You will remember from Chapter 4 that having a chronic disease usually doesn't mean that a person can’t exercise. If you have a client with a chronic disease, both you and the client need open communication with the client’s physician. You need to be sure the disease is stable before prescribing exercise. Suggest that your clients discuss with their doctors the signs and symptoms that indicate trouble during exercise.

There was a sample form letter included in Chapter 4 for you to send to the client’s physician to disclose your role as a personal trainer. Make sure you ask for the doctor’s input about any limitations that might be necessary for that patient. Due to legal issues related to new privacy laws called HIPPA, it might be difficult—if not impossible—to obtain information from a physician before the client grants permission for disclosure. In other words, the doctor will usually require a written release from the patient before answering your questions. Be aware that the doctor might not know much detail about exercise. Focus your discussion on discovering pertinent information about flare-ups or acute conditions that might limit exercise in this particular situation. Request specific descriptions of signals that would indicate trouble. Depending on the problem and the type of medical treatment that has been administered, there could be an exercise protocol already established by a therapist or physician. ASK FOR IT! The time you take to request this information from both the doctor and the client will not only protect you if a future problem does arise, but it will help you build a rapport with numerous physicians who might make referrals to you in the future.

Next we will look at chronic diseases and some of the drugs used to treat these diseases. You will also learn to identify the special concerns related to exercise for each condition. Your goal with new clients will be to work at a very gradual and moderate pace to ease them into their programs regardless of whether they have a special condition or not. This should be an easy task given what you already know about exercise and armed with the information in the next section!
HEART DISEASE (INCLUDING HIGH BLOOD PRESSURE)

Remember from Chapter 3 that development of coronary artery disease is greatly influenced by lifestyle factors such as diet, physical activity, stress, and smoking. High blood pressure, high cholesterol, and diabetes also increase the risk. Heart disease ranks as the number one cause of death in the US in general, and it is also the number one cause of death in the elderly. Coronary artery disease (CAD) is the primary type of heart disease experienced in the elderly.

Cardiac rehabilitation is offered after a myocardial infarction, or heart attack. There are three stages to rehabilitation. In Stage 1, the patient works with the rehabilitation team while still in the hospital. Stage 2 is done on an outpatient basis after the patient has gone home but is still under supervision at the hospital. Stage 3 is an individual program that the patient follows independently at home. You will often acquire new clients with heart disease after they have had a “wake-up call” in the form of a heart attack. Open communication with the doctor is important to ensure that the client has been released from the formal rehab program and to learn what limitations still exist. Fortunately, cardiologists usually give you specific guidelines for exercise. This is not often true for the internist or primary care doctor who might not have as much background or regard for physical activity.

The typical symptoms of CAD include chest pain and difficulty breathing. Older people sometimes do not experience any chest pain, but they do experience trouble with breathing. There is also decreased exercise tolerance and chronic fatigue. If your clients suffer from chronic fatigue, consistent exercise will actually eventually increase energy and endurance.

As you continue to read on, you will probably agree that most of the guidelines or special needs identified for people with heart disease are good general guidelines to adhere to for training almost all seniors.

Special needs:

- Persons with systolic blood pressure greater than 180 mm Hg or a diastolic pressure greater than 110 mm Hg should not begin an exercise program until blood pressure is normalized with medication.

- The signs of an emergency include chest pain, irregular heartbeat, difficulty breathing, and dizziness. Watch skin color, respiration rate, heart rate, and blood pressure, and be vigilant about asking for RPE and general reactions to exercise (i.e. how are they feeling?).

- You should avoid exposure to extreme heat or cold as this can put undue stress on an aging body which is already more sensitive to heat and cold.

- Your client should not eat a large meal before exercising. There should be at least two hours between a large intake of food and an exercise routine.

- Ask your clients if they have taken their medications for that day and check their blood pressure and heart rate before exercise.
Do not allow them to exercise if their blood pressure is 20 mm Hg (systolic) higher than usual.

Use the Rating of Perceived Exertion (RPE) scale to measure intensity for clients who are on medication; medications can change the heart rate response to exercise.

Individualized exercise programs are recommended for people with heart disease because it is important to watch them closely for possible signs of trouble. Save the group exercise until after these clients have progressed to a certain level and you are comfortable with their status.

Avoid isometric exercises for patients with high blood pressure.

