

# Diseases of the Cardiovascular System

## GENERAL TERMINOLOGY

**Hypoxia**—deficiency of oxygen.

**Anoxia**—absence of oxygen.

**Ischemia**—a lack of blood supply; results in decreased oxygen and nutrient supply.

**Necrosis**—cell or tissue death.

**Gangrene**—necrotic tissue that has become invaded with anaerobic microorganisms.

**Thrombus**—a blood clot attached to the wall of a blood vessel.

**Embolus**—a free-floating blood clot, clump of fat, mass of cholesterol crystals, mass of tissue, or even a mass of bacteria.

**Cyanosis**—bluish discoloration of the skin caused by a deficiency of oxygen in the blood.

The most common clinical term used to describe the presence of blood clots in vessels is *deep venous thrombosis (DVT)*. Massage is contraindicated for a client diagnosed with DVT.

## DISORDERS

**Hypertension**—high blood pressure ( $\geq 140$  mm Hg for systolic pressure and  $\geq 90$  mm Hg for diastolic pressure).

**Cause:** exact cause is unknown, but many factors contribute (e.g., old age, obesity, smoking, genetic factors, stress).

**Contraindications/indications:** obtain advice and approval of client's doctor before performing bodywork; massage is contraindicated in extreme cases because thrombus (clot) formation is possible; avoid deep tissue work or painful massage in all cases; soothing massage may reduce high blood pressure and associated stress.

**Hypotension**—low blood pressure ( $< 100$  mm Hg for systolic pressure).

**Causes:** overall good health; blood loss.

**Contraindications/indications:** consult with client's doctor; be careful when the client sits up or stands after massage is completed.

**Anemia**—a decrease in the oxygen-carrying capacity of the blood; accompanied by dizziness, fatigue, nausea, lightheadedness, and pale coloration of the skin.

**Causes:** see following definitions of specific types of anemia.

**Contraindications/indications:** avoid deep massage because extreme fluid movement or pressure on surface vessels may be harmful; massage should be light and soothing.

**Sickle cell anemia**—a genetic condition causing malformed hemoglobin molecules; produces fragile sickle- or crescent-shaped red blood cells that are easily destroyed; causes thickening of the blood, which strains the heart and reduces blood flow.

Hypertension is considered a dangerous health risk. Those with hypertension are more likely to develop cardiovascular disease and have a decreased life expectancy. Hypotension, on the other hand, is usually not cause for concern. Those with hypotension have a longer life expectancy and fewer diseases in old age.

**Hemorrhagic anemia**—anemia resulting from a loss of blood volume.

**Hemolytic anemia**—anemia resulting from excessive destruction of red blood cells.

**Iron deficiency anemia**—anemia resulting from decreased hemoglobin production (and therefore red blood cell formation); caused by a lack of dietary iron.

**Aplastic anemia**—anemia in which the number of functioning stem cells in the bone marrow is decreased; results from drugs, chemicals, radiation, or cancer.

**Pernicious anemia**—anemia resulting from deficiency or malabsorption of vitamin B<sub>12</sub>.

**Leukemia**—a disease in which many immature and ineffective white blood cells (WBCs) are produced; classified according to the type of predominant WBC, the severity of symptoms, and the total WBC count.

**Cause:** disease in which malignant stem cells develop in the bone marrow.

**Contraindications/indications:** obtain approval of client's doctor before performing bodywork; all massage should be light because of the tendency for bleeding and bruising; energy work could be beneficial.

**Hemophilia**—characterized by the inability to form a blood clot because of a deficiency of blood-clotting factors (e.g., classic hemophilia is caused by a deficiency of clotting factor VII).

**Cause:** sex-linked genetic disorder.

**Contraindications/indications:** obtain advice and approval of client's doctor before performing bodywork; massage should be very light so as not to cause tissue damage or bruising; use universal precautions in case of bleeding; energy work can be beneficial.

**Shock**—a condition in which there is inadequate delivery of oxygenated blood to the tissues, particularly to the central nervous system; signs and symptoms include pale or bluish skin, overall weakness, rapid and faint pulse, restless and anxious behavior, severe thirst, nausea, dilated pupils, sweating, and shallow and rapid breathing.

**Causes:** see following definitions of specific types of shock.

**Contraindications/indications:** massage is contraindicated; refer to first aid procedures.

**Hypovolemic shock**—shock caused by a decrease in blood volume because of hemorrhage or excessive fluid loss.

**Cardiogenic shock**—shock caused by inadequate pumping action of the heart; usually the result of myocardial infarction; leads to decreased blood pressure.

