poached fish or shellfish instead of frying it in butter or a creamy sauce.

Source: <http://www.msnbc.com/> Health Nutrition Notes, September 29, 2000.

(Prophet, JoAnne, Registered Dietitian, American Institute for Cancer Research; Bonci, Leslie, Director of Nutrition, University of Pittsburgh, President, American Dietetic Association)

## Fish Oil and Omega-3 Fatty Acids

**American Heart Association Recommendation.** Omega-3 fatty acids benefit the heart health of healthy people, people at high risk of cardiovascular disease and patients with cardiovascular disease.

We recommend eating fish (particularly fatty fish) at least two times a week. Fish is a good source of protein without the high saturated fat found in fatty meat products. Fatty fish like mackerel, lake trout, herring, sardines, albacore tuna and salmon are also high in two kinds of omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

We also recommend eating omega-3 fatty acids from plant sources. Tofu and other forms of soybeans, canola, walnut and flaxseed, and their oils contain alpha-linolenic acid (LNA). This is a less potent kind of omega-3 fatty acid.

People who have high triglycerides (blood fats) may benefit from a supplement of 2 to 4 grams of EPA and DHA per day. Even the 1-gram per day dose recommended for CVD patients may be more than they can easily get from diet alone. These people should talk to their doctor about taking supplements to reduce heart disease risk. Patients taking more than 3 grams of omega-3 fatty acids from supplements should do so only under a physician's care. High intakes could cause excessive bleeding in some people.

Some types of fish may contain significant levels of mercury, PCBs (polychlorinated biphenyls), dioxins and other environmental contaminants. Levels of these substances are generally highest in older, larger, predatory fish and marine mammals.

The benefits and risks of eating fish vary depending on a person's stage of life.

- Children, pregnant and nursing women usually have low CVD risk but may be at higher risk of exposure to excessive mercury from fish. Avoiding potentially contaminated fish is a higher priority for these groups.
- For middle-aged and older men, and women after menopause, the benefits of eating fish far outweigh the risks within the established guidelines of the FDA and Environmental Protection Agency.
- Eating a variety of fish will help minimize any potentially adverse effects due to environmental pollutants.

### Summary of Recommendations for Omega-3 Fatty Acid Intake

<i>Population</i>	<i>Recommendation</i>
Patients <i>without</i> documented coronary heart disease (CHD)	Eat a variety of (preferably fatty) fish at least twice a week. Include oils and foods rich in alpha-linolenic acid (flaxseed, canola and soybean oils; flaxseed and walnuts).
Patients <b>with</b> documented CHD	Consume approximately 1 g of EPA+DHA per day, preferably from fatty fish. EPA+DHA supplements could be considered in consultation with the physician.
Patients needing <b>triglyceride lowering</b>	2 to 4 grams of EPA+DHA per day provided as capsules under a physician's care.

### Recommendations Background

Since the 1996 American Heart Association Science Advisory, "Fish Consumption, Fish Oil, Lipids and Coronary Heart Disease," important new findings have been reported about the benefits of omega-3 fatty acids on cardiovascular disease. These include evidence from randomized, controlled clinical trials. New information has emerged about how omega-3 fatty acids affect heart function (including antiarrhythmic effects), hemodynamics (cardiac mechanics) and arterial endothelial function. These findings are outlined

in our November 2002 Scientific Statement, “Fish Consumption, Fish Oil, Omega-3 Fatty Acids and Cardiovascular Disease.”

The ways that omega-3 fatty acids reduce CVD risk are still being studied. However, research has shown that they

- decrease risk of arrhythmias, which can lead to sudden cardiac death.
- decrease thrombosis (blood clot formation), which can lead to heart attack and stroke.
- decrease triglyceride levels.
- decrease growth rate of atherosclerotic plaque.
- improve the health of arteries.
- lower blood pressure (slightly).

### **What do epidemiological and observational studies show?**

Epidemiological and clinical trials have shown that omega-3 fatty acids reduce CVD incidence. Large-scale epidemiological studies suggest that people at risk for coronary heart disease benefit from consuming omega-3 fatty acids from plants and marine sources.

The ideal amount to take isn't clear. Evidence from prospective secondary prevention studies suggests that taking EPA+DHA ranging from 0.5 to 1.8 grams per day (either as fatty fish or supplements) significantly reduces deaths from heart disease and all causes. For alpha-linolenic acid, a total intake of 1.5-3 grams per day seems beneficial.

These data support the 2000 AHA Dietary Guidelines recommendation to include at least two servings of fish (particularly fatty fish) per week.

Randomized clinical trials (RCTs) have shown that omega-3 fatty acid supplements can reduce cardiovascular events (death, non-fatal heart attacks, non-fatal strokes). They can also slow the progression of atherosclerosis in coronary patients. However, more studies are needed to confirm and further define the health benefits of omega-3 fatty acid supplements for both primary and secondary prevention. For example, placebo-controlled, double-blind RCTs are needed to document the safety and efficacy of omega-3 fatty acid supplements in high-risk patients (those with type 2 diabetes, dyslipidemia, hypertension and smokers) and coronary patients on drug therapy. Mechanistic studies on their apparent effects on sudden death are also needed.

Increasing omega-3 fatty acid intake through foods is preferable. However, patients with coronary artery disease may not be able to get enough omega-3 (about 1 g per day) by diet alone. These people may want to talk to their doctor about taking a supplement to reduce their risk of coronary heart disease.

Supplements also could help people with high triglycerides, who need even larger doses (2-4 g per day). The availability of high-quality omega-3 fatty acid supplements, free of contaminants, is an important prerequisite to their extensive use.

*Source:* American Heart Association website (<http://www.americanheart.org>) 2003.

## 1D. The Benefits of Nuts

It's taken years, but nuts are finally off the hit list for eating heart healthy. Still high in fat and calories, nuts are no longer considered a danger food. Actually the opposite is not true.

**Nuts are so beneficial for your health, that you should eat them more often.**

But you need to be mindful of the amount you consume – know what is considered a “**serving size**.” Although most of us would be healthier if we had less fat in our diet, the body would be unable to survive without it. Fat is essential to all the body's cells. It insulates us from heat loss and cushions internal organs from damage. Because we worry so much about piling on the pounds, we miss out on the goodness in foods such as nuts.

### Health Benefits

Contrary to popular belief, nuts are a cholesterol buster (they lower LDL cholesterol/bad cholesterol) because they contain the “good” fat . . . the **unsaturated** fat. Nuts are also a good source of protein. Throw some nuts on a spinach salad and you are now getting both veggies and protein. They contain copper, iron, and zinc, which are minerals people do not consume enough of. Nuts also contain **follic acid**, which lowers blood homocysteine, which is a marker for heart disease. Some nuts contain **selenium**, which is an antioxidant that may reduce cancer risk and also may prevent tumor promotion. The selenium in nuts also boosts the immune system, and they are high in vitamin E, which helps to prevent LDL cholesterol from sticking to the arteries.

### Nuts By The Numbers

Believe it or not – most nuts are the same in fat and caloric content. They vary only slightly and there is no difference between oil roasted or dry roasted, shelled or in the jar. The difference between the planters peanuts in the jar and the peanuts shelled in the bag at a ball game is the sodium content.

Also, people tend to eat fewer nuts if they are shelled because they have to work harder, like cracking walnuts or de-shelling peanuts. But whichever you slice it – if you are eating that whole bag or that whole jar, you have eaten way too much. Nuts are good for you if you eat the recommended daily amount. The most important thing to remember is to portion it out. A “serving size” of nuts is a handful, or ¼ of a cup. If the nuts are in their shells, then it is two handfuls per serving. Here are a few statistics:

**Almonds.** Almonds contain 167 calories per ounce, 75 grams of calcium (more than any other nut), 3 grams of dietary fiber (highest amount of fiber of all nuts).

**Cashews.** Cashews contain 163 calories per ounce and high in monounsaturated fats (very good fat).

**Macadamia Nuts.** Macadamia nuts contain 199 calories per ounce, 3 grams of fiber per ounce: the highest percentage of monounsaturated fat of all the nuts.

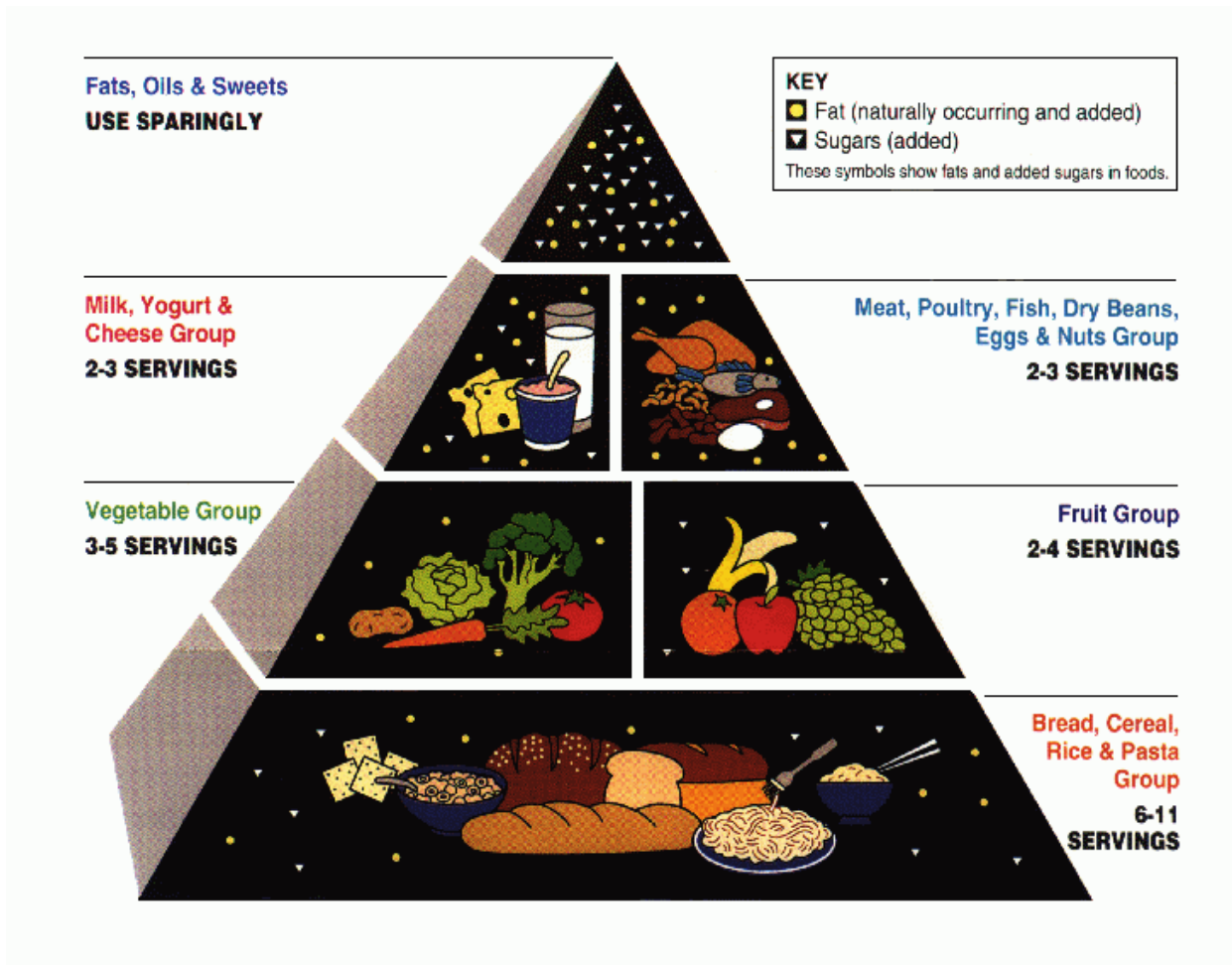
**Walnuts.** Walnuts contain 182 calories per ounce and contain omega-3 fatty acids called linolenic acid. Omega-3's are mostly found in fish.