Do not allow your client to hold the weight or resistance in one spot; keep it moving because holding it in place can increase blood pressure to dangerous limits.

Avoid allowing clients with high blood pressure to hold a weight above their heads as this can increase blood pressure beyond safe limits. In fact, avoid “over-the-head” exercises that use weights with all seniors.

Make sure your clients breathe continuously since breath holding while performing resistance exercise can produce seriously high blood pressures. Have clients count repetitions out loud with you; this will keep them from holding their breath.

Use higher repetitions (12 to 15) and lighter weights for strength training. If the physician has given you specific HR maximums, follow the “4 beats per repetition at 70%” rule you learned in Chapter 7.

Steady state aerobic exercise should strive for 75% of maximum heart rate unless the doctor says otherwise.

High intensity exercise should be discouraged.

The client should always warm up slowly and avoid sudden movements and/or changes in position.

Offer frequent rest periods; don’t let them overexert themselves.

Always cool down as long as needed to allow the heart rate to return to normal levels. Don’t let clients rush away before their heart rates have returned to normal.

Be careful if a client’s heart rate remains elevated longer than usual. This might indicate a necessity to lighten the client’s program. If the client is on the same program that has been established for a while and you have not made any recent changes, a prolonged elevated heart rate might indicate that a trip to the doctor is in order.
Heart Attack

Fast action is the best weapon against a heart attack. Why? Because clot-busting drugs and other artery-opening treatments can stop a heart attack. Although they can prevent or limit damage to the heart, they need to be given immediately after symptoms begin. The sooner they are administered, the more likely they will succeed and the greater the chance for survival and full recovery. *To be most effective, medications need to be given within 1 hour of the onset of heart attack symptoms.*

People expect a heart attack to happen just as it does in the movies where someone clutches his chest in pain and falls over. Well, expectations don't always match reality when it comes to heart attack. As a matter of fact, many people are totally unaware of the fact that they are having a heart attack. As a result, they take a wait-and-see approach instead of seeking immediate care. This even happens to people who have previously experienced a heart attack because the symptoms of a second episode might actually differ from those that occurred during the first.

Heart Attack Warning Signs

Many heart attacks are preceded by warning signs that begin well before the actual heart attack occurs. The symptoms include mild pain or discomfort and might even come and go.

*It is vital that everyone learn the warning signs of a heart attack:*

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts for more than a few minutes, or the discomfort might come and go. This discomfort can feel like pressure, squeezing, fullness, or pain.
- **Discomfort in other areas of the upper body.** This can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- **Shortness of breath.** This often accompanies the chest discomfort, but it also can occur before chest discomfort.
- **Other symptoms.** These include breaking out in a cold sweat, nausea, or light-headedness.

The first step to take when a heart attack is suspected is to call 9-1-1. *Call even if you are not sure that someone is having a heart attack.*

Anyone showing heart attack warning signs needs to receive medical treatment immediately. Don’t wait more than 5 minutes at most to call 9-1-1.
Calling 9-1-1 for an ambulance is the best way to get to the hospital because:

- Emergency medical personnel (also called EMS or emergency medical services) can begin treatment immediately—even before arrival at the hospital.
- The heart can stop beating during a heart attack. Emergency personnel have the equipment needed to restart the heart.
- Heart attack patients who arrive by ambulance tend to receive faster treatment upon arrival at the hospital.

Delay Can Be Deadly

Waiting too long to seek medical attention can be a fatal mistake. Patient delay—rather than a delay in transport to a treatment facility or delay at the hospital—is the biggest cause of not getting rapid care for heart attacks. Women, older people, and minorities are usually more likely to delay seeking help than other groups of people.

People often take a wait-and-see approach because they:

- Do not understand the symptoms of a heart attack and think that what they are feeling is due to something else.
- Are afraid or unwilling to admit that their symptoms could be serious.
- Are embarrassed about “causing a scene” or going to the hospital for a false alarm.
- Do not understand the importance of getting to the hospital right away.

