ASAN UNIVERSITY
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Programme : Master of Physical Education

Course Title: PHYSIOLOGY OF EXERCISE.

Course Code : 21MPE12

Unit -II

Skeletal Muscles and Exercise

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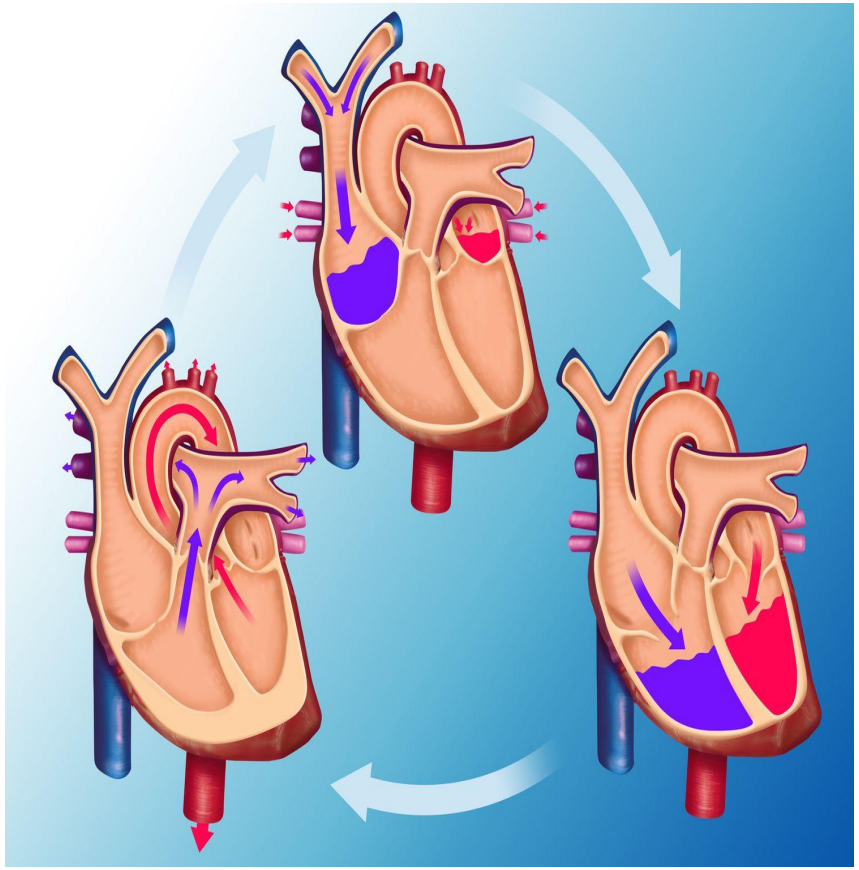
Unit-II

Title

CARDIOVASCULAR SYSTEM AND EXERCISE

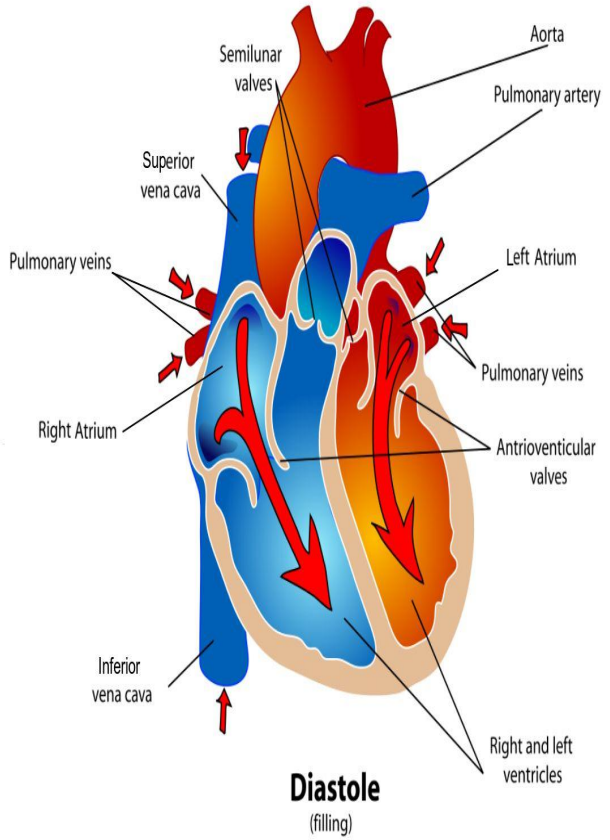
HEART VALVES AND DIRECTION OF BLOOD FLOW

- The heart has four valves that regulate blood flow and ensure it moves in the correct direction through the heart's chambers and out to the rest of the body. Each valve acts like a one-way gate, opening and closing to allow blood to move forward but not backward. Here's how each valve works and the direction of blood flow through
- Tricuspid Valve (between the right atrium and right ventricle)
- Pulmonary Valve (between the right ventricle and pulmonary artery)
- Mitral Valve (between the left atrium and left ventricle)
- Aortic Valve (between the left ventricle and aorta)



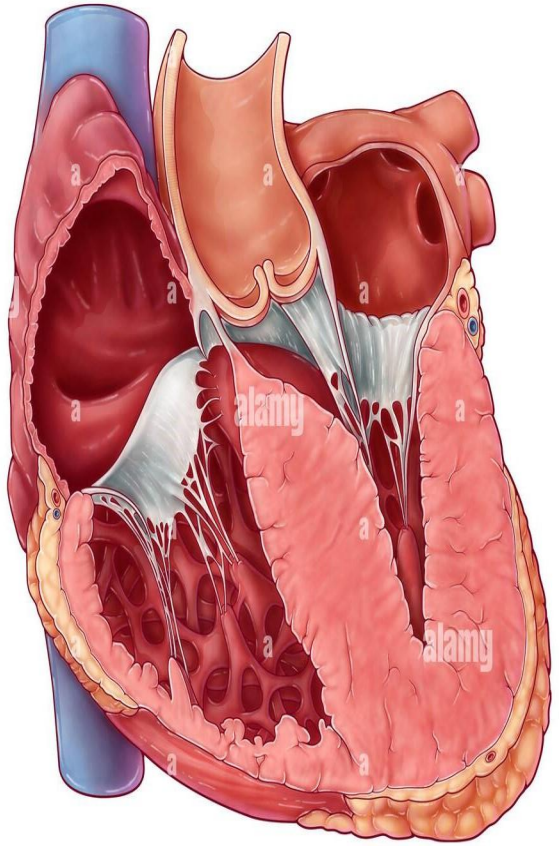
Cardiac cycle

- The cardiac cycle is the sequence of events that occur during one heartbeat. It consists of alternating periods of contraction and relaxation of the atria and ventricles, allowing blood to flow through the heart and out to the body. The cardiac cycle can be divided into two main phases: **systole** (contraction) and **diastole** (relaxation).



CARDIAC HYPERTROPHY

- Cardiac hypertrophy is the enlargement and thickening of the heart muscle (myocardium), particularly affecting the walls of the ventricles. This condition can develop as an adaptive response to increased workload demands on the heart, such as high blood pressure, or it may be a result of genetic factors. While some forms of cardiac hypertrophy can be beneficial in the short term, prolonged hypertrophy can strain the heart and lead to complications, including heart failure, arrhythmias, and increased risk of sudden cardiac death.



EFFECTS ON TRAINING THE CARDIOVASCULAR SYSTEM

- ✓Exercise and training have profound positive effects on the cardiovascular system. With consistent physical activity, the heart and blood vessels adapt to become more efficient, which leads to numerous health benefits. Here's how exercise impacts the cardiovascular system.
- ✓Increased Cardiac Efficiency.
- ✓ Lower Resting Heart Rate.
- ✓Improved Blood Flow and Circulation.
- ✓Reduced Blood Pressure.
- ✓Improved Blood Lipid Profile.
- ✓Increased Blood Volume.
- ✓Enhanced Cardiac Output During Exercise.

CARDIO RESPIRATORY ADAPTATION

- Cardio respiratory adaptations to physical activity vary depending on the duration and intensity of the exercise.
- Short-term, or acute, adaptations occur during and immediately after a single session of exercise.
- Long-term adaptations, however, develop with consistent training over weeks to months.
- Both types of adaptations improve the body's ability to deliver oxygen to working muscles, enhance endurance, and increase overall fitness.
- *Heart Rate Increase*
- Stroke Volume Increase
- Increased Cardiac Output
- *Vasodilation and Blood Flow Redistribution*