

Cardiovascular System Lecture

Chapter 1: Heart Anatomy

The heart is a muscular organ responsible for pumping blood throughout the body. It consists of four chambers: the right atrium, right ventricle, left atrium, and left ventricle. The right side receives deoxygenated blood from the body and pumps it to the lungs. The left side receives oxygenated blood from the lungs and pumps it to the body.

The coronary arteries supply blood to the heart muscle itself. The left anterior descending (LAD) artery supplies the anterior wall of the left ventricle. The right coronary artery (RCA) supplies the right ventricle and inferior wall of the left ventricle.

Chapter 2: Cardiac Cycle

The cardiac cycle consists of two main phases: systole and diastole. During systole, the ventricles contract and eject blood into the aorta and pulmonary artery. Normal systolic blood pressure is approximately 120 mmHg. During diastole, the ventricles relax and fill with blood. Normal diastolic pressure is approximately 80 mmHg.

The cardiac conduction system includes the sinoatrial (SA) node, atrioventricular (AV) node, bundle of His, and Purkinje fibers. The SA node is the natural pacemaker with an intrinsic rate of 60-100 beats per minute.

Chapter 3: Heart Failure

Congestive heart failure (CHF) occurs when the heart cannot pump enough blood to meet the body's needs. Symptoms include dyspnea, fatigue, and peripheral edema. Treatment includes ACE inhibitors such as lisinopril 10mg daily, beta-blockers like metoprolol 25mg twice daily, and loop diuretics including furosemide 40mg daily.