



UNIT-I

Cardiovascular Disease

Clinical Physiology

Course No. – VPY- 607

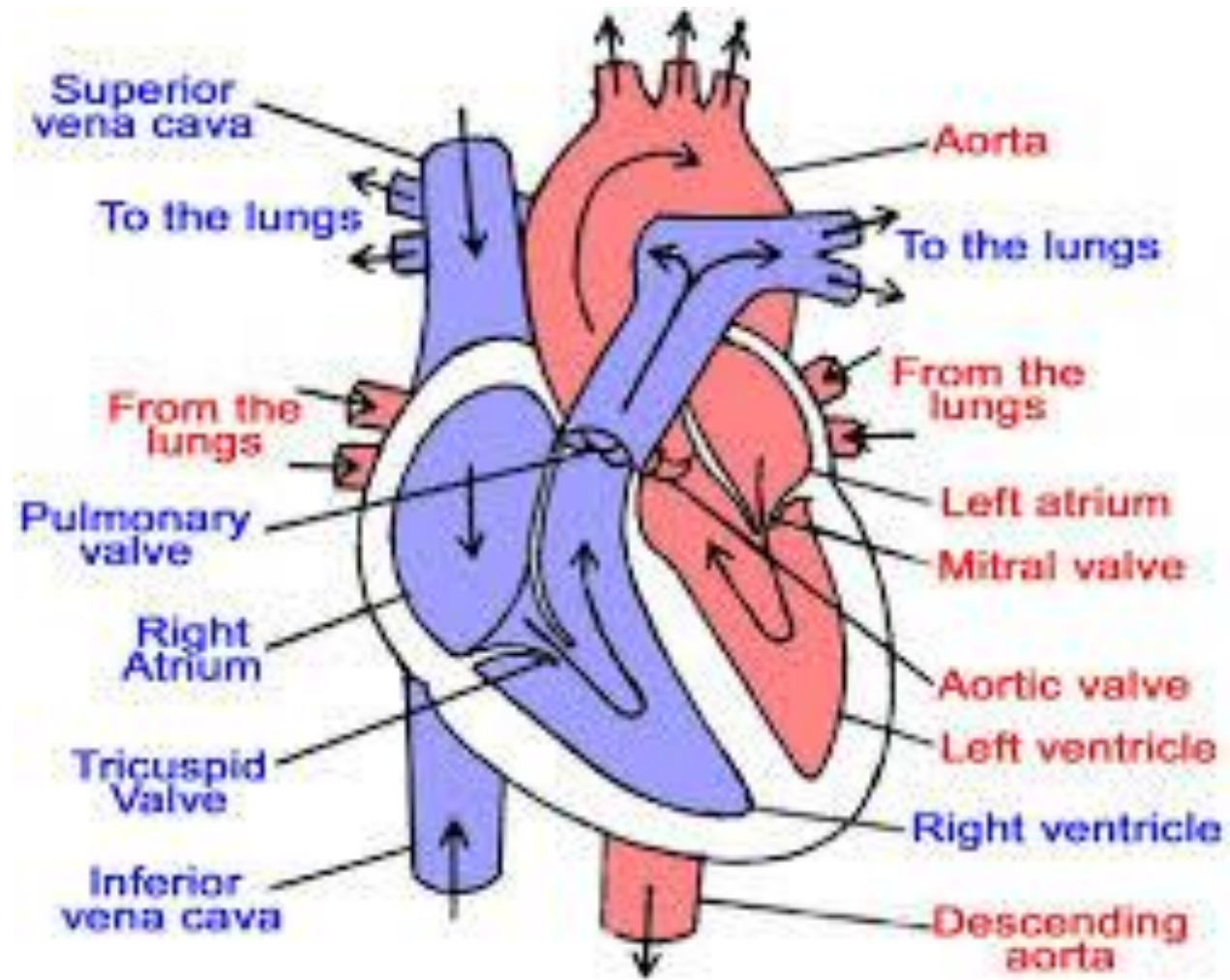
Credit Hrs. – 2+1=3