### The Bottom Line

Nuts have tremendous health benefits, but a little goes a long way. Just use them as a treat, and know how much you eat. The portion amount cannot be emphasized enough in this case. If you do this correctly, nuts may actually be a wise alternative to a high carbohydrate snack like pretzels. If you eat a normal serving size of one-quarter cup, you will actually feel more full, because nuts curb hunger by satisfying the desire for some fat.

Source: <http://www.msnbc.com/> TV New Today, 2000. (Bonci, Leslie, *President*, American Dietetic Association)

## 1E. The Food Guide Pyramid



### Fats, Oils, & Sweets • Use Sparingly

Go easy on fats and sugars added to foods in cooking or at the table--butter, margarine, gravy, salad dressing, sugar, and jelly.

Choose fewer foods that are high in sugars--candy, sweet desserts, and soft drinks.

The most effective way to moderate the amount of fat and added sugars in your diet is to cut down on "extras" (foods in this group). Also choose lower fat and lower sugar foods from the other five food groups often.

### Milk, Yogurt, and Cheese • 2-3 Servings

Choose skim milk and nonfat yogurt often. They are lowest in fat.

1 1/2 to 2 ounces of cheese and 8 ounces of yogurt count as a serving from this group because they supply the same amount of calcium as 1 cup of milk.

Choose "part skim" or low fat cheeses when available and lower fat milk desserts, like ice milk or frozen yogurt. Read labels.

### **Meat, Poultry, Fish • 2-3 Servings**

Choose lean meat, poultry without skin, fish, and dry beans and peas often. They are the choices lowest in fat.

Prepare meats in low fat ways:

- Trim away all the fat you can see.
- Remove skin from poultry.
- Broil, roast, or boil these foods instead of frying them.
- Nuts and seeds are high in fat, so eat them in moderation

### **Vegetable Group • 3-5 Servings**

Different types of vegetables provide different nutrients.

Eat a variety.

Include dark-green leafy vegetables and legumes several times a week--they are especially good sources of vitamins and minerals. Legumes also provide protein and can be used in place of meat.

Go easy on the fat you add to vegetables at the table or during cooking. Added spreads or toppings, such as butter, mayonnaise, and salad dressing, count as fat.

### **Fruit Group • 2-4 Servings**

Choose fresh fruits, fruit juices, and frozen, canned, or dried fruit. Go easy on fruits canned or frozen in heavy syrups and sweetened fruit juices.

Eat whole fruits often--they are higher in fiber than fruit juices.

Count only 100 percent fruit juice as fruit. Punches, aides, and most fruit "drinks" contain only a little juice and lots of added sugars.

### **Bread, Cereal, Rice, & Pasta Group • 6-11 Servings**

To get the fiber you need, choose several servings a day of foods made from whole grains.

Choose most often foods that are made with little fat or sugars, like bread, English muffins, rice, and pasta.

Go easy on the fat and sugars you add as spreads, seasonings, or toppings.

When preparing pasta, stuffing, and sauce from packaged mixes, use only half the butter or margarine suggested; if milk or cream is called for, use low fat milk.

*Source:* The Food Guide Pyramid website (<http://www.nal.usda.gov:8001/py/pmap.htm>) 2003.

# 1F. Calcium

## Why is dietary calcium important?

- Most abundant mineral in the body.
- 99% found in our bones, works with phosphorus to maintain strong bones and teeth.
- Necessary for nerve impulses and proper balance of muscle contractions (which includes the heart!)
- Needs vitamin D to be absorbed in our bodies.

