



# Assessment of patients with CV diseases. Complains, anamnesis, inspection and palpation of heart and vessels. Puls and BP

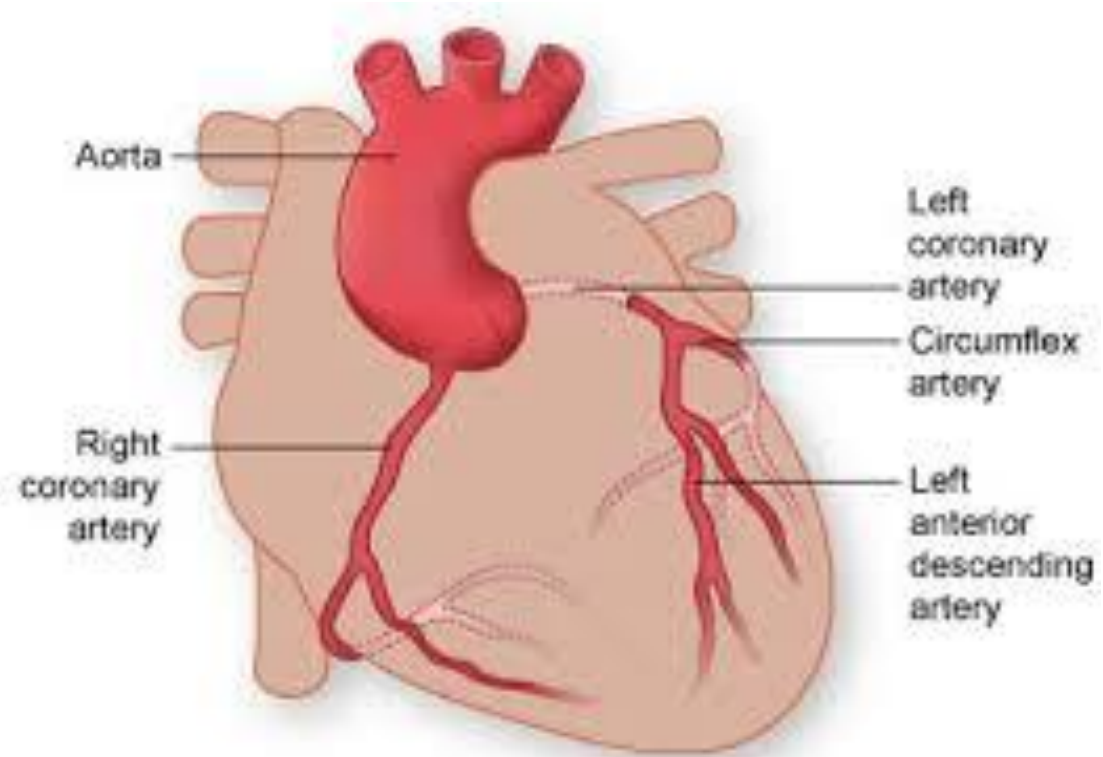
**Professor Mazur Minodora**





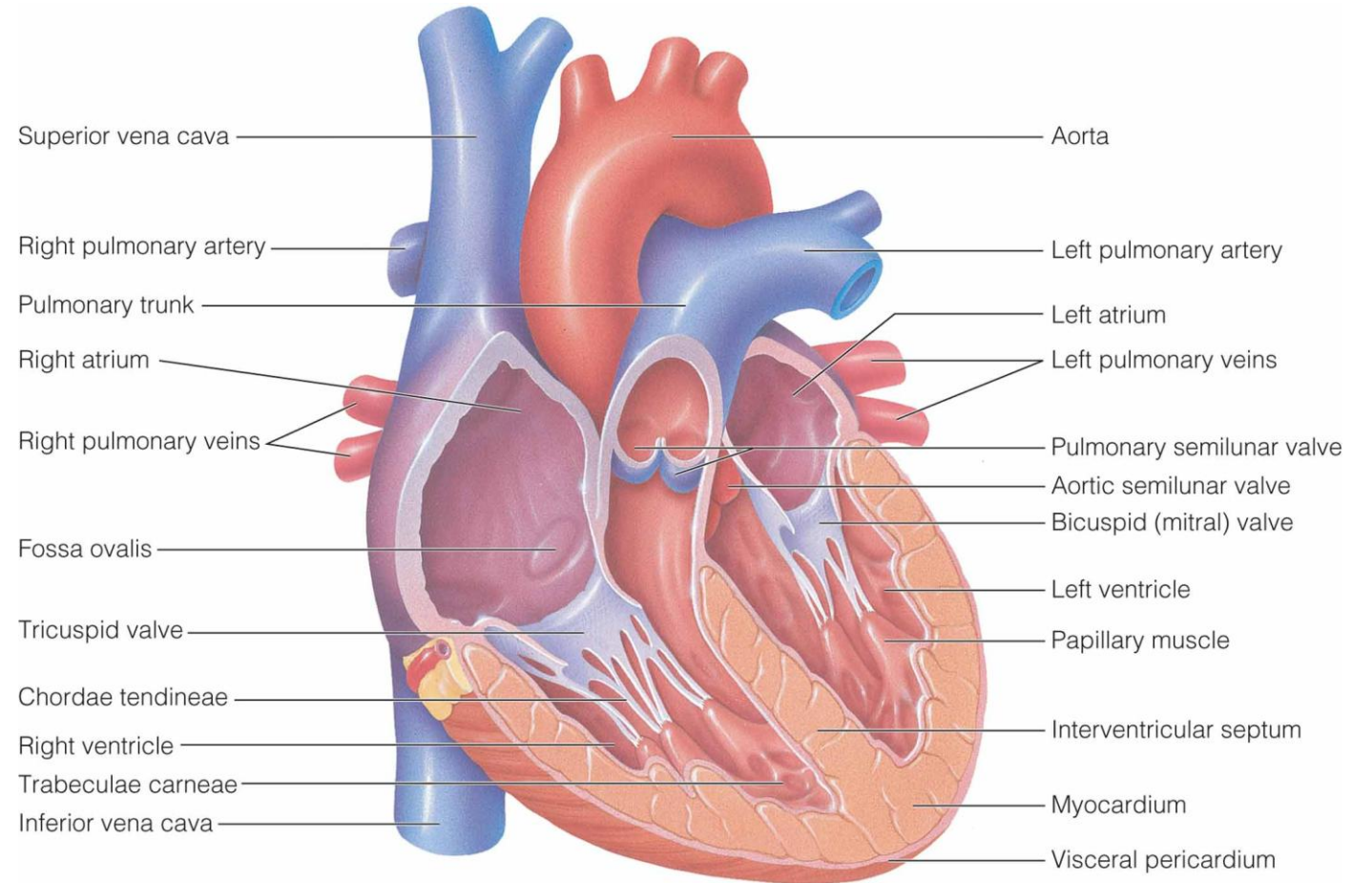
# Cardiovascular System

- Heart
- Vasculature



# Heart

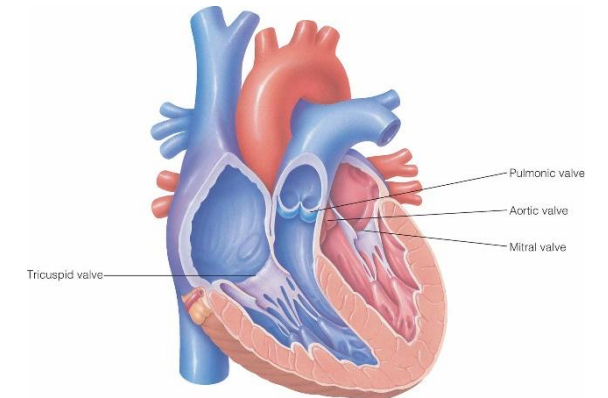
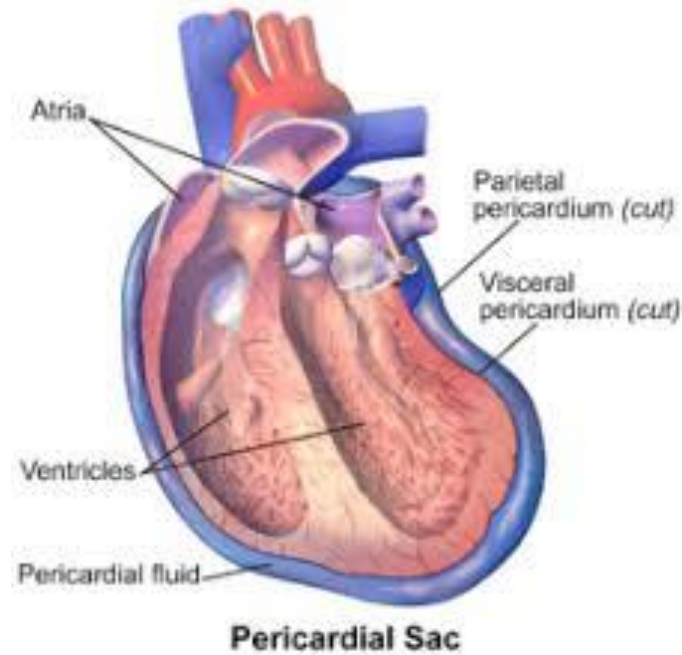
- **Pericardium**
- **Cardiac muscle**
- **Chambers**
- **Valves**
- **Cardiac vessels**
- **Conduction system**
- **Nerves**



Structural components of the heart.

