# Chapter 11

# The Cardiovascular System

# The Cardiovascular System

## A closed system of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### The heart pumps blood

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ allow blood to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to all parts of the body

## Functions of the cardiovascular system

### Transport \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, hormones to and from cells

# NOTES:

# Anatomy of the Heart

## Size of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, weighing less than a pound

## Located in the thoracic cavity, between the lungs in the inferior mediastinum

## Orientation

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is directed toward left hip and rests on the diaphragm

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ points toward right shoulder

## Coverings of the heart

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—a double-walled sac

#### Fibrous pericardium is loose and superficial

#### Serous membrane is deep to the fibrous pericardium and composed of two layers

##### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: outside layer that lines the inner surface of the fibrous pericardium

##### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: next to heart; also known as the *epicardium*

#### Serous fluid fills the space between the layers of pericardium, called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Walls of the heart

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Outside layer; the visceral pericardium

### 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Middle layer

#### Mostly cardiac muscle

### 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Inner layer known as *endothelium*

# NOTES:

# Chambers and Associated Great Vessels

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the heart

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (right and left)

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ chambers

#### Assist with filling the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Blood enters under low pressure

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (right and left)

#### Discharging chambers

#### Thick-walled pumps of the heart

#### During \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, blood is propelled into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Separates the two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ longitudinally

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## Heart functions as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ carry blood away from the heart

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ carry blood toward the heart

## Double pump

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ side works as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ circuit pump

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ side works as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ circuit pump

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ circulation

### Blood flows from the right side of the heart to the lungs and back to the left side of the heart

#### Blood is pumped out of right side through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which splits into pulmonary arteries and takes oxygen-poor blood to lungs

#### Oxygen-rich blood returns to the heart from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ circulation

### Oxygen-rich blood returned to the left side of the heart is pumped out into the aorta

#### Blood circulates to systemic arteries and to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Left ventricle has thicker walls because it pumps blood to the body through the systemic circuit

### Oxygen-poor blood returns to the right atrium via systemic veins, which empty blood into the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# NOTES:

# Heart Valves

## Allow blood to flow in only one direction, to prevent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (AV) valves—between atria and ventricles

#### Left AV valve: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (mitral) valve

#### Right AV valve: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ valve

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ valves—between ventricle and artery

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ semilunar valve

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ semilunar valve

## AV valves

### Anchored the cusps in place by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the walls of the ventricles

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during heart \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, when blood passively fills the chambers

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Semilunar valves

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_during heart relaxation

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during ventricular contraction

## Valves open and close in response to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes in the heart

# NOTES:

# Cardiac Circulation

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the heart chambers does not nourish the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## The heart has its own nourishing circulatory system consisting of:

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—branch from the aorta to supply the heart muscle with oxygenated blood

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—drain the myocardium of blood

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—a large vein on the posterior of the heart; receives blood from cardiac veins

## Blood empties into the right \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ via the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# NOTES:

# Physiology of the Heart

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_system of the heart

### Cardiac muscle contracts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of nerve impulses

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_occur in a regular and continuous way

#### Atrial cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_times per minute

#### Ventricular cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ times per minute

#### Need a unifying control system—the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(nodal system)

### Two systems regulate heart activity

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or the nodal system

##### Sets the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

##### Composed of special nervous tissue

##### Ensures heart \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_only (atria to ventricles)

##### Enforces a heart rate of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Components include:

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (SA) node

#### Located in the right atrium

#### Serves as the heart’s pacemaker

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (AV) node is at the junction of the atria and ventricles

### Atrioventricular (AV) bundle (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) and bundle branches are in the interventricular septum

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_spread within the ventricle wall muscles

### The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_starts each heartbeat

### Impulse spreads through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Atria contract

### At the AV node, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Impulse travels through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Ventricles contract; blood is ejected from the heart

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—rapid heart rate, over 100 beats per minute

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—slow heart rate, less than 60 beats per minutes

## Cardiac cycle and heart sounds

### The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_refers to one complete heartbeat, in which both atria and ventricles contract and then relax

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Average heart rate is approximately \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_length is normally 0.8 second

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (ventricular filling)

#### Heart is relaxed

#### Pressure in heart is low

#### Atrioventricular valves are open

#### Blood flows passively into the atria and into ventricles

#### Semilunar valves are closed

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Ventricles remain in diastole