## Osteoporosis

Maybe you think Osteoporosis isn't a concern for an adolescent. But, here are some interesting facts:

- More than half of adult bone calcium is acquired during adolescence
- Achieving peak bone mass (maximum bone density) is essential because it serves as the "bone bank" for a lifetime – once the "window" closes, we can no longer increase our bone density, we can only replace what is lost. This window begins in pre-teens and lasts only through the early- to mid-twenties.
- Approximately 25-30 million Americans suffer from Osteoporosis, a bone-thinning disease.
- Osteoporosis causes an estimated 1.5 million bone fractures every year, costing the economy about \$10 billion annually.
- Health professionals believe preventive efforts during pre-adolescence and adolescence are the best defense against this disease.

## Calcium Content of Some Foods

300 mg	Skim milk (1 cup)
250-350 mg	Yogurt, low-fat fruit-flavored (1 cup)
330 mg	Tropicana Premium Plus Orange Juice with Calcium (1 cup)
175 mg	Sardines canned in water, drained (2 oz)
250 mg	Total Cereal (3/4 cup)
90 mg	Kale, frozen (1/2 cup cooked)
100 mg	Tofu (3 oz)
500 mg	Calcium fortified Lactaid Milk, Nonfat (1 cup)

# 1G. Fruits and Vegetables

## Recommendations

- Eat 5 fruits and vegetables a day (more is OK)
- Eat a variety of colors (red, green, orange, yellow, purple)



## Vitamins

Vitamin C, Vitamin A (Beta-carotene), B vitamins (folic acid) ----Keeps your body running smoothly, helps your skin stay healthy, important in wound healing, fighting infections, good for eye health

## Minerals

Good source of potassium. Needed for muscles to contract, proper functioning of your body's heart and kidneys, helps regulate water balance and blood pressure

## Fiber

Can help in lowering LDL-cholesterol

## Phytochemicals

Phytochemicals (chemicals from plants) may be protective against many types of chronic diseases (heart disease, stroke, high blood pressure, cataracts, osteoporosis, cancer)

## Fruits and Vegetables

We all know they are good for us, right? So why don't most Americans eat the recommended 5 fruits and vegetables per day? Results of a recent focus group asking this same question to a group of adolescents found the main reason was taste. Many adolescents don't eat them simply because they don't think they taste good.

Fortunately, there are many ways to assemble, or cook vegetables to make them more appealing. While taste is an important factor influencing our choices, knowledge of nutrition can also make a difference. For this reason, it is so important to include plenty of servings of these delicious, low calorie, high fiber foods in our diet. Vitamin C, beta-carotene, potassium, and B vitamins are just a few of the important nutrients fruits and vegetables provide.



## 2. Cholesterol Facts

### 2A. What is Cholesterol?

#### Cholesterol Facts

Cholesterol is a waxy substance that circulates in your bloodstream. Sound like trouble? Not necessarily. Cholesterol actually has an awfully bad reputation for something so critical to good health. Every cell in your body (remember there are 20-30 trillion) needs some cholesterol. What's more, many very necessary hormones are made from cholesterol. Cholesterol is important in fact, that almost every cell in the body knows how to make it. Your body can make all that it ever needs, and usually this amount can be processed and eventually either recycled into new jobs or cleared from the body without problem.

#### So how do we end up with too much cholesterol?

Unfortunately, some people cannot clear cholesterol from their body normally and levels build up too high no matter what they eat. They can still, however, make things worse by not eating the "right stuff". Everyone else is capable of raising their cholesterol levels too high just by getting into unhealthy food habits.

#### Why should I worry about my blood cholesterol?

Too much cholesterol in the blood makes it more likely that your blood vessels will be unhealthy. Unfortunately, the disease of unhealthy blood vessels can sneak up on people, causing lots of trouble without giving any obvious clues or symptoms.

Deposits of excess cholesterol can settle little by little into critical places in your blood vessels in a disease process called atherosclerosis. This can continue silently for a long time until one day, enough blood cannot get through anymore and symptoms of heart disease may finally occur.

It's important to do whatever you can to keep your heart and blood vessels healthy long before you get to that point.

#### If some cholesterol is necessary, why does more cause so much trouble?

To explain this, it's important to realize that cholesterol can only travel through blood vessels in packages that make it soluble, that is that make it *dissolve* in the blood. Otherwise you would have something like balls of wax in your bloodstream, which would really gum up the system.

Cholesterol packages are called lipoproteins and, as the name implies, they are combinations of "lipo" or lipid/fat and protein, with cholesterol tucked inside. The cholesterol packages are classified by their destiny that largely reflects the proportion of fat to protein. Fat and cholesterol are less dense than protein so higher fat and cholesterol content are seen in the *low density lipoproteins* or LDL cholesterol packages. Less fat and cholesterol are found in the *high density lipoproteins* or HDL cholesterol packages.

LDL cholesterol which packages about 2/3 of the body's total circulating cholesterol is known as the "bad" cholesterol, because it deposits fat and cholesterol in blood vessels as it moves through them. HDL cholesterol packages on the other hand pick up excess fat and cholesterol from blood vessels and haul it out of the body, thereby earning the name of the "good" cholesterol. In the best of all possible worlds, you don't want your LDL cholesterol to be too high (no more than 110 mg/dL) and you don't want your HDL cholesterol to be too low (no less than 40 mg/dL).

