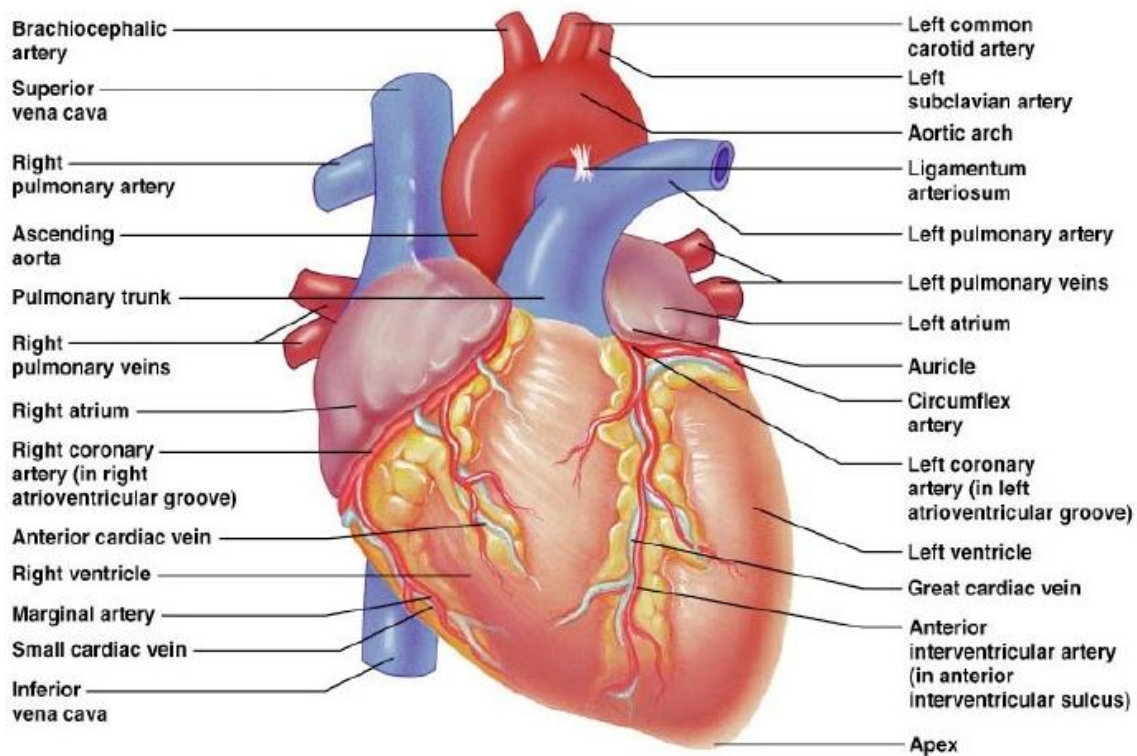
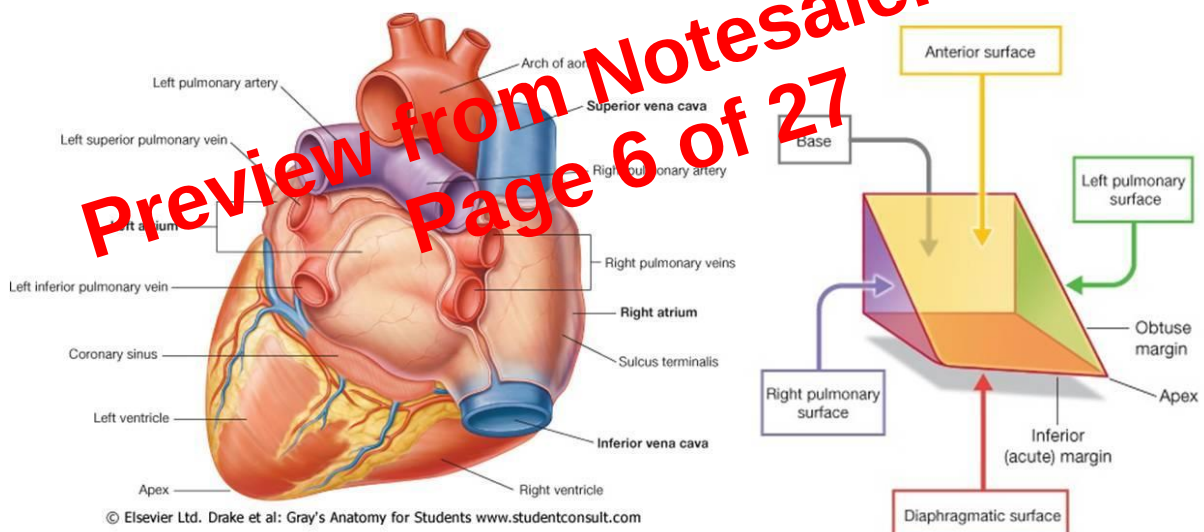




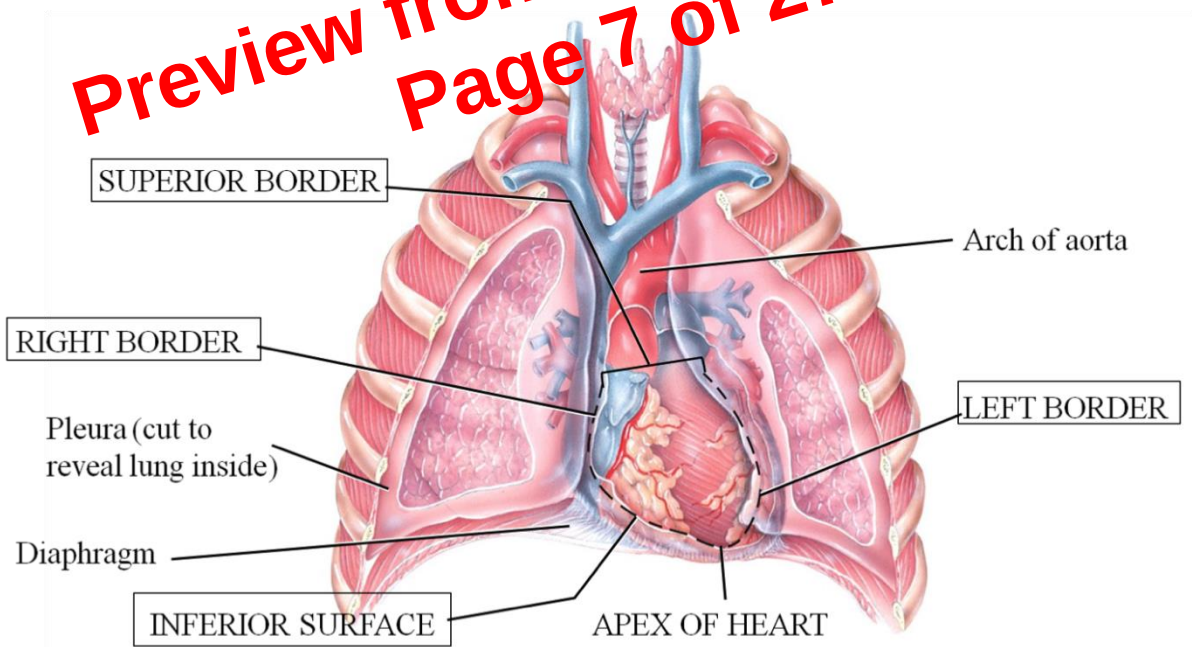
Taken from SlideShare.net, 150 Heart (Ronaldo Quitco), available at <http://www.slideshare.net/ronaldoquitco/150-heart>



Taken from Drake et al, Gray's Anatomy for Students, Second Edition

- Apex of the heart
 - Formed from anteriolateral part of the left ventricle
 - Lies posterior to left 5th intercostals space in adults
 - Motionless throughout cardiac cycle
 - Sounds of mitral valve closure are maximal (apex beat)
- Base of heart
 - Posterior aspect; opposite the apex
 - Formed mainly from left atrium, a bit of right atrium

- Faces posteriorly towards vertebrae T6-T9, separated from them by pericardium, oblique pericardial sinus, oesophagus, and aorta#
- Extends superiorly to bifurcation of pulmonary trunk and inferiorly to the coronary sulcus
- Receives pulmonary vein on right and left sides of left atrial portion, superior and inferior vena cavae at the superior and inferior ends of its right atrial portion
- Four surfaces of the heart
 - **Anterior (sternocostal)**, formed by right ventricle
 - **Diaphragmatic (inferior)**, mainly left ventricle and bit of right ventricle
 - **Right pulmonary**, mainly right atrium
 - **Left pulmonary**, mainly left ventricle; forms cardiac impression in left lung
- Four borders of the heart
 - **Right border** (slightly convex); right atrium, extends between superior vena cava and inferior vena cava
 - **Inferior border** (almost horizontal); formed mainly by right ventricle, slightly by left ventricle
 - **Left border** (oblique, nearly vertical); mainly left ventricle, bit of right ventricle
 - **Superior border**; right and left atria and auricles in anterior view
- **Pulmonary trunk**: arterial continuation of the right ventricle and divides into right and left pulmonary arteries
 - Low oxygen blood delivered to lungs for oxygenation