# Pericardium

- Thin Sac Composed of Fibro serous Material That Surrounds the Heart
- Outer layer
- Inner layer
- Fluid between the layers



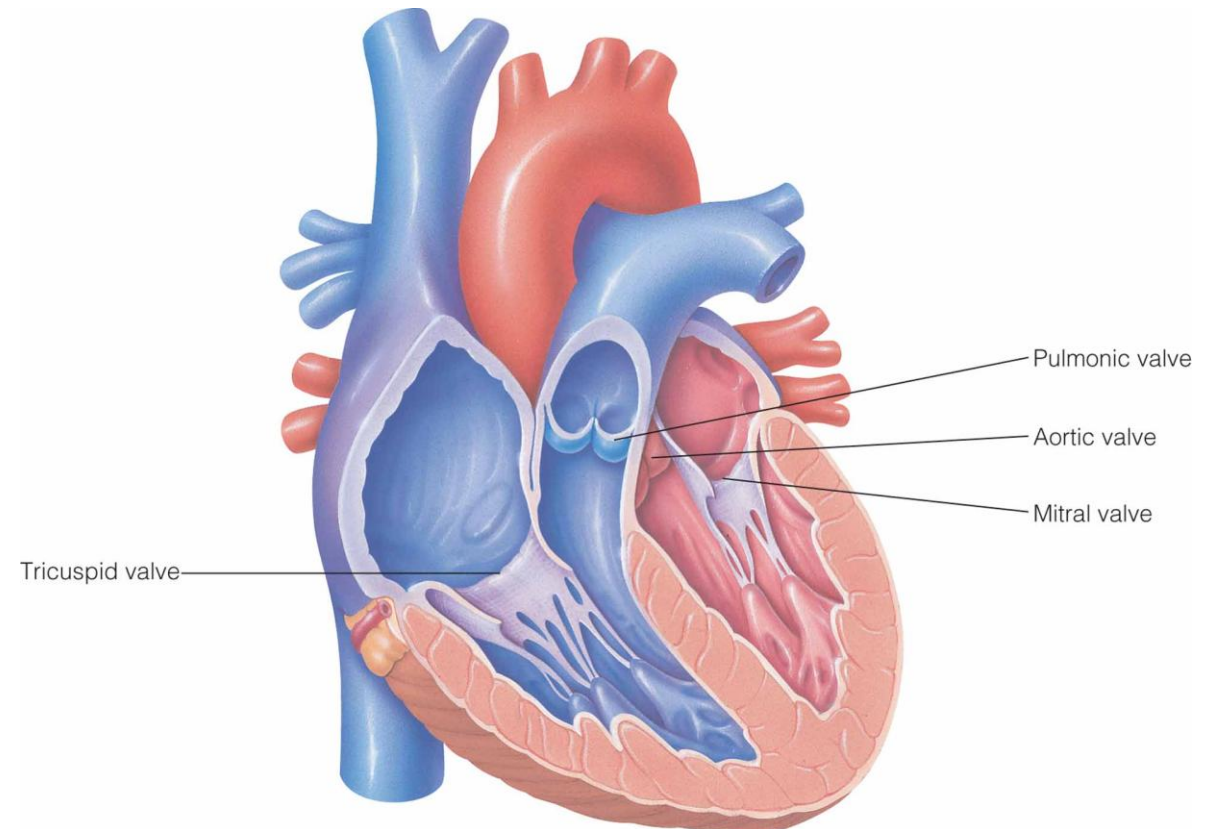
# Heart Muscle

- Base
- Apex
- Epicardium
- Myocardium
- Endocardium



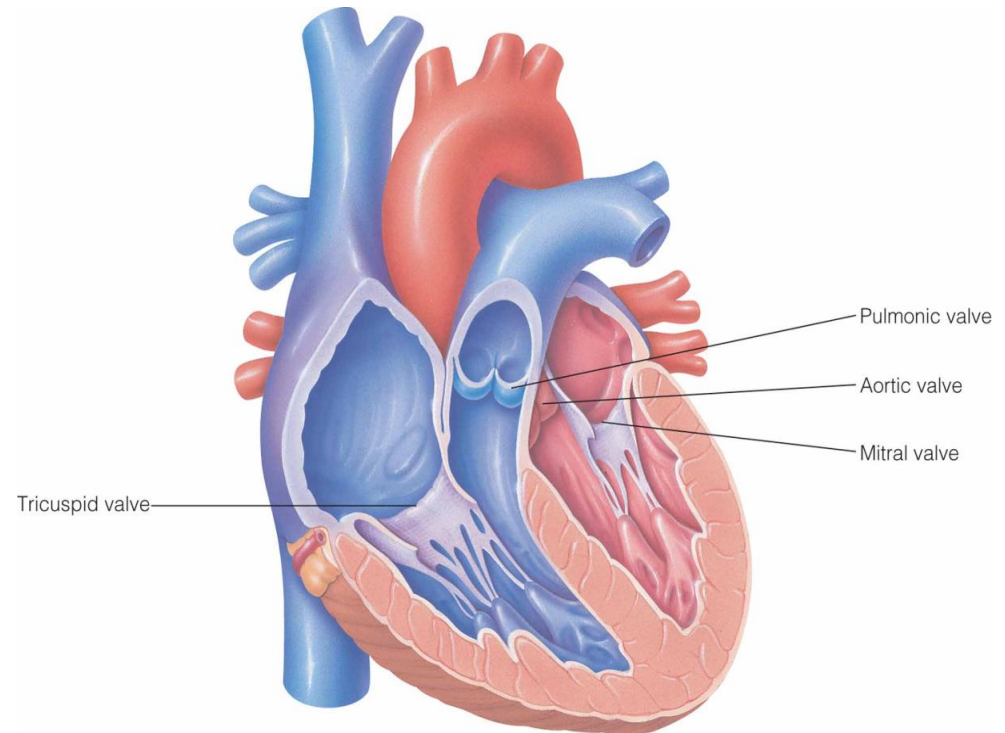
# Chambers in the Heart

- Left and right atria
- Left and right ventricles



# Valves

- **Permit the Flow of Blood Between Chambers and Into Blood Vessels**
- **Atrioventricular (AV)**
  - **Tricuspid**
  - **Mitral**
- **Semilunar**
  - **Pulmonary**
  - **Aortic**



# Focused Interview

- General questions



# **Focused Interview**

## **General and Specific questions**

- **Illness**
- **Symptoms**
- **Behaviors**
- **Infants and children**
- **Pregnant female**
- **Older adult**
- **Environment**

# Cardiovascular disease symptoms

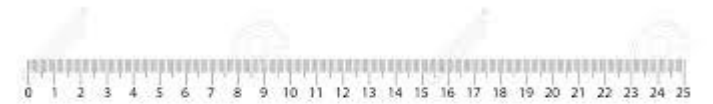
Cardiovascular disease symptoms may be different for men and women. For instance, men are more likely to have chest pain; women are more likely to have other symptoms along with chest discomfort, such as shortness of breath, nausea and extreme fatigue.

## Symptoms can include:

- Chest pain, chest tightness, chest pressure and chest discomfort (angina)
- Shortness of breath
- Pain, numbness, weakness or coldness in your legs or arms if the blood vessels in those parts of your body are narrowed
- Pain in the neck, jaw, throat, upper abdomen or back
- You might not be diagnosed with cardiovascular disease until you have a heart attack, angina, stroke or heart failure. It's important to watch for cardiovascular symptoms and discuss concerns with your doctor. Cardiovascular disease can sometimes be found early with regular evaluations.

# Equipment

- Examination gown
- Stethoscope
- Metric rulers
- Doppler



# Physical Assessment of the Cardiovascular System

- **Techniques**

- **I**

- **P**

- **P**

- **A**

# Physical Assessment of the Cardiovascular System

## Techniques

- **Inspection**
- **Palpation**
- **Percussion**
- **Auscultation**



# Specific Areas of the Cardiovascular Assessment

- Inspection of the face, lips, ears, and scalp
- Inspection of the jugular veins
- Inspection of the carotid arteries
- Inspection of the hands and fingers
- Inspection of the chest, abdomen, legs, and skeletal structure

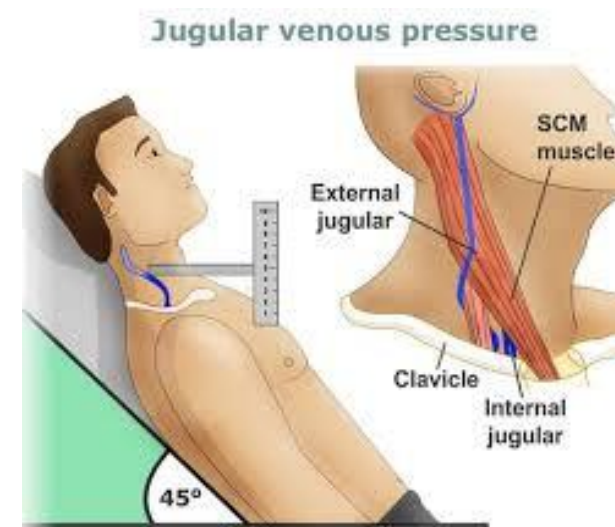


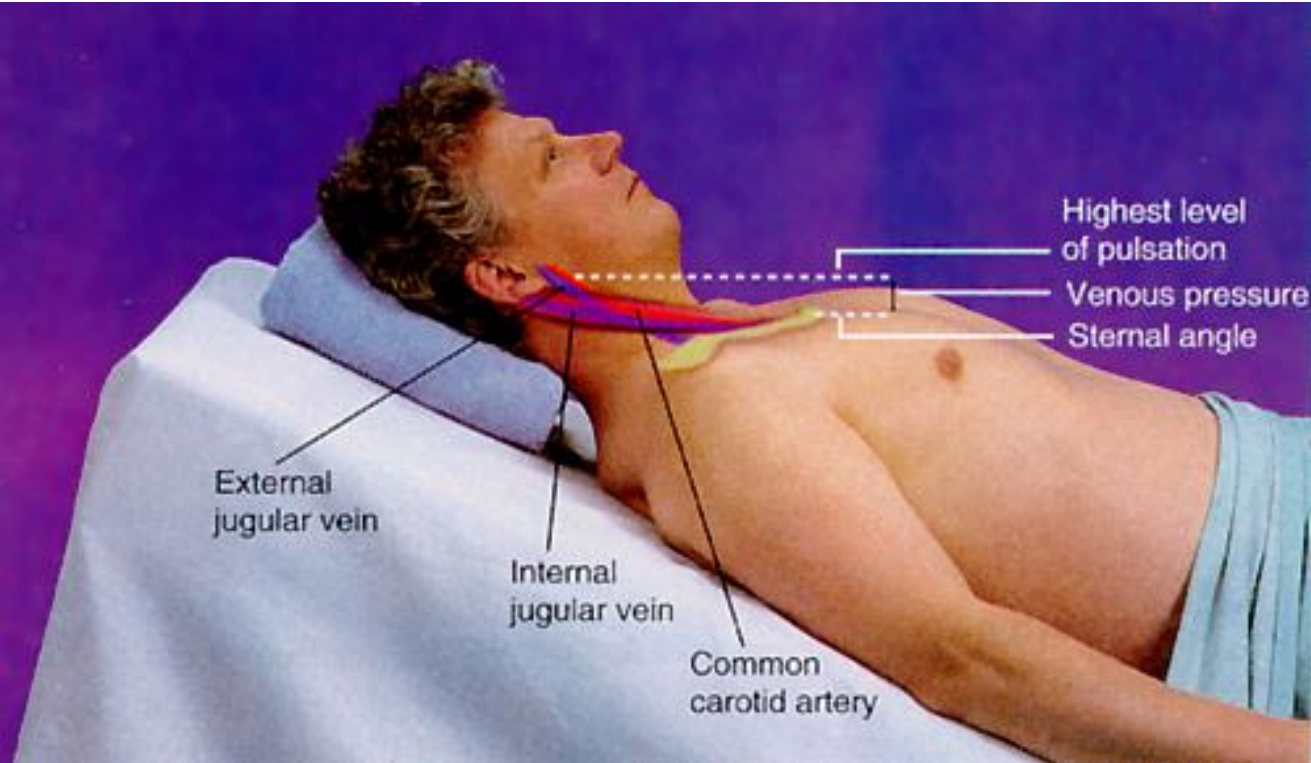
Splinter hemorrhage



# Jugular Venous Pressure (JVP) and Pulsations

- Recall that jugular veins reflect **right atrial pressure**
- Steps for examination
  - Raise the head of the bed or examining table to 30°
  - Turn the patient's head gently to the left
  - Identify the topmost point of the flickering venous pulsations
  - Place a centimeter ruler upright on the sternal angle
  - Place a card or tongue blade horizontally from the top of the JVP to the ruler, making a right angle
  - Measure the distance above the sternal angle in centimeters: a 3- to 4-centimeter elevation is normal

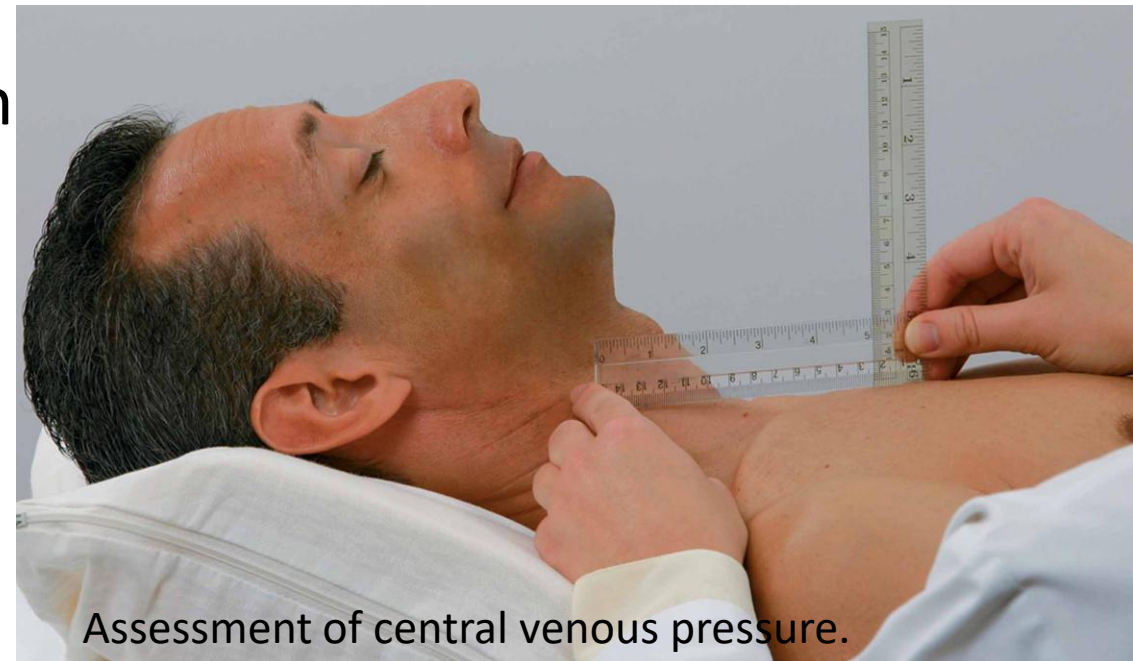




point of distention

angle

- Measure: the vertical distance between highest level of jugular distention



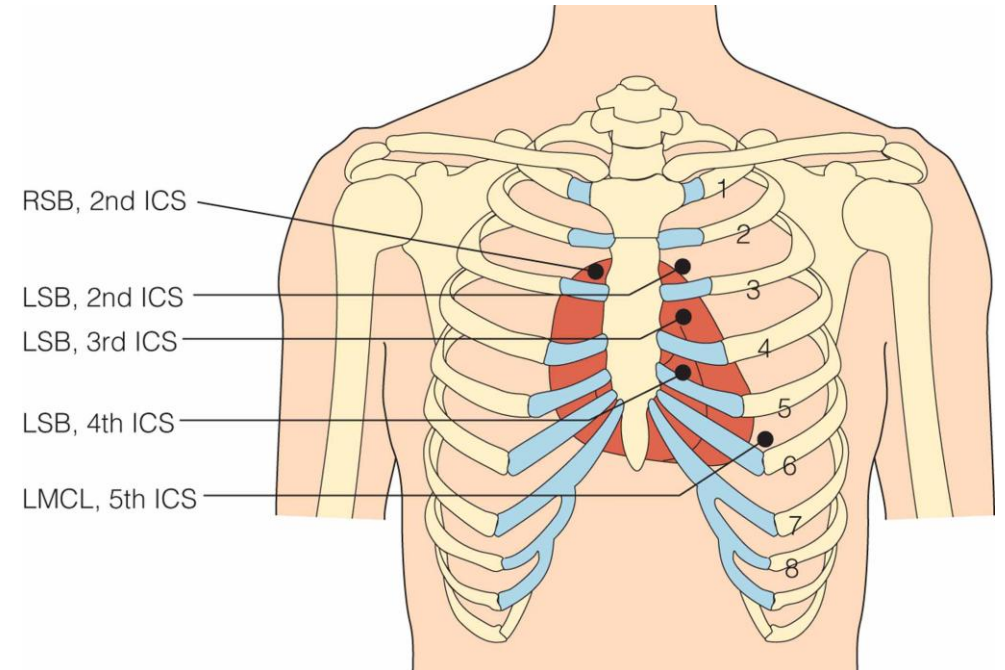
Assessment of central venous pressure.