While what you eat can have a big influence on *how much* cholesterol is in your blood, it may also have important consequences for just how the cholesterol is packaged. This becomes a "quality" not just a "quantity" issue.

## How do I improve the quality as well as the quantity of cholesterol?

Scientists believe that if LDL cholesterol packages move freely through your blood stream without irritating blood vessel walls they may not cause as much atherosclerosis. It turns out the LDL can be more or less irritating depending upon just what is included in its package. You remember that LDL packages have lots of fat in them.

Fat can be changed in a way that makes it toxic to blood vessels and this change is called oxidation. Fat is oxidized *before* you eat it by the high temperatures used for deep-frying. Fat can also be oxidized by normal processes inside your body *after* it is eaten. Either way, oxidized fat within LDL packages makes the LDL more toxic to the blood vessels they must travel through.

Certain kinds of fat are much more likely to get oxidized within LDL. For example, the monounsaturated fat found in olive and canola oil is *less likely* to get altered in this toxic way. This is why the nutritionists are encouraging those of you participating in the EARLY Trial to avoid deep frying, keep your total fat intake to a minimum, and emphasize monounsaturated fats for those you **do** eat.

Furthermore, it seems that if the LDL package of fat, cholesterol and protein is also loaded up with antioxidant vitamins, it will be protected from some of the toxic oxidative changes that can cause trouble for your blood vessels.

This is why we are asking study participants to take antioxidant vitamins for a little while. Certainly, the more LDL packages you have in your blood stream all the time, the more likely some of them will be oxidized and therefore will be troublemakers. This is why people try to keep their LDL cholesterol levels down. But at any given level of LDL cholesterol, there are things you can do to minimize the oxidation process.

Just how much effect your nutritional efforts are making on LDL oxidation is a big part of what we study in your blood every time we have to take a sample. And the ultrasound pictures we take give us information about whether or not the LDL packages in your bloodstream are bothering your blood vessels.

All of the participants of the EARLY Trial are helping us learn a lot more about these important quality/quantity cholesterol questions!

We hope you also are learning important things about how to eat the healthiest way we know. We will be sure to let you know more as we learn more. Meanwhile remember:

*Eat healthy stuff! Move around enough! Live tobacco-free!*

## 2B. Heart and Blood Vessel Facts

### What do the heart and blood vessels actually do?

If you laid out end-to-end all of the blood vessels in a child's body, they would stretch 60,000 miles or almost 2-1/2 times around the world! There are 100,000 miles of blood vessels once you are adult-size! These vessels carry out all the nutrients and oxygen your body needs to keep going to every one of your 20 to 30 trillion cells. (If you wanted to count from one to 30 trillion, it would take you almost 6,000,000 years!)

Your heart pumps blood to every one of these cells with every heartbeat, that is 60 to 100 times per minute, or about 100,000 times a day every day of your life! No part of your body can survive without this regular supply of blood, which is to say that heart and blood vessels have an extremely important, nonstop job to do.

In one way, we can be grateful that we don't have to consciously think about and direct all of this important heart-work or we couldn't do anything else! In another way, it's too bad we don't pay more attention to our heart and blood vessels. There is so much we can do to keep them and therefore ourselves healthy. The American Heart Association puts it simply:

*Eat healthy stuff! Move around enough! Live tobacco-free!*

# 3. Exercise and Fitness

## 3A. Children's Need for Physical Activity

### Fact Sheet

- Children in the U.S. today are less fit than they were a generation ago. Many are showing early signs of cardiovascular risk factors such as physical inactivity, excess weight, higher blood cholesterol and cigarette smoking.
- Inactive children, when compared with active children, weigh more and have higher blood pressure and lower levels of heart-protective high-density lipoproteins (HDL cholesterol).
- Even though heart attack and stroke are rare in children, evidence shows that the process leading to those conditions begins in childhood.
- The 1987 National Children and Youth Fitness Study indicated that at least half of youth don't engage in physical activity that promotes long-term health. Also less than 36 percent of elementary and secondary schools offer daily PE classes, and most classes were unlikely to foster lifelong physical activity.
- A fitness testing program sponsored by the Chrysler Fund Amateur Athletic Union, which tracks fitness among 9.7 million youngsters between the ages of 6 and 17, shows that children are getting slower in endurance running and are getting weaker.
- Using the 95th percentile of BMI values in the National Health and Nutrition Examination Study (NHANES III, 1988: 94) found that the prevalence of overweight American adolescents ages 12-17 were 11.4 percent for males and 9.9 percent for females, a substantial increase from NHANES II (1976: 1980).
- About 10% of adolescents age 12 to 19 have total cholesterol levels exceeding 200 mg/dL.
- An estimated 4.1 million adolescents age 12 to 17 are smokers. Fifteen million American children under age 18 are exposed to secondhand smoke in the home.  
*It's estimated that 3,000 American young people become smokers every day.*
- Children spend an average of 17 hours a week watching TV plus to the time they spend on video and computer games.
- Inactive children are more likely to become inactive adults.
- Healthy lifestyle training should start in childhood to promote improved cardiovascular health in adult life. The following good health practices should be promoted among children:
  - Regular physical activity
  - A low-fat, low-cholesterol diet after the age of two
  - Smoking prevention
  - Appropriate weight for height
  - Regular pediatric medical checkups

Source: American Heart Association website (<http://www.americanheart.org>) 2003.