As a result of this wait-and-see approach, most heart attack victims wait 2 hours or more after their symptoms begin before they seek medical help. Not only can this delay result in death, but it can also lead to permanent heart damage, an effect that can greatly impair the ability to do everyday activities.
MEDICATIONS FOR HEART DISEASE

Heart disease medications and high blood pressure pills present the greatest obstacles and difficulties when it comes to regular exercise. The heart disease medications that you will most commonly deal with are beta-blockers and diuretics. Beta-blockers slow down the heart rate and decrease blood pressure by blocking catecholamine released from the autonomic nervous system. Common names for beta-blockers are Inderal, Corgard, and Lopressor. These medications can cause depression, fatigue, and dizziness, all of which make exercise difficult. Remember, since beta-blockers decrease heart rate, HR measures are not valid indicators of exercise intensity for clients taking them. In these cases, RPE is recommended.

Diuretics are used to treat hypertension and congestive heart failure. They increase the secretion of sodium and chloride in the urine which leads to fluid loss. Since water is a major constituent of blood, it contributes greatly to blood volume. Blood volume, in turn, has a direct impact on blood pressure. Consequently, any significant changes in the amount of body fluids will affect blood pressure, so blood pressure is reduced as a result of water loss. Clients who are taking diuretics usually need to use the bathroom more frequently. Be aware that this loss of fluid through diuretic use coupled with the fluid lost from exercise can easily lead to dehydration. Remember to monitor the client’s fluid intake and allow for adequate water consumption and restroom breaks. Common brands of diuretics include Lasix, Aldactone, Esidrix, Hydrodiuril, Oretic, and Thiuretic.

Because high blood pressure is treated by decreasing the amount of fluid in the body, there is the possibility of postural hypotension. This occurs when the blood pressure suddenly drops after standing up too quickly and might lead to dizziness or loss of consciousness. Another problem that can develop with the use of diuretics is due to a depletion of the body’s potassium stores, a condition called hypokalemia. This condition causes weakness and fatigue. If you have a client who takes a diuretic and is complaining of theses symptoms, suggest a consult with a doctor.

Medications are sometimes needed to help prevent or control coronary heart disease (CHD) or to reduce the risk for a first or a repeat heart attack. Even if medications are needed, however, lifestyle changes still must be undertaken. As you will see, some of the medications listed for CHD are also used to lower blood pressure since many people with heart disease already have high blood pressure. Remember, high blood pressure itself is a risk factor for heart disease.
Drugs used to treat CHD include:

**Aspirin** – helps lower the risk of a heart attack for those who have already had one. It also helps to keep the arteries open in those who have had a previous heart bypass or other artery-opening procedure such as coronary angioplasty.

Because of its risks, aspirin is not approved by the Food and Drug Administration for preventing heart attacks in healthy individuals. It might actually be harmful for some people, especially those with no known risk of heart disease. Thus, everyone must be assessed carefully to make sure the benefits of taking aspirin outweigh the risks.

**Digitalis** – makes the heart contract harder and is used when the heart's pumping function has been weakened; it also slows some fast heart rhythms.

**ACE (angiotensin converting enzyme) inhibitor** – stops the production of a chemical that makes blood vessels narrow. It is used to help control high blood pressure and damage to the heart muscle and might be prescribed after a heart attack to help the heart pump blood more efficiently. It is also used for people with heart failure, a condition in which the heart is unable to pump enough blood to supply the body's needs.

**Beta blocker** – slows the heart rate and makes it beat with less contracting force so blood pressure drops and the heart's work load decreases. It is used for high blood pressure and chest pain and to prevent a repeat heart attack. *This is the main medication that you will encounter. It makes measuring exertion levels by heart rate inaccurate because it slows the heart rate.*

The beta blockers (with brand names) include acebutolol (Sectral), atenolol (Tenormin), bisoprolol (Zebeta), metoprolol (Lopressor, Lopressor LA, Toprol XL), nadolol (Corgard) and timolol (Blocadren). Beta blockers are also available in combination with a diuretic as, for example, with bisoprolol and hydrochlorothiazide (Ziac).

Beta blockers reduce the pressure within the eye (the intraocular pressure), probably by reducing the production of the liquid (aqueous humor) within the eye, and so are used to lessen the risk of damage to the optic nerve and loss of vision in glaucoma. Beta blocker preparations for this purpose include timolol ophthalmic solution (Timoptic) and betaxolol hydrochloride (Betoptic, Betoptic S).

**Nitroglycerine** – relaxes blood vessels and stops chest pain.

**Calcium channel blocker** – relaxes blood vessels and is used for high blood pressure and chest pain.
Diuretic – decreases fluid in the body and is used for high blood pressure. Diuretics are sometimes referred to as “water pills.”