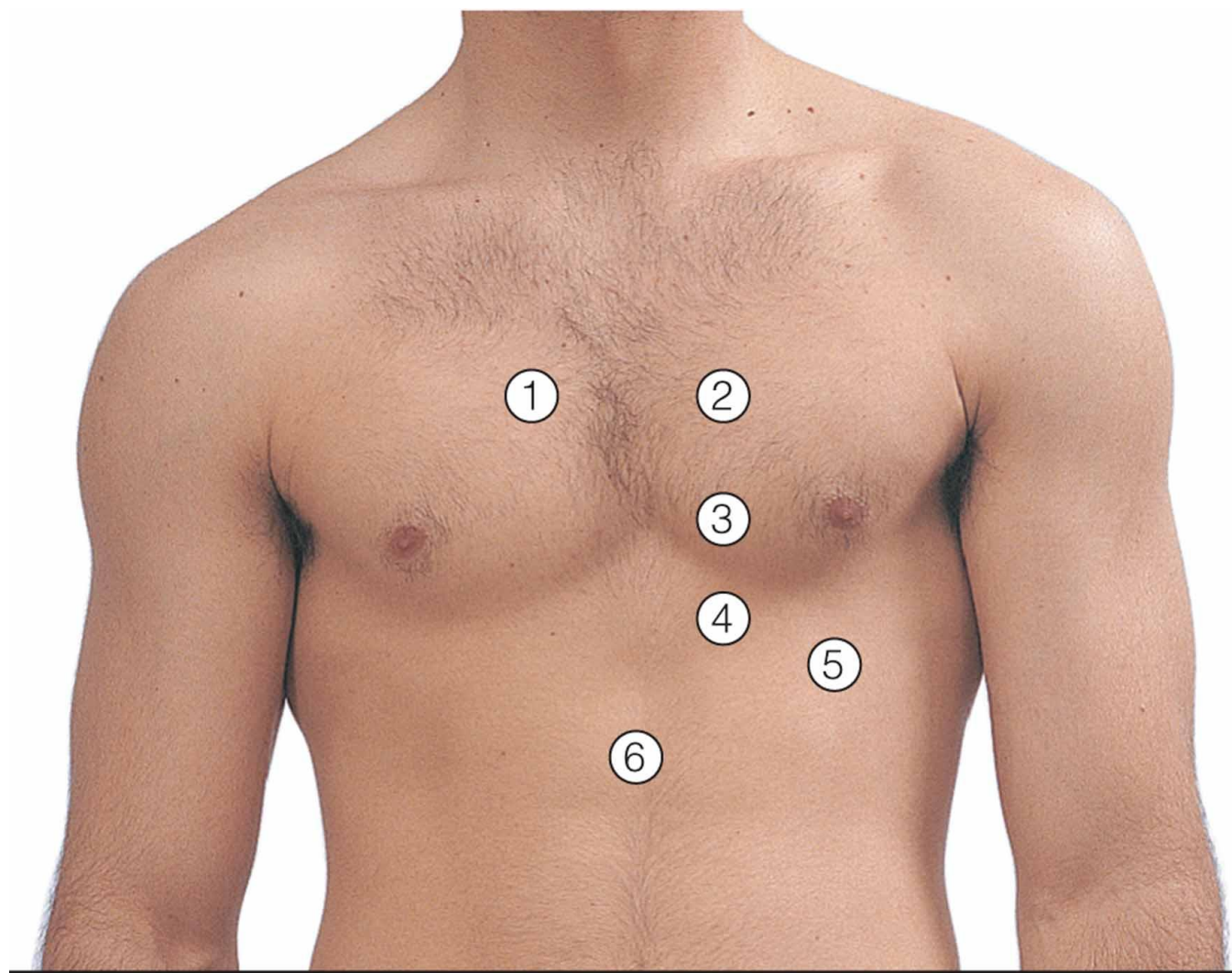
# Specific Areas of the Cardiovascular Assessment

**Palpation of the chest, including the following**

- **Precordium at the right and left second intercostal spaces**
- **Left third intercostal space**
- **Left fourth intercostal space**
- **Left fifth intercostal space at the midclavicular line**



Landmarks for palpation of the chest.




# Specific Areas of the Cardiovascular Assessment

- **Palpation of the carotid pulses (sequentially)**
- **Percussion of the chest for cardiac border**

**Palpation of carotids:**

- ❑ The carotid artery is palpated in the neck by gentle compression with one or two fingers
- ❑ The volume of the pulse is assessed and compared with the volume of the opposite side
- ❑ Never ever the carotids are palpated together for very obvious reason
- ❑ The palpation shall never be too strong as to precipitate a cardiac arrest.



01-01-2007 Carotid Artery Stroke 29

# Assessing the Carotid Pulse

- Keep the patient's head elevated to 30°
- Place your index and middle fingers on the right then the left carotid arteries, and palpate the carotid upstroke
- Never palpate right and left carotid arteries simultaneously
- The upstroke may be:
  - **Brisk** – normal
  - **Delayed** – suggests aortic stenosis
  - **Bounding** – suggests aortic insufficiency
- Listen with the stethoscope for any **bruits**

# What are the doctor doing?



Palpating the carotid artery.

# Percussion

**Percussion** is a method of tapping on a surface to determine the underlying structures, and is used in [clinical examinations](#) to assess the condition of the [thorax](#) or [abdomen](#). It is one of the five methods of clinical examination, together with [inspection](#), [palpation](#), [auscultation](#), and inquiry. It is done with the [middle finger](#) of one hand tapping on the middle finger of the other hand using a wrist action. The nonstriking finger (known as the [pleximeter](#)) is placed firmly on the body over tissue. When percussing boney areas such as the [clavicle](#), the pleximeter can be omitted and the bone is tapped directly such as when percussing an apical cavity lung lesion typical of [TB](#).

There are two types of percussion: direct, which uses only one or two fingers, and indirect, which uses the middle/flexor finger. There are four types of percussion sounds: resonant, hyper-resonant, stony dull or dull. A dull sound indicates the presence of a solid mass under the surface. A more resonant sound indicates hollow, air-containing structures. As well as producing different notes which can be heard they also produce different sensations in the pleximeter finger.



Percussing the chest.

Thank you for your attention



# Specific Areas of the Cardiovascular Assessment

- **Auscultation of the chest using the diaphragm and bell in various positions to include the following locations**
  - **Aortic area at the right second intercostal space– $S_2$  is louder than  $S_1$**
  - **Pulmonic area at the left second intercostal space– $S_2$  is louder than  $S_1$**
  - **Erb's point at the left third intercostal space– $S_1$  and  $S_2$  are heard equally**



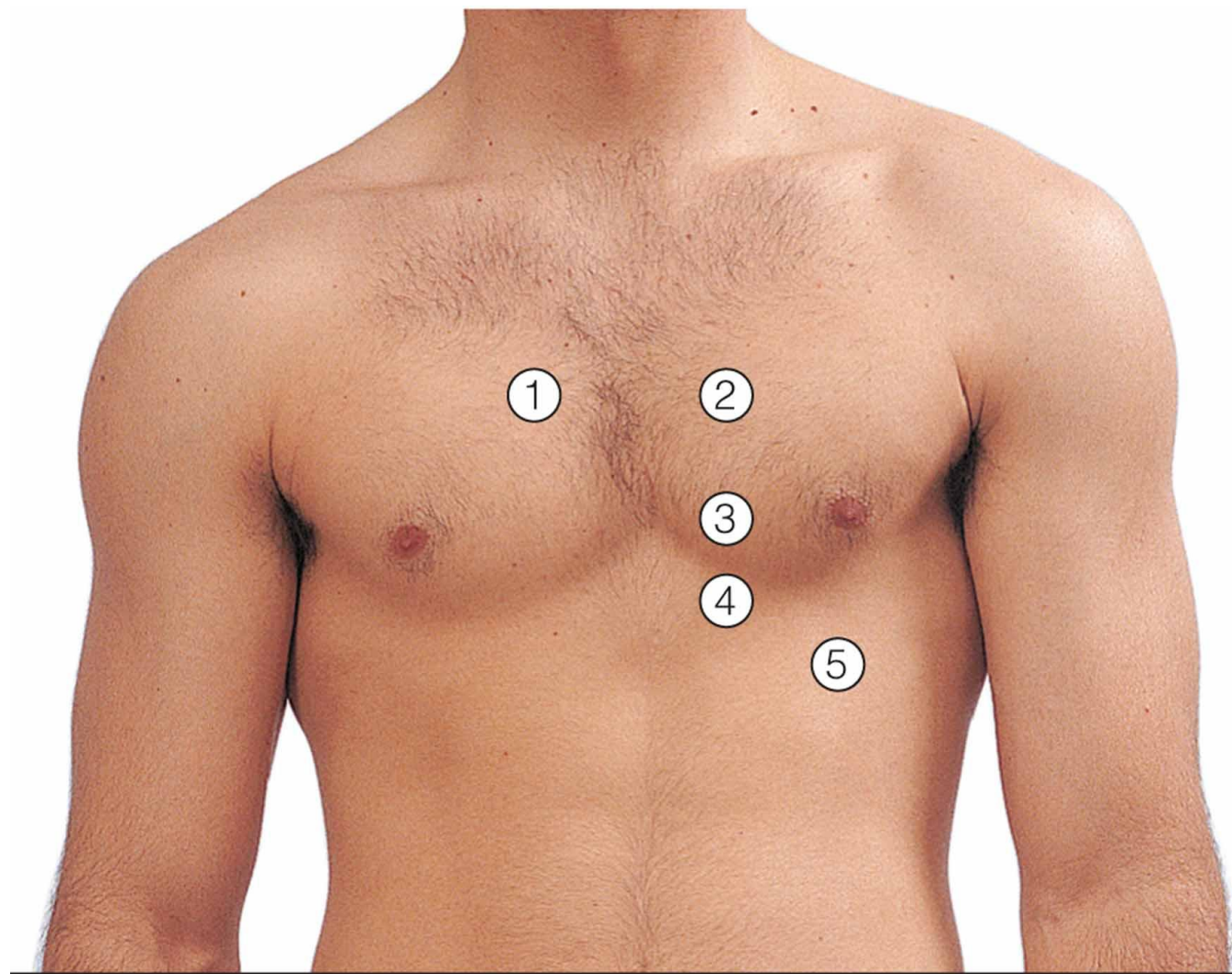
# Specific Areas of the Cardiovascular Assessment

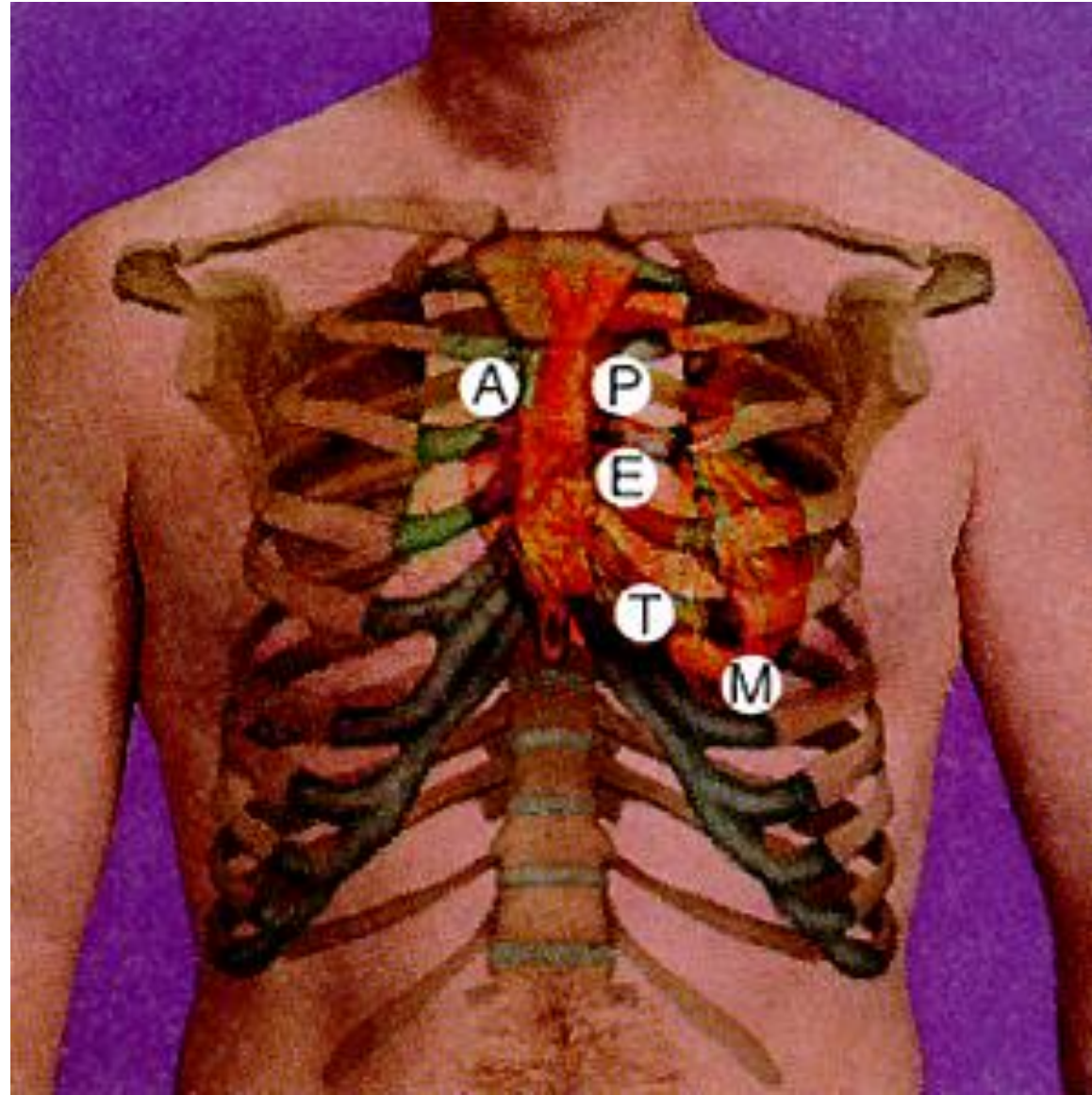
- **Auscultation of the chest using the diaphragm and bell in various positions to include the following locations**
  - **Tricuspid area at the left fourth intercostal space— $S_1$  is louder than  $S_2$**
  - **Apex at the left fifth intercostal space at the midclavicular line— $S_1$  is louder than  $S_2$**

# Auscultation

- **Listen in all 5 listening areas for S1 and S2 using the diaphragm of the stethoscope**
- **Then listen at the apex with the bell**
- **The diaphragm and the bell ...**
- **The diaphragm is best for detecting high-pitched sounds like S1, S2, and also S4 and most murmurs**
- **The bell is best for detecting low-pitched sounds like S3 and the rumble of mitral stenosis**

Auscultating the chest over five key landmarks.

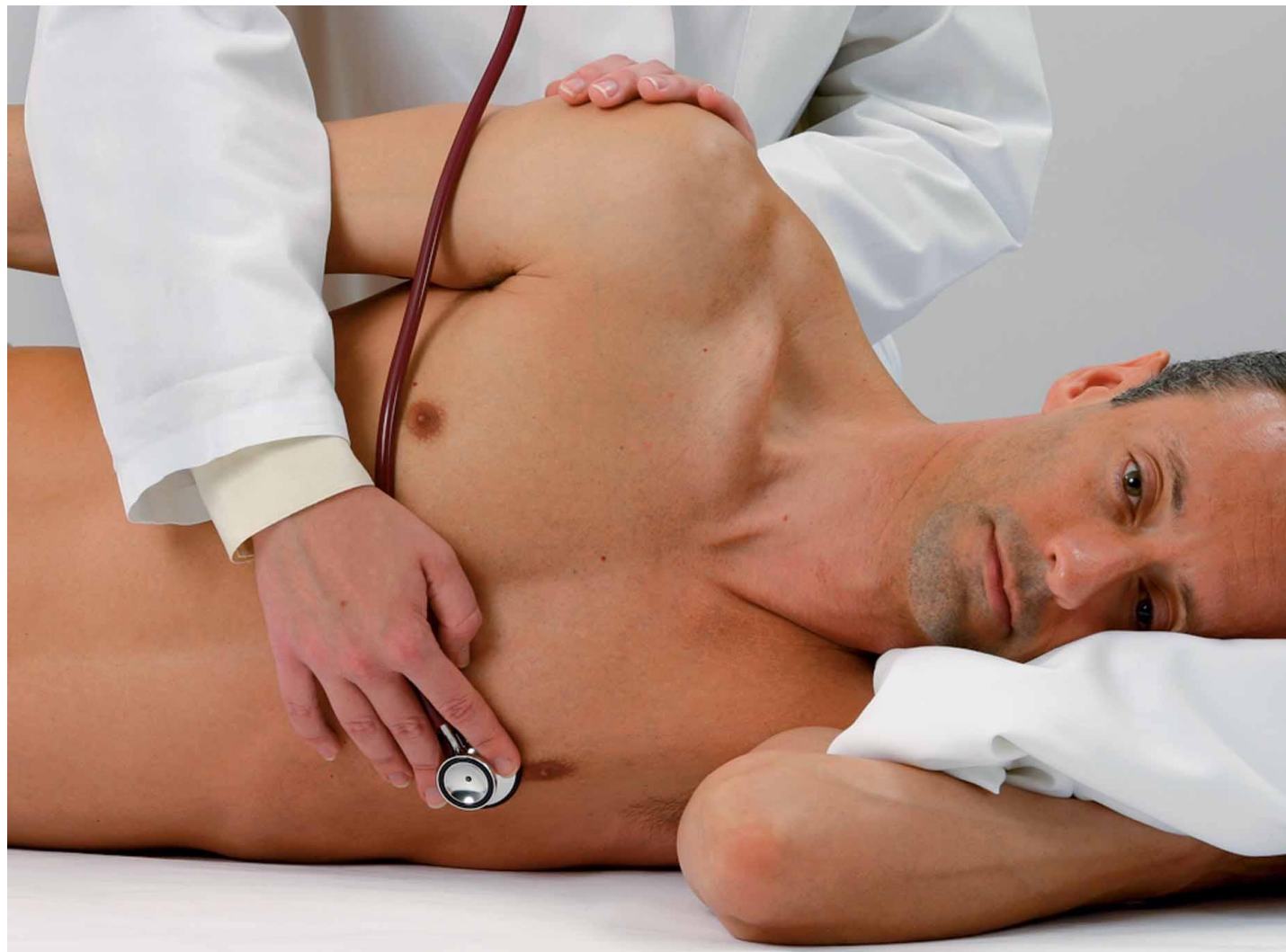




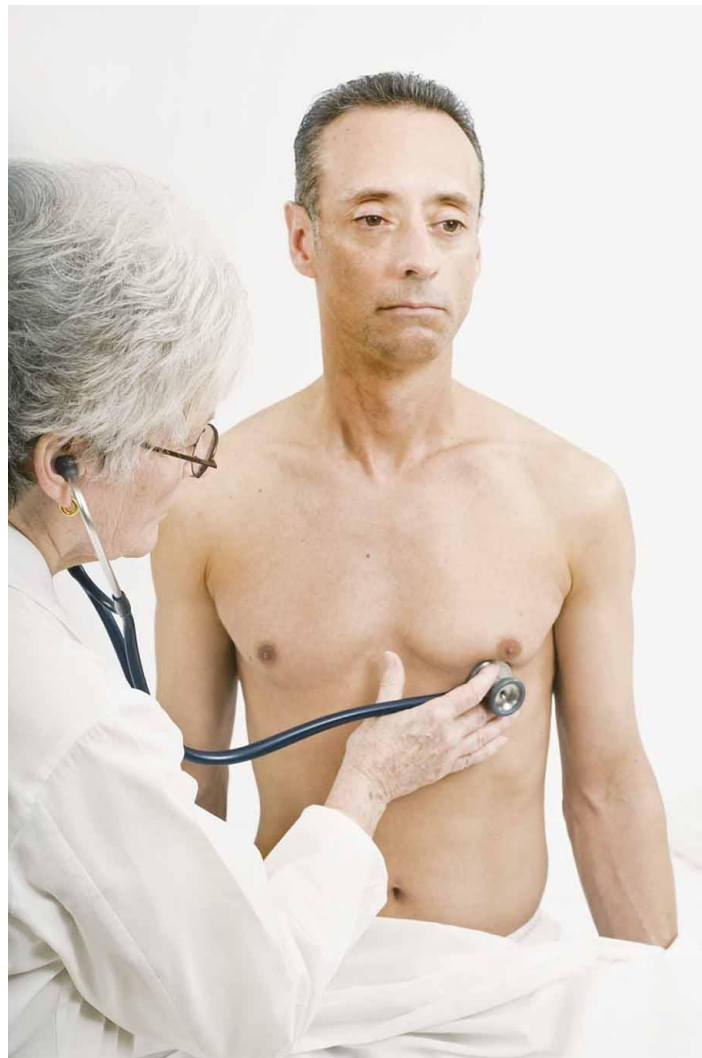
Positions for auscultation of the heart. **A.** Supine.