**Septic shock**—shock caused by bacterial infection; results in localized vasodilation and increased blood vessel permeability, and thus decreased blood pressure.

**Anaphylactic shock**—shock caused by systemic release of a large amount of histamine during an allergic response; results in widespread vasodilation and increased blood vessel permeability, and thus decreased blood pressure.

**Arrhythmia**—an abnormal or irregular heartbeat; often benign.

**Causes:** impulse variations coming into the sinoatrial node from the vagus nerve; electrolyte imbalances.

**Contraindications/indications:** consult with client's doctor; any massage should be light and soothing.

**Pericarditis**—inflammation of the pericardium (sac that surrounds the heart).

**Causes:** bacterial or viral infection; calcium and fibrous deposits around the heart.

**Contraindications/indications:** obtain approval of client's doctor before performing bodywork; the presence of infection is a contraindication to massage.

**Phlebitis**—inflammation of a vein; quite common; not very serious in superficial veins; more serious in deep veins.

**Cause:** unknown (most cases); injury; predisposing factors include obesity and lack of activity.

**Contraindications/indications:** avoid affected area.

**Hemorrhoids**—a condition characterized by varicose veins of the rectum and anus.

**Causes:** increased pressure on the veins of the anus; pregnancy.

**Contraindications/indications:** do not massage the surrounding gluteal and coccygeal areas.

**Coarctation of the aorta**—localized narrowing of the aorta; impedes blood flow.

**Cause:** congenital defect.

**Contraindications/indications:** consult with client's doctor.

Keep in mind that with hemophilia, the problem lies in deficiency of a clotting factor, not deficiency of platelets. In hemophiliacs, a normal platelet plug forms, but the bleeding resumes hours later because no fibrin clot has formed.

**Aneurysm**—a localized bulge in the wall of an artery.

**Cause:** weakening in the arterial wall.

**Contraindications/indications:** avoid the area where the aneurysm is located; avoid abdominal massage.

**Murmur**—sound heard when blood escapes through a valve of the heart.

**Causes:** leaky heart valve (congenital condition); previous infection of heart tissue.

**Contraindications/indications:** many heart murmurs are benign, but consult with client's doctor to be sure.

**Myocardial infarction**—sudden insufficient blood supply to a segment of heart muscle; results in an area of necrotic cardiac muscle tissue; symptoms include angina, shortness of breath, and radiating pain.

**Cause:** usually atherosclerosis of the coronary arteries.

**Contraindications/indications:** if client has symptoms of infarction, refer to doctor immediately.

**Angina pectoris**—pain in the chest and arm that may be described as dull, sharp, burning, or aching.

**Cause:** myocardial ischemia.

**Contraindications/indications:** massage can overwork the heart, so obtain approval of client's doctor before performing bodywork; massage should be light and soothing; avoid endangerment areas and abdominal massage (which may cause increased pressure on the heart); client is best positioned supine with a cushion under the right hip to avoid pressure on the inferior vena cava.

**Heart block**—a block in the conduction pathway of the heart; results in uncoordinated contractions of the atria and ventricles.

**Cause:** damage to a portion of the conduction system in the heart.

**Contraindications/indications:** refer to doctor.

**Varicose vein**—a vein that swells with accumulating blood; condition is usually permanent.

**Cause:** excessive pressure on the veins causing failure of the one-way valves.

**Contraindications/indications:** avoid massage to directly on or distal to affected areas because clots that may form could be broken off into the general circulation; work done proximal to the area can be beneficial.

**Arteriosclerosis**—a group of pathologic conditions characterized by thickening and hardening of the arteries; decreased blood flow to the brain and extremities may cause dizziness and headaches.

**Atherosclerosis**—hardening and thickening of the arteries resulting from buildup of plaque made of cholesterol and lipids; decrease in elasticity causes narrowing of lumen, leading to decreased blood flow through the artery; eventually alters the function of the tissues.

**Causes:** diabetes; obesity; steroid use; some hereditary metabolic disorders.

**Contraindications/indications:** obtain approval of client's doctor before performing bodywork; avoid localized massage around the carotid artery (may cause plaque to break loose); avoid deep tissue work; avoid head and neck region.

**Raynaud disease**—a condition characterized by peripheral vasoconstriction, most commonly in the digits; most common in women; symptoms include extreme cold, numbness, and pain in the digits; differential diagnoses include scleroderma, thoracic outlet syndrome, stress, and exposure to vibrating machinery.

**Cause:** unknown.

**Contraindications/indications:** massage may increase circulation, reduce associated stress, and relax affected muscles.