Diuretics (with brand names) include triamterene (Maxzide, Dyazide). This medication is currently only available in combination with another diuretic called hydrochlorothiazide. This medication is a mild diuretic and blood pressure-lowering (antihypertensive) medication which reduces the potassium loss occurring with its combined drug hydrochlorothiazide. Another type of diuretic causes a profound increase in urine output (diuresis) by preventing the kidney from retaining fluid. Specifically, it blocks the reabsorption of sodium and fluid from the kidney’s tubules. This class of diuretic is called a “loop” diuretic and includes Bumetanide (Bumex), furosemide (Lasix) and torsemide (Demadex).

Blood cholesterol-lowering agents – decrease LDL cholesterol levels in the blood.

Thrombolytic agents – also called “clot busting drugs.” These are given during a heart attack to break up a blood clot in a coronary artery in order to restore blood flow.

Drugs used to treat high blood pressure

Diuretics

Diuretics are sometimes called “water pills” because they work in the kidney and flush excess water and sodium from the body.

Beta-blockers

Beta-blockers reduce nerve impulses to the heart and blood vessels. This makes the heart beat slower and with less force. Blood pressure drops so the heart doesn’t have to work as hard.

ACE inhibitors

Angiotensin converting enzyme (ACE) inhibitors prevent the formation of a hormone called angiotensin II which normally causes blood vessels to narrow. The ACE inhibitors cause the vessels to relax so blood pressure drops.

Angiotensin antagonists

Angiotensin antagonists shield blood vessels from angiotensin II. As a result, the vessels become wider and blood pressure drops.

Calcium channel blockers (CCBs)

CCBs keep calcium from entering the muscle cells of the heart and blood vessels. This causes the blood vessels to relax so that pressure drops.
Alpha-blockers

Alpha-blockers reduce nerve impulses to blood vessels which allows blood to pass more easily so blood pressure drops.

Alpha-beta-blockers

Alpha-beta-blockers work in the same manner as alpha-blockers, but they also slow the heartbeat like beta-blockers do. As a result, less blood is pumped through the vessels and the blood pressure drops.

Some of the common alpha-beta-blockers (with brand names) include carvedilol (Coreg), labetalol HCl (Normodyne, Trandate).

Nervous system inhibitors

Nervous system inhibitors relax blood vessels by controlling nerve impulses. This causes the blood vessels to become wider and the blood pressure to go down.

Vasodilators

Vasodilators directly open blood vessels by relaxing the muscle in the vessel walls which causes the blood pressure to drop.

Drugs used to treat high cholesterol

Statin Drugs

There are currently five statin drugs on the market in the United States: lovastatin, simvastatin, pravastatin, fluvastatin, and atorvastatin. Cerivastatin is an additional type, but it was withdrawn from the market by the manufacturer in August 2001. The major effect of the statins is to lower LDL cholesterol levels, and they are more effective at this than any other type of drug. One major function of the statins is to inhibit the enzyme HMG-CoA reductase which controls the rate of cholesterol production in the body. Its overall effect is to decrease cholesterol production. A second major function of the statins is to increase the liver’s ability to remove LDL cholesterol that is already in the blood. Statins have become the drugs most often prescribed when a person with heart disease needs a cholesterol-lowering medicine.

The statins are well-tolerated by most patients, and serious side effects are rare. A few patients will experience an upset stomach, gas, constipation, and abdominal pain or cramps. These symptoms are usually mild to moderate in severity and generally go away as the body adjusts to intake. Rarely will a patient develop liver abnormalities which are indicated in blood tests. Also rare is the side effect that sometimes affects muscles. The symptoms for this are muscle soreness, pain, and weakness. If any of these occur, or if a client taking a statin drug has brown urine, that client should contact a doctor right away to get blood tests for possible muscle problems. Since these can be side effects of physical activity as well, be aware! Watch closely the person who seems to be having an extreme problem adjusting to a new program. The culprit could be their medication and not the program.
Chronic Diseases and Exercise

Bile Acid Sequestrants
Bile acid sequestrants bind with cholesterol-containing bile acids in the intestines and are then eliminated in the stool. They are sometimes prescribed with a statin for patients with heart disease to decrease cholesterol levels. When these two drugs are combined, they lower LDL cholesterol by over 40%. Cholestyramine, colestipol, and colesevelam are the three main bile acid sequestrants currently available in either powder or tablet form. They are not absorbed from the gastrointestinal tract, and 30 years of experience with the sequestrants indicate that their long-term use is safe.

Bile acid sequestrant powders must be mixed with water or fruit juice and taken once, twice, or (rarely) three times per day with meals. Tablets must be taken with large amounts of fluids to avoid gastrointestinal symptoms. Sequestrant therapy might produce a variety of symptoms including constipation, bloating, nausea, and gas.

Bile acid sequestrants are not prescribed as the sole medicine to lower cholesterol in a person with high triglycerides or a history of severe constipation.

Nicotinic Acid or Niacin

Nicotinic acid, or niacin, is a water soluble B vitamin that improves all lipoprotein levels when given in doses well above the vitamin requirement. Nicotinic acid lowers total cholesterol, LDL, and triglyceride levels, while it raises HDL levels. There are three types of nicotinic acid: immediate release, timed release, and extended release. Nicotinic acid is inexpensive and widely accessible to patients without a prescription, but it must not be used to lower cholesterol without physician supervision due to potential side effects. (Nicotinamide, another form of the vitamin niacin, does not lower cholesterol levels and should not be used in the place of nicotinic acid.)

A common and troublesome side effect of nicotinic acid is flushing or hot flashes which are the result of dilation of blood vessels. Over time, most patients develop a tolerance to flushing. In some patients, the incidence of flushing can be decreased if the supplement is taken during or after meals or along with aspirin or other similar medications prescribed by a doctor. The extended release form might cause less flushing than the other forms. The effect of high blood pressure medicines can also be enhanced while on niacin. If taking high blood pressure medication, it is important to set up a blood pressure monitoring system while getting used to the new niacin regimen. A variety of gastrointestinal symptoms including nausea, indigestion, gas, vomiting, diarrhea, and the activation of peptic ulcers has been seen with the use of nicotinic acid. Three other major adverse effects include liver problems, gout, and high blood sugar. Risk of the latter three increases as the dose of nicotinic acid is increased. The doctor might not prescribe this medicine for people with diabetes because of the effect on blood sugar.

Fibrates

The cholesterol-lowering drugs called fibrates are primarily effective in lowering triglycerides. To a lesser extent, they increase HDL cholesterol levels as well. Gemfibrozil, the fibrate most widely used in the United States, can be very effective for patients with high triglyceride levels. However, it is not as effective for lowering LDL cholesterol. It is used in
some patients with heart disease for whom the goal of treatment is a reduction in triglyceride level or an increase in HDL.

Fibrates are generally well-tolerated by most patients. Gastrointestinal complaints are the most common side effect, but fibrates appear to increase the likelihood of developing cholesterol gallstones as well. Since fibrates can increase the effect of medications that thin the blood, a physician should monitor its use closely.

The FDA offers information on prescription and over-the-counter medications at www.FDA.gov. Information is also available at www.RXlist.com and www.medicinenet.com. You might also try a web search for a drug if you can't easily find it at one of these sites.

**STROKE OR CVA**

A cerebrovascular accident, or stroke, usually results in some sort of a neurological-related disability due to damage to brain tissue. Depending on the location and the extent of the damage, the person's symptoms and limitations will vary greatly.

If the damage is located on the right side of the brain, there can be spatial or perceptual problems, memory deficits, left field of vision restriction, or weakness or inability to use the left side of the body (paralysis). People might also be unable to discern between left and right.

Damage to the left side causes speech and language problems, memory deficits, difficulty with new tasks, problems with the right field of vision, problems knowing left from right, and weakness or paralysis on the right side of the body.

**Special concerns:**

- With any client who has experienced a stroke, try to uncover the exact deficits caused by that stroke.
- Encourage participants to work the weaker side of the body whenever possible.
- Practice postural awareness exercises.
- Use exercises that involve both sides of the body and that stress balance. Tossing a ball back and forth and kicking are good ideas. Bouncing a beach ball or balloon off the fingers or back and forth is another idea. Trying to catch the ball on the damaged side can also be beneficial.
- An exercise protocol might have already been developed for a person who has had a stroke. Ask for it!
- Avoid exercises that significantly lower the head, such as touching the toes or picking up a missed ball. This causes pressure in the brain that can be dangerous.
- Keep it simple, and demonstrate the exercises as you verbally describe them.