**(continued)** Positions for auscultation of the heart. **B. Lateral.**



**(continued)** Positions for auscultation of the heart. **C. Sitting.**



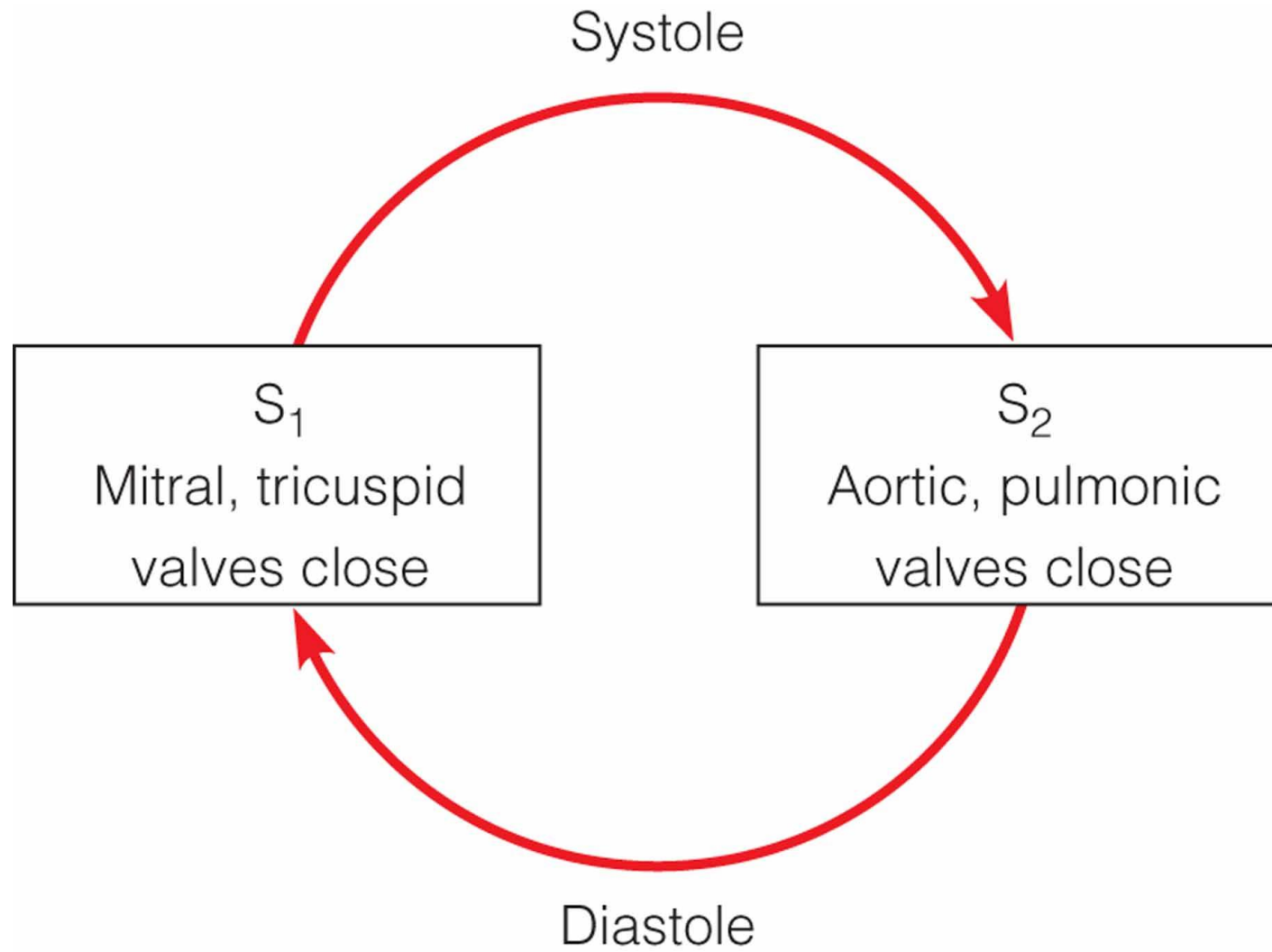
# Heart Sounds

$S_1$

$S_2$



Heart sounds in systole and diastole.



**Table 17.1 Characteristics of Heart Sounds**

HEART SOUNDS			CARDIAC CYCLE TIMING	AUSCULTATION SITE	POSITION	PITCH
S <sub>1</sub> LUB	S <sub>2</sub> dub	S <sub>1</sub>	Start of systole	Best at apex with diaphragm	Position does not affect the sound	High
S <sub>1</sub> lub	S <sub>2</sub> DUB	S <sub>2</sub>	End of systole	Both at 2nd ICS; pulmonary component best at LSB; aortic component best at RSB with diaphragm	Sitting or supine	High
S <sub>1</sub> T	S <sub>2</sub>	Split S <sub>1</sub>	Beginning of systole	If normal, at 2nd ICS, LSB; abnormal if heard at apex	Better heard in the supine position	High
S <sub>1</sub>	S <sub>2</sub>	Fixed Split S <sub>2</sub>	End of systole	Both at 2nd ICS; pulmonary component best at LSB; aortic component best at RSB with diaphragm	Better heard in the supine position	High
S <sub>1</sub>	S <sub>2</sub> P <sub>2</sub> A <sub>2</sub>	Paradoxical Split S <sub>2</sub>	End of systole	Both at 2nd ICS; pulmonary component best at LSB; aortic component best at RSB with diaphragm	Better heard in the supine position	High

Table 17.1  
Characteristics of Heart Sounds

**Table 17.3 Distinguishing Heart Murmurs**

ASK YOURSELF	INFORMATION
<p>1. How loud is the murmur?</p>	<p>Murmurs are graded on a rather subjective scale of 1–6:</p> <ul style="list-style-type: none"> <li>• Grade 1: Barely audible with stethoscope, often considered physiologic not pathologic. Requires concentration and a quiet environment.</li> <li>• Grade 2: Very soft but distinctly audible.</li> <li>• Grade 3: Moderately loud; there is no thrill or thrusting motion associated with the murmur.</li> <li>• Grade 4: Distinctly loud, in addition to a palpable thrill.</li> <li>• Grade 5: Very loud, can actually hear with part of the diaphragm of the stethoscope off the chest; palpable thrust and thrill present.</li> <li>• Grade 6: Loudest, can hear with the diaphragm off the chest; visible thrill and thrust.</li> </ul>
<p>2. Where does it occur in the cardiac cycle: systole, diastole, or both?</p>	<p>Location in cardiac cycle:</p> <ul style="list-style-type: none"> <li>• Systole: early systole, midsystole, late systole</li> <li>• Diastole: early diastole, mid-diastole, late diastole</li> <li>• Both</li> </ul>
<p>3a. Is the sound continuous throughout systole, diastole, or only heard for part of the cycle?</p>	<p>Duration of murmur:</p> <ul style="list-style-type: none"> <li>• Continuous through systole only</li> <li>• Continuous through diastole only</li> <li>• Continuous through systole and diastole</li> </ul> <p><i>Systolic murmurs</i> may be of two types:</p> <ul style="list-style-type: none"> <li>• Midsystolic: Murmur is heard after <math>S_1</math> and stops before <math>S_2</math>.</li> <li>• Pansystolic/holosystolic: Murmur begins with <math>S_1</math> and stops at <math>S_2</math>.</li> </ul> <p><i>Diastolic murmurs</i> may be one of three types:</p> <ul style="list-style-type: none"> <li>• Early diastolic: Murmur auscultated immediately after <math>S_2</math> and then stops. There is a gap where this murmur stops and <math>S_1</math> is heard.</li> <li>• Mid-diastolic: Murmur begins a short time after <math>S_2</math> and stops well before <math>S_1</math> is auscultated.</li> <li>• Late diastolic: This murmur starts well after <math>S_2</math> and stops immediately before <math>S_1</math> is heard.</li> </ul>