#### Atria contract

#### Blood is forced into the ventricles to complete ventricular filling

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contraction

#### Atrial systole ends; ventricular systole begins

#### Intraventricular pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### AV valves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### For a moment, the ventricles are completely closed chambers

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (ejection phase)

#### Ventricles continue to contract

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_now surpasses the pressure in the major arteries leaving the heart

#### Semilunar valves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Blood is ejected from the ventricles

#### Atria are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_with blood

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ relaxation

#### Ventricular diastole begins

#### Pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ below that in the major arteries

#### Semilunar valves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### For another moment, the ventricles are completely closed chambers

#### When atrial pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ above intraventricular pressure, the AV valves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Heart sounds

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—longer, louder heart sound caused by the closing of the AV valves

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—short, sharp heart sound caused by the closing of the semilunar valves at the end of ventricular systole

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (CO)

### Amount of blood pumped by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(ventricle) of the heart\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (SV)

### Volume of blood pumped by each ventricle in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(each heartbeat)

### About \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of blood is pumped out of the left ventricle with each heartbeat

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (HR)

### Typically \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the product of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (HR) and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (SV)

### CO = HR × SV

### CO = HR (75 beats/min) × SV (70 ml/beat)

### CO = 5250 ml/min = 5.25 L/min

# NOTES:

# Blood Vessels

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vascular system that transports blood to the tissues and back to the heart

### Vessels that carry blood away from the heart

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Vessels that play a role in exchanges between tissues and blood

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Vessels that return blood toward the heart

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# NOTES:

# Physiology of Circulation

## Vital signs

### Measurements of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Arterial pulse

### Alternate expansion and recoil of a blood vessel wall (the pressure wave) that occurs as the heart beats

### Monitored at *pressure points* in superficial arteries, where pulse is easily palpated

### Pulse averages \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at rest, in a healthy person

# NOTES:

# Blood Pressure

## Blood pressure

### The pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_against the inner walls of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that causes blood to continue to flow in the blood vessels

## Blood pressure gradient

### When the ventricles contract:

#### Blood is forced into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_close to the heart

#### Blood flows along a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_gradient

### Pressure decreases in blood vessels as distance from the heart increases

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the arteries, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the capillaries, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the veins

## Measuring blood pressure

### Two arterial blood pressures are measured

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—pressure in the arteries at the peak of ventricular contraction

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—pressure when ventricles relax

### Expressed as systolic pressure over diastolic pressure in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(mm Hg)

#### For example, 120/80 mm Hg

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_method is an indirect method of measuring systemic arterial blood pressure, most often in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_artery

## Effects of various factors on blood pressure

### Arterial blood pressure (BP) is directly related to cardiac output and peripheral resistance

#### Cardiac output (CO; the amount of blood pumped out of the left ventricle per minute)

#### Peripheral resistance (PR; the amount of friction blood encounters as it flows through vessels)

## BP = CO × PR

### Neural factors: the autonomic nervous system

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_system has little to no effect on blood pressure

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_system promotes vasoconstriction (narrowing of vessels), which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_blood pressure

### Renal factors: the kidneys

#### Kidneys regulate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_by altering blood \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### If blood pressure is too \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the kidneys release water in the urine

#### If blood pressure is too \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the kidneys release renin to trigger formation of angiotensin II, a vasoconstrictor

#### Angiotensin II stimulates release of aldosterone, which enhances sodium (and water) reabsorption by kidneys

### Temperature

#### Heat has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_effect

#### Cold has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_effect

### Chemicals

#### Various substances can cause increases or decreases in blood pressure

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heart rate and blood pressure

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Commonly believed that a diet low in salt, saturated fats, and cholesterol prevents hypertension (high blood pressure)

## Variations in blood pressure

### Normal human range is variable

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pressure ranges from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm Hg

#### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pressure ranges from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mm Hg

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (low blood pressure)

#### Low systolic (below 100 mm Hg)

#### Often associated with illness

#### Acute hypotension is a warning sign for circulatory shock

### \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (high blood pressure)

#### Sustained elevated arterial pressure of 140/90 mm Hg

#### Warns of increased peripheral resistance

# NOTES: