

# Cardiovascular System

## RELATED CHAPTERS IN PART 5

- Bilberry
- Evening Primrose
- Garlic
- Ginger
- *Ginkgo biloba*
- Ginseng
- Hawthorn
- Horse Chestnut

## ATHEROSCLEROSIS (PREVENTION)

Atherosclerosis, the primary villain in most major cardiovascular disease, contributes to angina, congestive heart failure, and intermittent claudication. It also may contribute to strokes as well as some of the mental decline we associate with aging. So, even though it's not first alphabetically, we need to talk about it first.

Let's start with arteriosclerosis. *Arteriosclerosis* is a hardening of the arteries. The hardening results when the arteries lose their elasticity and begin to thicken. This condition leads to narrowed arteries and less blood flow to many parts of the body.

When fatty plaques build up on the walls of these narrowed arteries, we call it *atherosclerosis*. If blood vessels that supply the heart (coronary arteries) become atherosclerotic, the condition is known as *coronary artery disease* (CAD). Coronary artery disease contributes to angina, congestive heart failure, and even heart attacks.

You've all been beaten over the head with some of the requirements for reducing your risk of atherosclerosis. Diet, exercise, and stress reduction all are important tools for reducing risk. Herbs, particularly those

that are a common part of our normal diets, also play a key role in reducing your risk.

By altering your eating habits and lifestyle and using prudent supplementation as described further on in this chapter, you'll:

- reduce the levels of cholesterol and triglycerides in the bloodstream,
- reduce the “stickiness” of platelets in the blood,
- improve the strength of blood vessel walls,
- reduce homocysteine levels,
- improve the flow of blood through the body, and
- provide antioxidant protection to the cardiovascular system.

The payoff: a reduced risk of atherosclerosis.

#### **HERBS AND HERBAL CONSTITUENTS THAT MAY REDUCE YOUR RISK OF ATHEROSCLEROSIS**

Bilberry

Bioflavonoids (including quercetin and oligomeric procyanidins)

Evening primrose

Fenugreek

Garlic (along with bioflavonoids, this may be your best herbal/dietary deterrent to atherosclerosis)

Ginger

*Ginkgo biloba*

Ginseng

Green tea

Guggul

Hawthorn

Psyllium

Red yeast rice

Resveratrol

Rosemary

Turmeric

## **NUTRITIONAL SUPPLEMENTS THAT REDUCE YOUR RISK OF ATHEROSCLEROSIS**

Vitamin C

Vitamin E

Vitamin B<sub>6</sub>

Vitamin B<sub>12</sub>

Folic acid

*Note:* Folic acid and vitamins B<sub>6</sub> and B<sub>12</sub> reduce the level of homocysteine; a high homocysteine level is associated with increased risk of cardiovascular disease.

Niacin

Selenium

Carotenoids such as lycopene

Carnitine

Essential fatty acids (e.g., evening primrose oil and fish oil)

*Note:* For more specific recommendations, please see the “Hyperlipidemia” section.

## **DIETARY RECOMMENDATIONS THAT REDUCE YOUR RISK OF ATHEROSCLEROSIS**

- Increase your intake of complex carbohydrates from vegetables, grains, and fruit sources. This diet will provide you with more dietary fiber and valuable antioxidants such as flavonoids and carotenoids.
- Reduce your dietary fat from animal sources. This includes red meat and milk. Some kinds of fats are healthier than others. Avoid heating polyunsaturated fats that may be transformed to saturated fats. A good bet is to cook with olive oil, which doesn't change when heated. The fat from fish and nuts is also preferable.
- Reduce food that contains trans fatty acids (margarine, some vegetable oils, and many processed foods containing vegetable oils).

- Increase your dietary sources of the herbs listed earlier. These include garlic and ginger. Also, don't forget turmeric, onions, and green tea.

## **LIFESTYLE CONSIDERATIONS THAT WILL REDUCE YOUR RISK OF ATHEROSCLEROSIS**

### ***Stress Reduction***

Seek an outlet for your frustrations and anger so your cardiovascular system doesn't have to bear the brunt. Above all, try to avoid writing any lengthy herb books!

### ***Regular Exercise***

Regular exercise helps work off stress and also keeps weight down. Best of all, it strengthens and builds up the efficiency of your cardiovascular system.

## ANGINA

Atherosclerosis can disrupt blood flow to many parts of the body. When it harms the arteries that supply the heart muscle (the coronary arteries), a lack of oxygen to the heart results. This leads to *angina*—a squeezing or pressurelike pain in the chest.

Angina attacks are most common during exercise, when the heart is forced to work harder. Stress can also bring on an attack. In addition to pressure in the chest, pain may radiate to the left shoulder and arm. Angina can sometimes be a warning sign of a heart attack.

Angina caused by atherosclerosis occurs most commonly; this type is called *secondary angina*. Another, less common form of angina results from spasms of the coronary arteries. Known as *primary* or *Prinzmetal's variant angina*, this form commonly occurs when a person is at rest.

When angina becomes more severe, drug therapy is usually needed. with medications such as nitroglycerin, beta-blockers, and calcium channel blockers. These relieve symptoms but do not address the key problem, which is insufficient blood flow to the heart muscle.

Herbal and nutrient interventions work best in the early stages of angina. By increasing blood flow to the heart muscle and improving the

work efficiency of the heart, they may actually slow the progression of angina.

### **HERBAL PRESCRIPTION**

- Hawthorn extract (standardized to 18.75 percent oligomeric procyanidins or 2.2 percent flavonoids)—160 to 900 milligrams daily in two to three divided doses. Individuals initially requiring more intensive treatment should use the higher end of the dosage range.

*Action:* Increases blood flow and oxygen to the heart muscle

### **OTHER HERBAL CONSIDERATIONS**

See the recommendations listed under “Atherosclerosis (Prevention).”

### **NUTRITIONAL SUPPLEMENT CONSIDERATIONS**

- Coenzyme Q<sub>10</sub>—100 to 150 milligrams daily in two to three divided doses<sup>1</sup>
- L-Carnitine—1 gram two to three times daily<sup>2,3</sup>
- Vitamin E—300 to 400 IU daily<sup>4</sup>
- Magnesium—300 milligrams twice daily<sup>5</sup> (*Note:* This dosage is only an educated guess, as the studies on magnesium for angina have used an intravenous form.)

### **DIETARY RECOMMENDATIONS**

See the recommendations under “Atherosclerosis (Prevention).”

### **LIFESTYLE CONSIDERATIONS AND OTHER ALTERNATIVE THERAPIES**

Stress reduction is critical. Try yoga, meditation, or biofeedback. Settle on a method of relaxing that works for you and stick with it. I like listening to *Kind of Blue* by Miles Davis.

Regular exercise is important, but ease into it. Too much, too soon can worsen the problem. Try reducing caffeine consumption and stopping smoking.

Acupuncture has been shown in some studies to help persons with angina reduce their symptoms as well as their medication.<sup>6</sup> One study found

the combination of acupuncture, Shiatsu massage, and lifestyle changes a very promising therapy.<sup>7</sup>

## BRUISING

If you're a perfectly healthy person who suddenly begins to develop bruises on the thighs, buttocks, or upper arms, it may be that your small blood vessels (primarily the capillaries) are fragile. It's not uncommon for people experiencing such bruising to seek the help of their doctor, only to be told that there's nothing wrong—just avoid bumping into things and take aspirin. Easy bruising does not mean you've got a terrible bleeding disorder.

Easy bruising is often more noticeable with aging. The capillaries become more fragile, and pressure on the skin is more likely to create a bruise. In older individuals, these bruises may linger longer than in younger people. Again, this is not a serious medical condition.

### HERBAL PRESCRIPTIONS

- Bilberry extract—80 to 160 milligrams three times daily  
*Actions:* Strengthens and stabilizes the walls of the blood vessels such as capillaries
- Grape seed extract (high in oligomeric procyanidins [OPCs])—50 milligrams two times daily<sup>1</sup>  
*Actions:* Similar to those shown for bilberry

### OTHER HERBAL CONSIDERATIONS

You can choose from a host of flavonoid products, including rutin, quercetin, hesperidin, and pycnogenol; these are all excellent options. Like bilberry, these compounds will assist in strengthening blood vessels. Remember, it's best to use flavonoids together with vitamin C. A recent example from the medical literature found success combining 1,000 milligrams of vitamin C and 1,000 mg of rutoside (a type of rutin) daily in three women with progressive pigmented purpura—a form of progres-

sive bruising that is difficult to treat and tough on the person cosmetically.<sup>2</sup> This approach led to improvement in 2 weeks and complete resolution of bruising within 4 weeks in all three women!

#### **NUTRITIONAL SUPPLEMENT CONSIDERATION**

- Vitamin C (preferably with bioflavonoids)—500 to 1,000 milligrams twice daily

#### **DIETARY RECOMMENDATIONS**

Increase your intake foods high in flavonoids, such as green tea, onions, blueberries, cherries, and apples.

## **CHRONIC VENOUS INSUFFICIENCY**

Many people will complain of a feeling of heaviness and swelling around their calves, ankles, and feet after standing all day. This sometimes can be an early warning of chronic venous insufficiency (CVI). This condition can result from the valves in the veins of the legs failing to hold blood back against gravity, which leads to sluggish flow of blood through the veins in the lower leg. The swelling and dull ache are the common symptoms of the early stages of CVI. As it progresses, the skin can often darken in the lower legs and skin ulcers can occur. CVI sometimes follows varicose veins. The following recommendations may also reduce your risk or help manage varicose veins.

#### **HERBAL PRESCRIPTIONS**

- Horse chestnut seed extract (standardized to 16 to 21 percent aescin)—One capsule of the extract containing 50 milligrams of aescin twice daily  
*Actions:* Aescin helps improve the tone of the veins for more efficient blood flow. It also strengthens capillaries so swelling is reduced.
- Grape seed extract (high in oligomeric procyanidins [OPCs])—150 to 300 milligrams daily in two to three divided doses<sup>1</sup>

*Actions:* As is the case with other flavonoids, OPCs help strengthen the walls of blood vessels, including capillaries, improving blood flow and reducing swelling.

#### **OTHER HERBAL CONSIDERATIONS**

- Butcher's broom—Standardized extract delivering 15 to 30 milligrams of ruscogenins (the active constituents in butcher's broom) three times daily<sup>2</sup>
- Flavonoids—In Europe there have been studies on synthesized rutin known as “oxerutins.”<sup>3</sup> While naturally occurring flavonoids such as rutin or quercetin have not been studied, they are known to strengthen capillaries and improve blood vessel tone—important features for managing CVI.

#### **LIFESTYLE CONSIDERATIONS**

Try to avoid sitting or standing in one place for prolonged periods of time. Put some Sly and the Family Stone on and dance or get involved in regular aerobic exercise such as walking or jogging. Regular massage on the legs may also help.

## CONGESTIVE HEART FAILURE

When a weakened heart fails to provide adequate blood flow to the extremities of the body, the condition is called *congestive heart failure* (CHF). A number of factors can lead to CHF, including a history of heart attack(s). As the condition progresses, fluid can accumulate in the lungs and around the ankles. Once the condition reaches this stage, the prognosis is poor.

The New York Heart Association has defined four stages of CHF. Medical treatment is sometimes reserved for Stages III and IV. Digitalis is a common treatment in these later stages. Table 6.1 lists the four stages and their characteristics.

How about Stages I and II? Typically, treatment is not recommended during these stages, owing to the potential side effects of digitalis. This

Table 6.1  
 STAGES OF CONGESTIVE HEART FAILURE AS DEFINED  
 BY THE NEW YORK HEART ASSOCIATION

Stage	Symptoms
Stage I	Patient is symptom free when at rest and on treatment.
Stage II	Patient experiences impaired heart function with moderate physical effort. Shortness of breath with exertion is common. There are no symptoms at rest.
Stage III	Even minor physical exertion results in shortness of breath and fatigue. There are no symptoms at rest.
Stage IV	Symptoms such as shortness of breath and fluid around the ankles (edema) are present when the patient is at rest.

is where herbal and nutritional interventions play an important role. By improving the heart's efficiency in supplying blood to the body and by enhancing circulation to the extremities, natural medicines offer an opportunity to slow the progression of CHF and improve a person's quality of life.

**HERBAL PRESCRIPTION**

- Hawthorn extract (standardized to 18.75 percent oligomeric procyanidins or 2.2 percent flavonoids)—160 to 900 milligrams daily in two to three divided doses. Individuals requiring more intensive treatment initially should use the higher end of the dosage range.

*Actions:* Hawthorn improves the efficiency of the heart muscle, which means greater blood flow throughout the body. It also reduces the resistance to blood flow in the blood vessels of the extremities of the body.