### **3B. The Benefits of Exercise**

- Reduces the risk of heart disease by improving blood circulation throughout the body
- Keeps weight under control
- Improves blood cholesterol levels
- Prevents and manages high blood pressure
- Prevents bone loss
- Boosts energy level
- Helps manage stress
- Releases tension
- Improves the ability to fall asleep quickly and sleep well
- Improves self-image
- Counters anxiety and depression and increases enthusiasm and optimism
- Increases muscle strength, increasing the ability to do other physical activities
- Provides a way to share an activity with family and friends
- Establishes good heart-healthy habits in children and counters the conditions (obesity, high blood pressure, poor cholesterol levels, poor lifestyle habits, etc.) that lead to heart attack and stroke later in life
- In older people, helps delay or prevent chronic illnesses and diseases associated with aging and maintains quality of life and independence longer

*Source:* American Heart Association website (<http://www.americanheart.org>) 2003.

## 3C. Incorporating Physical Activities in Your Daily Life

### At Home

What are the advantages of working out at home? It's convenient, comfortable and safe. It allows your children to see you being active, which sets a good example for them. You can combine exercise with other activities, such as watching TV. If you buy exercise equipment, it's a one-time expense and can be used by other members of the family. It's easy to have short bouts of activity in several times a day.

- Do housework yourself instead of hiring someone else to do it.
- Work in the garden or mow the grass. Using a riding mower doesn't count! Rake leaves, prune, dig and pick up trash.
- Go out for a short walk before breakfast, after dinner or both! Start with 5-10 minutes and work up to 30 minutes.
- Walk or bike to the corner store instead of driving.
- When walking, pick up the pace from leisurely to brisk. Choose a hilly route. When watching TV, sit up instead of lying on the sofa. Better yet, spend a few minutes pedaling on your stationary bicycle while watching TV. Throw away your video remote control. Instead of asking someone to bring you a drink, get up off the couch and get it yourself.
- Stand up while talking on the telephone.
- Walk the dog.
- Park farther away at the shopping mall and walk the extra distance. Wear your walking shoes and sneak in an extra lap or two around the mall.
- Stretch to reach items in high places and squat or bend to look at items at floor level.
- Keep exercise equipment repaired and use it!

### At the Office

Most of us have sedentary jobs. Work takes up a significant part of the day. What can you do to increase your physical activity during the work day?

- Brainstorm project ideas with a co-worker while taking a walk.
- Stand while talking on the telephone.
- Walk down the hall to speak with someone rather than using the telephone.
- Take the stairs instead of the elevator. Or get off a few floors early and take the stairs the rest of the way.
- Walk while waiting for the plane at the airport.
- Stay at hotels with fitness centers or swimming pools and use them while on business trips.
- Take along a jump rope in your suitcase when you travel. Jump and do calisthenics in your hotel room.
- Participate in or start a recreation league at your company.
- Form a sports team to raise money for charity events.
- Join a fitness center or Y near your work. Work out before or after work to avoid rush-hour traffic, or drop by for a noon workout.

- Schedule exercise time on your business calendar and treat it as any other important appointment.
- Get off the bus a few blocks early and walk the rest of the way to work or home.
- Walk around your building for a break during the work day or during lunch.

### **At Play**

Play and recreation are important for good health. Look for opportunities to be active and have fun at the same time.

- Plan family outings and vacations that include physical activity (hiking, backpacking, swimming, etc.)
- See the sights in new cities by walking, jogging or bicycling.
- Make a date with a friend to enjoy your favorite physical activities. Do them regularly.
- Play your favorite music while exercising, something that motivates you.
- Dance with someone or by yourself. Take dancing lessons. Hit the dance floor on fast numbers instead of slow ones.
- Join a recreational club that emphasizes physical activity.
- At the beach, sit and watch the waves instead of lying flat. Better yet, get up and walk, run or fly a kite.
- When golfing, walk instead of using a cart.
- Play singles tennis or racquetball instead of doubles.
- At a picnic, join in on badminton instead of croquet.
- At the lake, rent a rowboat instead of a canoe.

*Source:* American Heart Association website (<http://www.americanheart.org>) 2003.