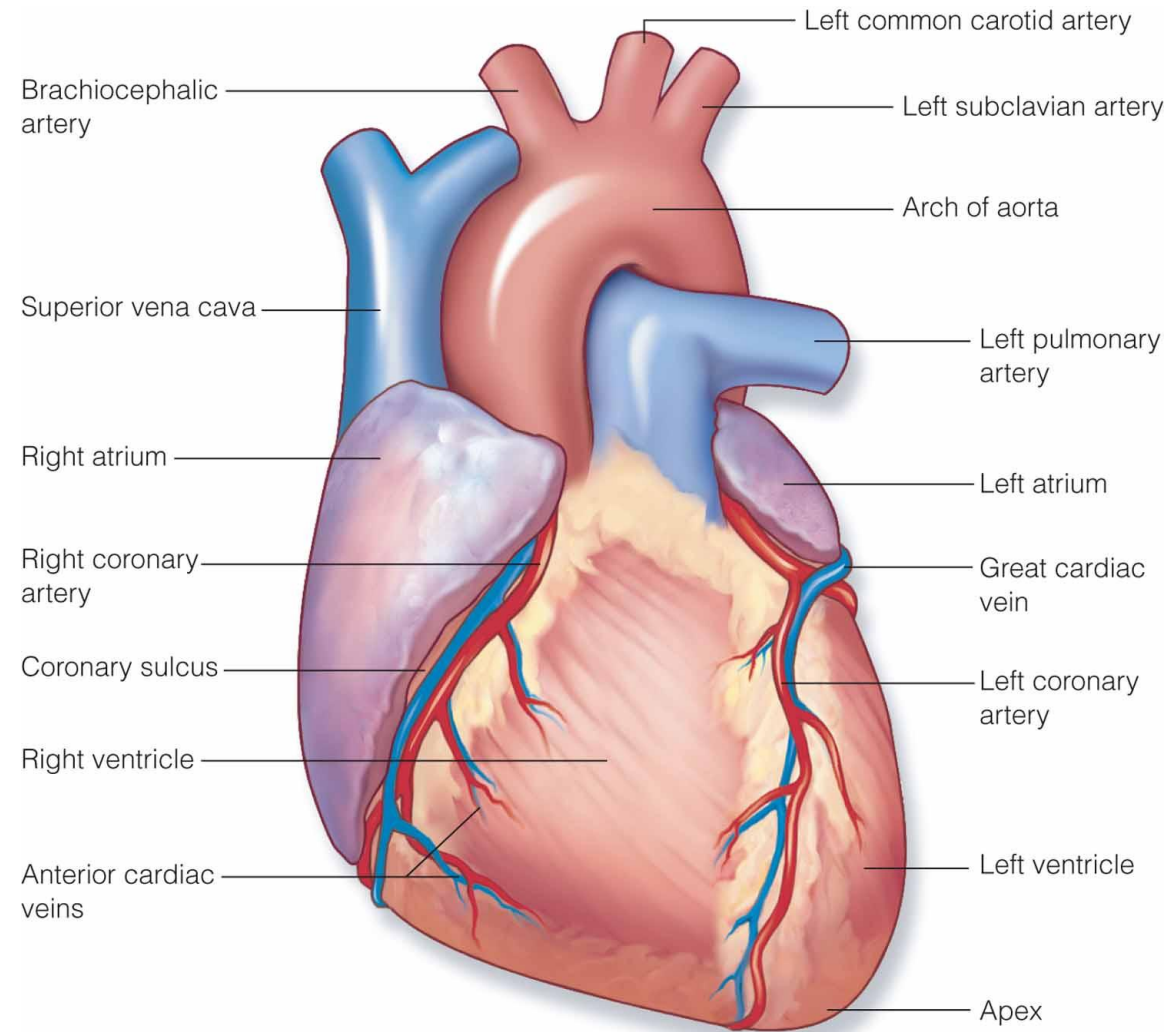
# Contraction and Relaxation Phases of the Heart

- **Systole**
- **Diastole**

# Circulation of the Heart

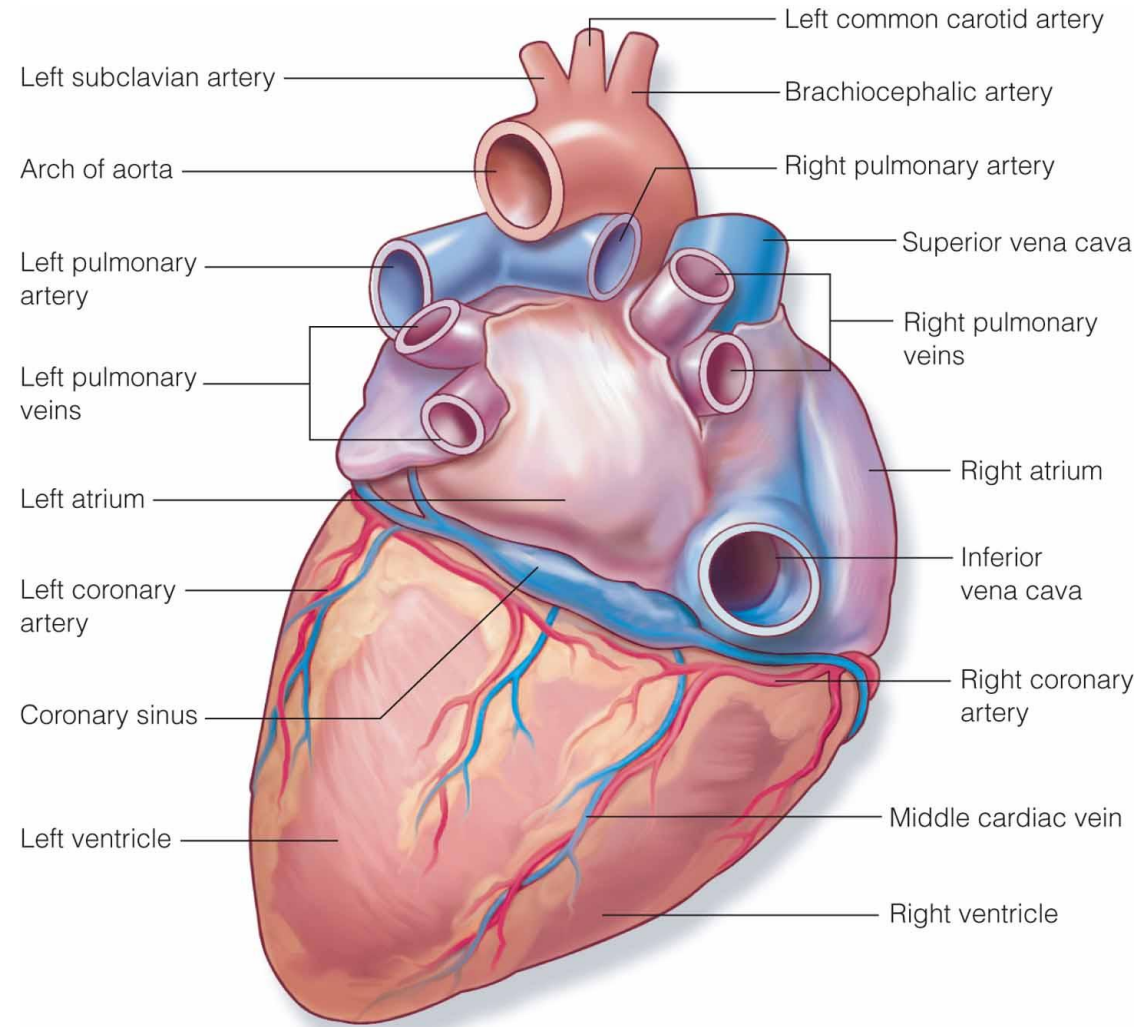
- **Coronary arteries**
  - **Left main**
  - **Right coronary**
  - **Left anterior descending**
  - **Circumflex**

Vessels of the heart. **A.** Anterior.



**A**

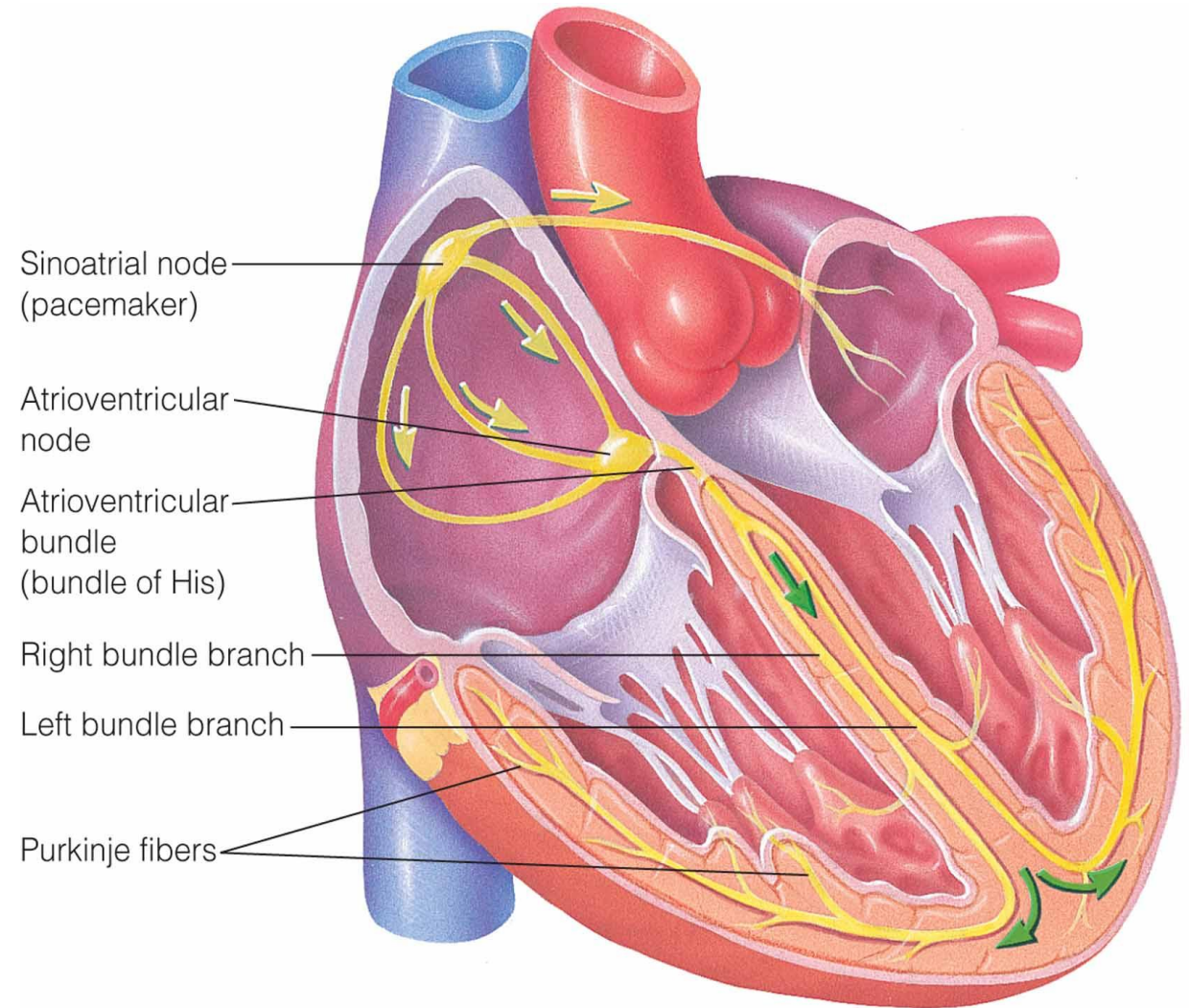
**(continued)** Vessels of the heart. **B. Posterior.**



**B**

# Conduction System of the Heart

- Sinoatrial (SA) node
- Intra-atrial pathways
- AV node
- Bundle of His
- Right and left bundle branches
- Purkinje fibers



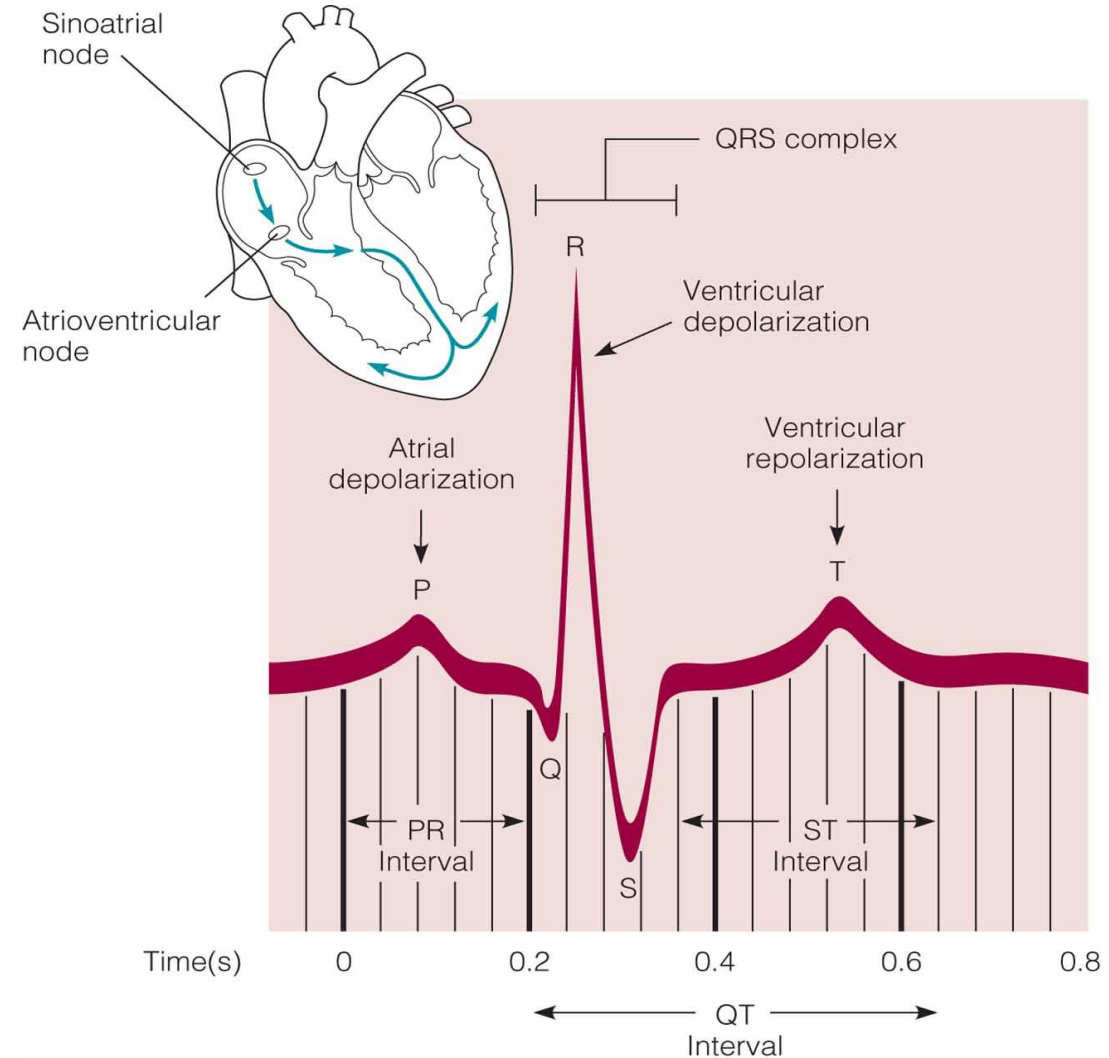


# Cardiac Cycle

- Contraction and Relaxation of the Chambers

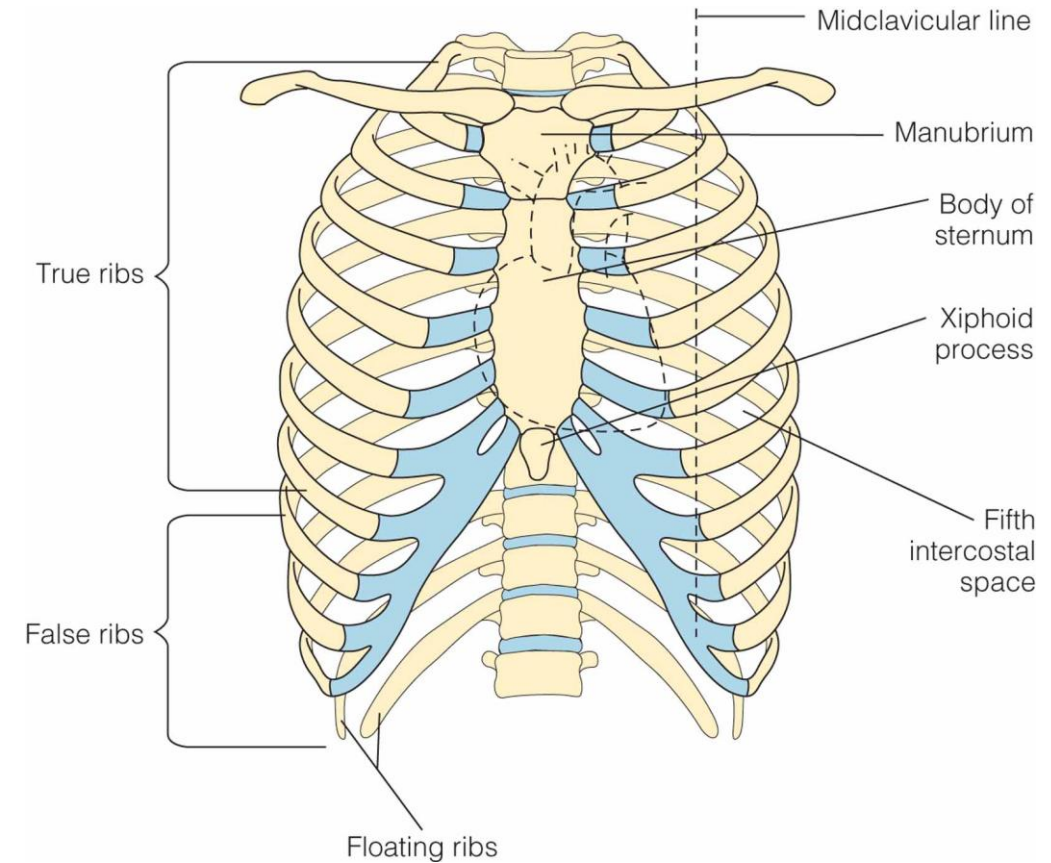
# Electrocardiogram (ECG)

- Paper Recording of Deflections that Represent the Cardiac Cycle
- Electrical deflections
  - *P* wave
  - *PR* interval
  - *QRS* interval
  - *T* wave



# Landmarks for Cardiac Assessment

- **Sternum**
- **Clavicles**
- **Ribs**
- **Second through fifth intercostal spaces**



# Specific Areas of the Cardiovascular Assessment

- **Auscultation of the carotid arteries using the diaphragm and bell**
- **Comparison of the apical pulse to a carotid pulse**



Thanks