**NUTRITIONAL SUPPLEMENT CONSIDERATIONS**

- Coenzyme Q<sub>10</sub>— 90 to 150 milligrams daily in two to three divided doses<sup>1,2</sup>
- Propionyl-L-Carnitine—500 milligrams three times daily<sup>3,4</sup>

- Taurine—2 grams three times daily<sup>5</sup>  
*Note:* This one's expensive. I usually start my CHF patients on Hawthorn and coenzyme Q<sub>10</sub> with carnitine as a third option.
- Magnesium—300 to 400 milligrams daily in two divided doses<sup>6</sup>  
*Note:* Only use magnesium under the supervision of your doctor. While it can be extremely useful in persons with CHF taking potassium- and magnesium-depleting diuretics and digitalis, those of you taking potassium-sparing diuretics want to use magnesium cautiously or not at all.

### **DIETARY RECOMMENDATIONS**

See the recommendations listed under “Atherosclerosis (Prevention).”

## HYPERCHOLESTEROLEMIA (HIGH CHOLESTEROL)

While not the only major risk factor for atherosclerosis and coronary artery disease, high cholesterol in the blood is clearly associated with a higher risk of cardiovascular disease. Sometimes, when we talk about a high cholesterol level, we're also talking about high levels of another set of fats in the blood known as *triglycerides*.

In Western culture, the primary culprit causing high cholesterol is diet. The atherosclerosis prevention program outlined earlier is intended to prevent high cholesterol. Incorporate those recommendations into your cholesterol-lowering program.

Most doctors suggest that we keep our serum cholesterol below 200 milligrams/deciliter. It's also important to note the distinction between different types of cholesterol. LDL cholesterol is thought to increase risk of heart disease and is referred to as “bad” cholesterol. HDL cholesterol is the good guy and is associated with decreasing risk of heart disease. Therefore, the ratio between these two types of cholesterol is often more important than the actual total amount of cholesterol measured in your blood.

A small percentage of people are genetically predetermined to have high cholesterol and/or triglycerides. Because their levels of blood fats can rise to dangerous heights, an aggressive cholesterol-lowering drug

(e.g., Mevacor<sup>®</sup>, Lipitor<sup>®</sup>) is sometimes best at first. Following a drop in cholesterol, long-term treatment should focus on gentler medications, such as red yeast rice, guggul, or garlic, and the atherosclerosis prevention program outlined earlier. Remember that these drugs don't impact triglycerides significantly. So if your triglycerides are also high, look at adding some pantethine or fish oil to your supplement regiment.

### **HERBAL PRESCRIPTIONS**

- Red yeast (*Monascus purpureas*) rice—1.2 grams twice daily<sup>1</sup>  
*Action:* A relative newcomer on the block, red yeast rice may lower cholesterol like HMG-CoA reductase inhibitors such as Lipitor and Mevacor as it contains small amounts of these inhibitors including lovastatin. While certainly not as aggressive as these drugs, it may be an ideal choice for those of you in the 200 to 280 milligrams/deciliter cholesterol arena and for long-term management of mild to moderately elevated cholesterol levels. The brand of red yeast rice proven to lower cholesterol is Cholestin<sup>®</sup> sold by Pharmanex.
- Guggulipid (*Commiphora mukul*)—Extract standardized to provide 25 milligrams of guggulsterones three times daily  
*Actions:* Standardized extract of an ancient Ayurvedic herbal remedy (the name is easily pronounced by 2-year-olds). It lowers cholesterol and triglycerides in amounts comparable to clofibrate. It also raises the HDL cholesterol level and reduces platelet stickiness<sup>2</sup>

### **OTHER HERBAL CONSIDERATIONS**

- Garlic (standardized garlic powder product containing 1.3 percent aliin and providing 5,000 to 6,000 micrograms of allicin potential daily)—600 to 900 milligrams daily in two to three divided doses  
*Note:* I don't consider garlic to be a primary consideration for lowering cholesterol. However, its ability to prevent atherosclerosis as well as improve blood vessel health and circulation makes it a great choice of any program aimed at lowering risk of cardiovascular disease.
- Psyllium—5 to 10 grams daily (typically added to the diet in cereal)<sup>3</sup>
- Fenugreek seed—4 to 5 grams three times daily<sup>4</sup>

## NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Niacin—1 to 3 grams daily in two to three divided doses<sup>5</sup>  
*Note:* Research indicates that the immediate-release form of niacin is the safest. Time-release forms are more likely to cause harm to the liver.<sup>6</sup> However, immediate-release niacin can cause severe flushing in some individuals that can be quite uncomfortable.

Even with use of immediate-release niacin, you should have your liver enzymes checked by your doctor every few months. I will often recommend milk thistle extract with niacin therapy to add some liver protection

One form of niacin, known as *inositol hexaniacinate*, is supposed to be safer without the flushing associated with regular niacin.<sup>7</sup> However, the evidence that it lowers cholesterol is very slim at this time. Remember that if you decide to try inositol hexaniacinate, it's still important to have your liver enzymes checked by your doctor.