### 3D. Tips for Raising Heart Healthy, Active Children

- Help your children develop good physical activity habits at an early age by setting a good example yourself. Practice heart-healthy habits.
- Limit television, movies, videos and computer games to less than two hours a day. Substitute the rest of leisure time with physical activity.
- Plan family outings and vacations that involve vigorous activities such as hiking, bicycling, skiing, swimming, etc.
- Give your children some household chores that require physical exertion, keeping in mind their levels of strength, coordination and maturity. Mowing lawns, raking leaves, scrubbing floors and taking out the garbage not only teach responsibility but also can be good exercise.
- Observe sports and activities your children like, and then find out about lessons and clubs. Some children thrive on team sports; others prefer individual activities. Some activities, like tennis and swimming, can be enjoyed for a lifetime and are much easier to learn during childhood.
- If it's safe to walk or bike rather than drive, do so. Use stairs instead of elevators and escalators. Increase the distances you and your children walk.
- Stay involved in your child's physical education classes at school. At daycare, make sure the kids exercise at least 20 minutes a day. Ask about frequency of classes and activity, class size, curriculum (instruction in lifetime fitness activities as well as team sports should be emphasized), physical fitness assessments, qualifications of the teacher (should hold appropriate certification in physical education and be an appropriate role model for students). Physical fitness should be measured at the beginning and end of each year, and goals should be established for each child. Encourage your school board to emphasize skills students can use for the rest of their lives.
- Discourage homework immediately after school to let children find some diversion from the structure of the school day. Kids should be active after school and before dinner.
- Choose fitness-oriented gifts -- a jump rope, mini-trampoline, tennis racket, baseball bat, or a youth membership at the local YMCA or YWCA. Select the gift with your child's skills and interests in mind.
- Take advantage of your city's recreation opportunities -- from soccer leagues to fun runs. Check out the various camps or organizations like the Sierra Club that sponsor outdoor activities such as camping, hiking trips and bird watching.
- Free your infant from mechanical restraints as much as possible. Strollers and playpens are high on convenience but low on activity potential. Try to unleash your diapered dynamo whenever and wherever he or she can safely move around.
- When your children are bored, suggest something that gets them moving, like playing catch or building a snowman in the yard.

Source: American Heart Association website (<http://www.americanheart.org>) 2003.

### 3E. Heart Healthy Workout Quiz

#### Questions

(The **Answer Key** for this Quiz is on the page following the last question.)

1. Regular physical activity is an important step toward a healthy heart. What other steps can you take to reduce your risk of heart attack?
  - a. stop smoking
  - b. reduce high blood pressure
  - c. maintain proper blood cholesterol levels
2. If running marathons is not your idea of regular exercise, there are plenty of ways to work up a heart healthy sweat in your everyday life. What are some of them?
  - a. sitting in a sauna
  - b. walking
  - c. vigorous vacuuming
  - d. mowing lawn with push mower
  - e. gardening
  - f. baking brownies
  - g. raking leaves
  - h. dancing
3. Only about one in four American adults get enough leisure time physical activity to be heart healthy. Physical activity levels are particularly low with which four groups?
4. Children are more physically fit today than they were a generation ago.
  - a. True
  - b. False
5. What is the most common excuse for not exercising?
6. Besides being an important way to get ready for bathing suit season, regular physical activity can also benefit your health and well-being by improving which of the following:
  - a. blood cholesterol
  - b. high blood pressure
  - c. energy level
  - d. sleeping patterns
  - e. weight

7. A heart healthy exercise schedule should involve at least 30 to 60 minutes of physical activity, performed three or four times a week.
  - a. True
  - b. False
8. A complete physical fitness program should involve activities that promote endurance, strength and flexibility.
  - a. True
  - b. False
9. What should you do first before starting a vigorous exercise program if you're middle-aged or older, have been sedentary, are overweight or have a serious medical condition?
  
10. What exercise has the lowest dropout rate of any physical activity?

*(End of Quiz.)*

## Quiz Answer Key

1. **A, b, c**
2. **All except a and f**
3. **African-American women, people with low education levels, people who are overweight and the elderly**
4. **False.** Children are heavier and less physically fit than they were even a generation ago. Many are developing cardiovascular disease risk factors such as overweight, higher blood pressure, higher blood cholesterol and cigarette smoking. Children spend an average of 17 hours a week watching TV in addition to the time they spend on video and computer games -- all sedentary activities!
5. **Not enough time.** But all it takes is 30 minutes a day and not necessarily all at once! Your workout should have the same importance as any other appointment of the day.
6. **All**
7. **True**
8. **True.** To build endurance, do aerobic physical activities such as brisk walking, running, bicycling or swimming. To build strength, try weight lifting. To improve flexibility, do stretching and movements that put each part of the body through its full range of motion.
9. **See a doctor first** for a medical evaluation
10. **Walking.** It's inexpensive, easy and convenient. You can walk throughout your lifetime. You can walk year-round and in most weather, indoors or outdoors. You don't need special clothing or equipment. Walking is low impact so risks of injury to bones and joints are minimal.

Source: American Heart Association website (<http://www.americanheart.org>) 2003.

## 4. Managing Your Lifestyle

### 4A. Just Move!

The American Heart Association offers a personal fitness web site at the following address:

- <http://www.justmove.org/>

### 4B. Managing Your Weight

People who have excessive body fat are more likely to develop heart disease and stroke even if they have no other risk factors. Obesity is unhealthy because excess weight increases the strain on the heart. It's linked with coronary heart disease mainly because it influences blood pressure and blood cholesterol and can make diabetes more likely to develop.

#### **About Fad Diets**

It's easy to look for quick fixes when trying to manage your weight. Fad diets offer unrealistic results and advise eating (or not eating) special foods. The American Heart Association has established a campaign against fad diets; in this section, learn ways to detect fad diets and steps you can take to lose weight safely.

#### **Managing Your Weight**

A sensible weight plan includes developing - and maintaining - a healthy diet and an active lifestyle. Look in this section a guide for selecting and preparing your food in addition to advice for getting back on track if you go back to your old habits.