Taken from Studyblue.com, (13) CVS Heart at University of Michigan Ann Arbor, available at <https://www.studyblue.com/notes/n/-13-cvs-heart/deck/9917613>

Right ventricle

- Forms largest part of **anterior surface**, small part of diaphragmatic surface and entire inferior border
- **Right atrioventricular orifice (tricuspid)**: where blood enters from atria
 - Surrounded by fibrous rings of the fibrous skeleton
 - Fibrous rings keep constant calibre of the orifices, resist dilation
- **Tricuspid valve** guards right atrioventricular orifice,
 - Bases of valve cusps are attached to the **fibrous ring** around the orifice
 - 3 cusps – anterior, posterior and septal
- **Tendinous cords** attach to the free edges and ventricular surfaces of the anterior, posterior and septal cusps; arise from apices of papillary muscles
- **Papillary muscles**: conical muscular projections with bases attached to the ventricular wall
 - **Anterior papillary** muscle – largest and most prominent, arises from anterior wall, attach to anterior and posterior cusps of tricuspid valve
 - **Posterior papillary** muscle – can consist of several parts; arises from inferior wall, tendinous cords attach to posterior and septal cusps of the tricuspid valve
 - **Septal papillary** muscle – arises from intraventricular septum, tendinous cords attach to anterior and septal cusps of the tricuspid valve
 - **Sometimes absent**
- Cordae tendinae and papillary muscles **prevent inversion of tricuspid valves** when ventricle contracts; no backflow of blood
- **Trabeculae carneae**: muscular elevations in interior can be **fixed along length, or bridge formation**; found in **inflow tract**
- **Conus arteriosus/infundibulum**: tapering of right ventricle into arterial cone; **outflow tract**
- **Supraventricular crest**: thick muscular ridge separating the ridged muscular wall of the inflow part of the chamber from the conus arteriosus
- **Interventricular septum**: strong partition between right and left ventricles, composed of muscular and membranous parts
 - **Upper posterior part is thin and fibrous**
 - **Bottom half is thick muscle**
- **Septomarginal trabecula (moderator band)**: curved muscular bundle that traverses the right ventricular chamber from the inferior part of the **interventricular septum** to the base of the **anterior papillary muscle**
 - Carries the right branch of the **AV bundle**
- **Supraventricular crest**: deflects incoming blood flow from atria into the ventricle and outgoing flow into the conus arteriosus toward the pulmonary orifice
- **Pulmonary valve**: at apex of conus arteriosus; entry to pulmonary trunk
 - Edges project into lumen of pulmonary trunk
 - Three – **left right and anterior**; pockets known as **pulmonary sinuses**
 - Lunule: thickened edge of each cusp where they contact each other

Medical application

Septal defects

- Atrial septal defects
- Ventricular septal defects

Stroke/cerebrovascular accident

- Thrombi form on walls of right atrium in certain types of heart disease
- If the thrombi detach or pieces break off, they can pass into systemic circulation and occlude arteries
- Occlusion of artery supplying the brain results in stroke/cerebrovascular accident
 - Can affect vision, cognition, motor function

Valvular heart disease

- Congenital or acquired
- Stenosis (narrowing) or insufficiency of valves
- Stenosis: failure to open fully, slow blood exit from the chamber
- Insufficiency/regurgitation is failure to close completely
 - Nodule formation or scarring of cusps: edges don't meet
 - Some blood flows back into chamber, increased workload for the heart
- Both result in turbulence of blood flow, which can be heard as murmurs
- Atrial valve insufficiency (mitral valve prolapsed)
- Pulmonary valve stenosis
- Pulmonary valve incompetence
- Aortic valve stenosis
- Aortic valve insufficiency

Coronary artery disease

- Many causes, all result in reduced blood supply to myocardial tissue
- Myocardial infarction – occlusion of major artery by an embolus
- Coronary atherosclerosis – lipid deposits in intima
- Slowly progressive coronary artery disease
 - Slow occlusion