- Folic acid—400 to 800 micrograms daily
- Vitamin B<sub>6</sub>—12.5 to 25 milligrams daily
- Vitamin B<sub>12</sub>—500 micrograms daily

*Note:* These three nutrients are our protection against high levels of homocysteine—a substance linked to cardiovascular disease.<sup>8,9</sup>

- Chromium—200 micrograms daily<sup>10</sup>
- Vitamin E—400 IU daily<sup>11</sup>
- Vitamin C—500 to 1,000 milligrams daily

For lowering triglycerides, try:

- Pantethine—300 milligrams two to four time daily<sup>12</sup>
- Fish oil (high in EPA and DHA)—Daily dose providing 3,000 milligrams of total EPA and DHA<sup>13</sup>

## DIETARY RECOMMENDATIONS

See the recommendations listed under “Atherosclerosis (Prevention).”

## INTERMITTENT CLAUDICATION

Atherosclerosis can also harm blood flow to the extremities, causing poor oxygen supply to the muscles. This often results in a condition known as *intermittent claudication*, characterized by pain or aching in the calf muscles on exertion. It is relieved by rest but returns as soon as exercise begins again. As the condition becomes more severe, the pain limits a person's walking distance.

Treatment of intermittent claudication in its early stages can prevent the condition from worsening. It will also allow greater freedom to exercise and help you maintain an active lifestyle.

### HERBAL PRESCRIPTION

- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses

*Action:* Improves blood flow to the extremities

### OTHER HERBAL CONSIDERATIONS

- Garlic (standardized garlic powder product containing 1.3 percent aliin and providing 5,000 to 6,000 micrograms of allicin-potential daily)—600 to 900 milligrams daily in two to three divided doses  
*Action:* Makes platelets less sticky, which results in more efficient blood flow
- Padma 28—560 milligrams twice daily<sup>1</sup> (Padma 28 is a combination of twenty-eight herbs and is based on an ancient Tibetan formula)

### NUTRITIONAL SUPPLEMENT CONSIDERATIONS

- Vitamin E—400 to 600 IU daily<sup>2</sup>
- Inositol hexaniacinate—2 grams twice daily<sup>3</sup>  
*Note:* This form of niacin will not cause flushing. However, your doctor should monitor your liver enzymes while you are taking the high dose recommended here.

- Propionyl-L-Carnitine or L-Carnitine—2 to 4 grams twice daily<sup>4,5</sup>

### **DIETARY RECOMMENDATIONS**

See the recommendations listed under “Atherosclerosis (Prevention).”

### **LIFESTYLE CONSIDERATIONS**

Don't stop exercising! You should try to walk at least an hour daily. When the pain starts, stop walking, allow it to disappear, and then resume walking. The distance you are able to walk pain-free tells you how successfully your treatment program is progressing.

## **RAYNAUD'S DISEASE**

Raynaud's disease is characterized by a spasm of the mid-sized blood vessels, known as *arterioles*, in the hands. This interrupts blood flow to the fingers and causes a loss of color in the hands. Raynaud's disease is not usually painful but leads to a lack of sensation in the hands. It's triggered by exposure to cold or by emotional upsets. Color and sensation will return to the hands after they are warmed up. It usually affects both hands and is most common in younger women.

A related condition, Raynaud's phenomenon, is often due to connective tissue diseases such as scleroderma, lupus, and rheumatoid arthritis. Other conditions associated with the nervous and cardiovascular system can also contribute to Raynaud's phenomenon. This condition frequently involves only one hand. The herbal approach to treatment is similar with both forms.

### **HERBAL PRESCRIPTIONS**

- *Ginkgo biloba* extract—120 to 240 milligrams daily in two to three divided doses

*Actions:* Improves circulation to the small blood vessels in the extremities and has a mild dilating effect on the blood vessels

- Evening primrose oil—4 to 6 grams daily with meals in two divided doses<sup>1</sup>

*Action:* Reduces prostaglandins, which may contribute to vasospasm and inflammation

#### **NUTRITIONAL SUPPLEMENT CONSIDERATIONS**

- Inositol hexaniacinate—3 to 4 grams daily<sup>2</sup>
- Fish oil (high in EPA and DHA)—8 to 12 grams daily<sup>3</sup>