# 5. Children and Youth

## 5A. Jump Rope for Heart

**Jump Rope For Heart** is an educational fund-raising event. It's held each year in thousands of elementary schools across the nation by the American Heart Association and the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD).



Jump Rope For Heart (JRFH) raises funds for medical research and for programs such as *HeartPower!* that help prevent heart disease and stroke. Jump Rope For Heart teaches students the benefits of physical activity, how to keep their heart healthy, and that they can help save lives right in their own community.

Jump Rope for Heart was developed in 1978 by the American Heart Association and the AAHPERD. JRFH has raised more than \$327 million for cardiovascular research and education programs.

JRFH offers students, your school and the community many benefits by engaging school age children in community services while promoting the benefits of lifelong heart-healthy lifestyles.

## 5B. Hoops for Heart

Hoops For Heart is a great basketball event. Kids practice basketball skills and play fun and exciting skills games such as Around the Body, the Eagle Ball-Handling Drill and Hot-Shot Blitz. Students also obtain donations and receive super thank-you gifts based on the dollars they raise.

Hoops For Heart is for middle school students. It's extremely flexible and can be scheduled whenever it's most convenient. It can be conducted in school by physical education instructors, coaches or teachers. You can hold your event during physical education class, lunch or before or after school.



Hoops For Heart is a basketball special event program that...

- is sponsored by the American Heart Association and the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD).
- funds critical research and educational programs about heart disease and stroke.
- engages kids in community service while promoting the benefits of lifelong heart-healthy lifestyles.
- involves an entire school in a whole lot of fun!

The idea for Hoops For Heart originated at the Albuquerque Academy in New Mexico, where the event was first held in 1992-93 for middle school students. The American Heart Association and AAHPERD further developed the concept for use by various groups nationwide. These two organizations also developed Jump Rope For Heart, a fund-raising event primarily for elementary students that features rope-jumping skills.

One of the biggest benefits of Hoops For Heart is that it funds research and education programs that fight heart disease and stroke and save lives. These diseases are America's No. 1 and No. 3 killers.

### WNBA

In 2002, the American Heart Association became an official Community Partner of the WNBA and its teams in cities across the country. WNBA teams will offer Hoops For Heart and Jump Rope For Heart participants and their families, as well as American Heart Association employees and supporters, a

dedicated event in the arena with local promotions and exposure, in addition to the opportunity to activate the partnership in the off-season. A record 2,362,430 fans attended WNBA games this season, with an average of 9,220 fans attending each game, up from 9,075 last year. The 2002 WNBA Finals concluded with the Los Angeles Sparks capturing their second consecutive title as WNBA Champions. For more information on the WNBA, visit <http://www.wnba.com/>.



### 5C. HeartPower! Online

Congratulations! You've just found one of the best resources on the Internet! All resources are downloadable and printable, and best of all, they're free. Welcome!

**HeartPower! Online** is the American Heart Association's curriculum-based program for teaching about the heart and how to keep it healthy for a lifetime. Nutrition, physical activity, living tobacco-free, and knowing how the heart works all are vital in maintaining a healthy heart.

HeartPower!'s four key messages about heart health have been categorized by curriculum, lifestyle message, format and grade level. You can use these science-based online resources to introduce your students to healthy habits and choices that can improve their quality of life for many years. You can even help them learn decision-making skills that can save lives, including their own!



### 5D. Heart Disease and Health

The two types of heart disease in children are "congenital" and "acquired." Congenital heart disease (also known as a congenital heart defect) is present at birth. Some defects in this category are patent ductus arteriosus, atrial septal defects and ventricular septal defects. Acquired heart disease, which develops sometime during childhood, includes diseases such as Kawasaki disease, rheumatic fever and infective endocarditis. Common diagnostic tests for these diseases are explained here.



About 40,000 children are born with a heart defect each year. Most of these children can benefit from surgery even if the defect is severe. When surgery is necessary, many medical treatments are available to help the heart work properly. There is nothing that parents could have done to prevent these defects. Learn about conditions that can interfere with the work of the heart and treatment options in this section.

Kawasaki disease is an example of acquired heart disease that occurs primarily in children who are 5 years old or younger. Although medical knowledge of the disease is still developing, there are steps you can take to recognize the symptoms and deal with the disease's effects.

At least 8 of every 1,000 infants born each year have a heart defect. About 1 million Americans with cardiovascular defects are alive today. Though research is ongoing, at least 35 defects have now been identified.

## 5E. Legacy of Life Endowment

Nearly twice as many children die from congenital heart disease in the United States each year as die from all forms of childhood cancers combined.

The **Legacy of Life** is an American Heart Association campaign to raise \$1 million for congenital heart defect research. When we meet our goal, these funds will be invested and the Legacy of Life endowment will be created. This endowment will provide a perpetual funding source for congenital heart defect research – the most common birth defect and the leading cause of death from birth defects during the first year of life.

How many lives are touched by congenital heart defects? About 40,000 babies are born each year with heart defects. At least 35 distinct types of defects are recognized, ranging from simple defects to complex malformations. Most defects can be corrected or improved with surgery or catheter-based therapy.

Factors that affect the heart's development are being studied. The truth is that we still don't know what causes most congenital heart defects.

Source: American Heart Association website (<http://www.americanheart.org>) 2003.