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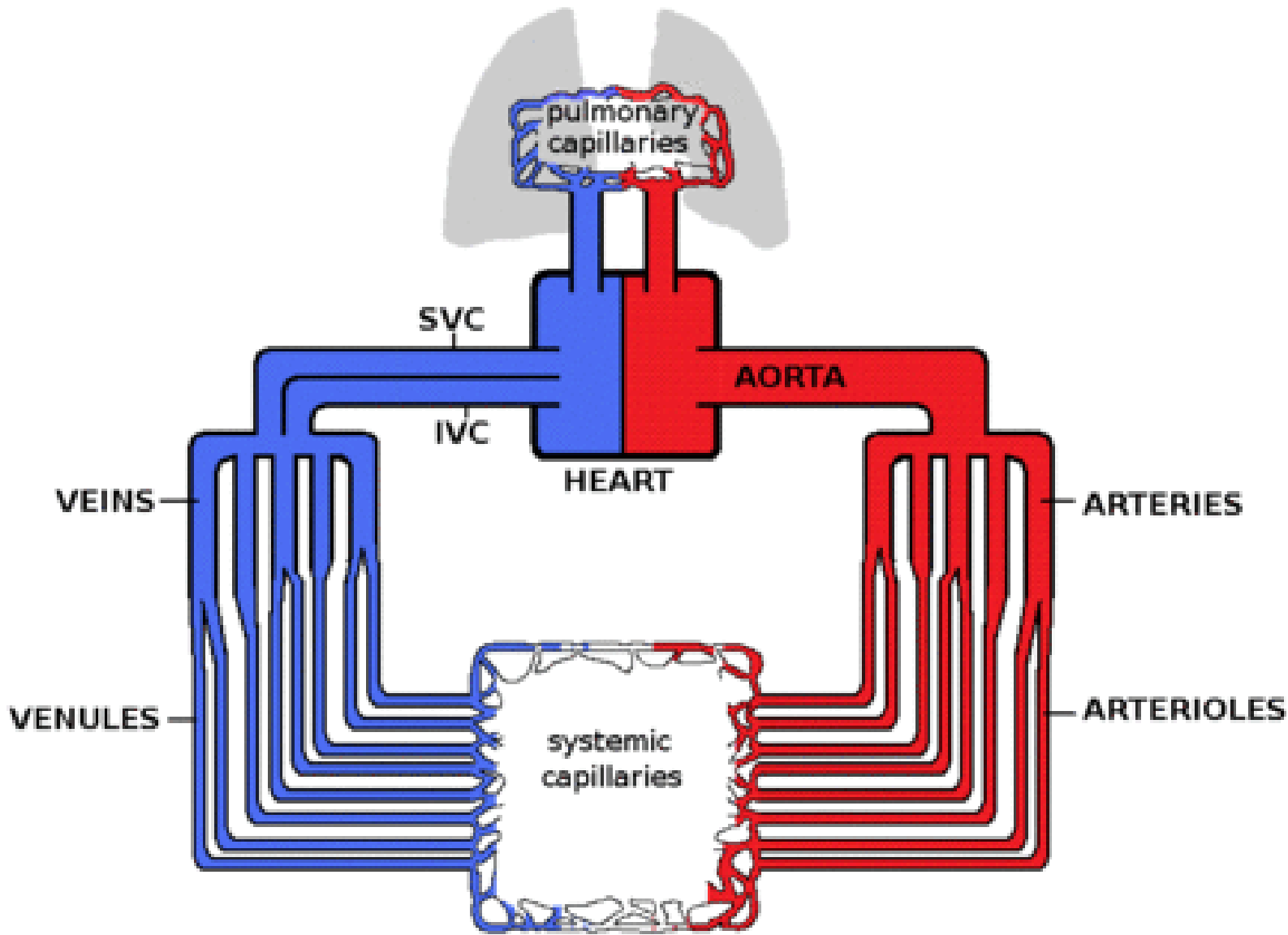


The Heart

The cardiovascular system consists of the heart and blood vessels.

Cardiovascular disease (CVD) or heart disease refer to the following 4 entities:

- Coronary artery disease: results from decreased myocardial perfusion that causes angina, myocardial infarction or heart failure. It accounts for one-third to one-half of the cases of CVD.
- Cerebrovascular disease: Including stroke and transient ischemic attack
- Peripheral artery disease: Particularly arterial disease involving the limbs that may result in claudication
- Aortic atherosclerosis: Including thoracic and abdominal aneurysms



What Are Cardiovascular Diseases?

Cardio Vascular Diseases include a wide range of conditions as follows:

- Coronary Heart Disease (CHD)
- Cerebrovascular Disease
- Peripheral Arterial Disease
- Rheumatic Heart Disease
- Congenital Heart Disease
- Deep Vein Thrombosis
- Pulmonary Embolism

Symptoms of CVD: Often the first warning of an underlying cardiovascular disease is a heart attack or stroke.

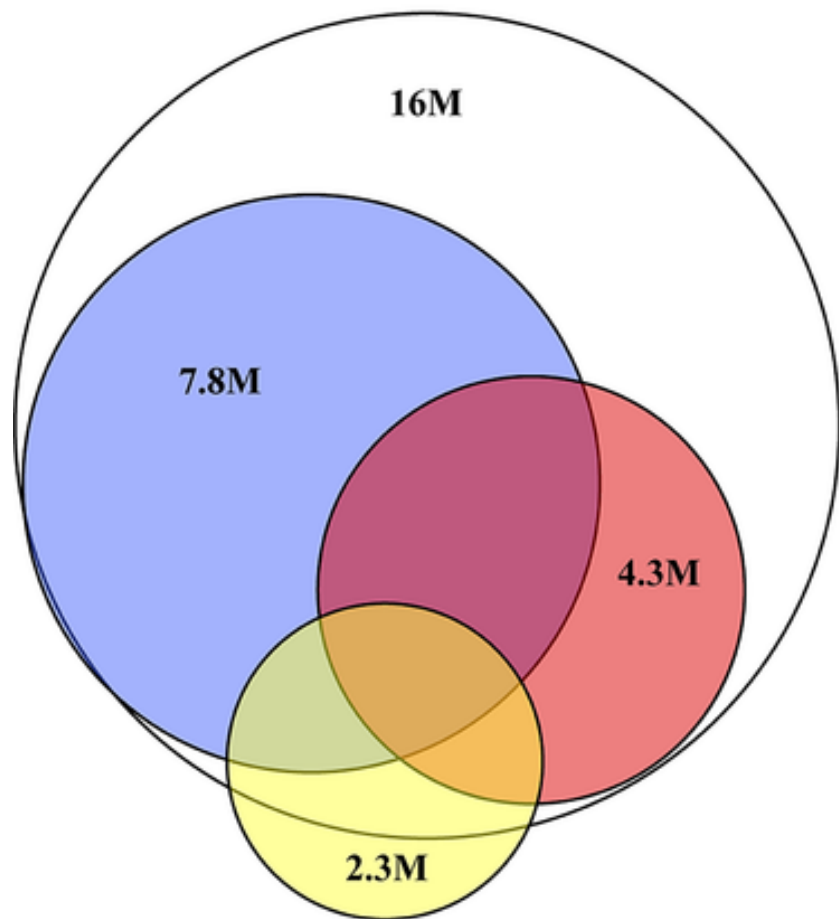
Symptoms of a heart attack may include:

- Pain or discomfort in the centre of the chest
- Pain or discomfort in the arms, left shoulder, elbows, jaw or back.
- Shortness of breath
- Nausea or vomiting
- Light-headedness
- Pallor
- Cold sweat

Symptoms of a stroke may include the following:

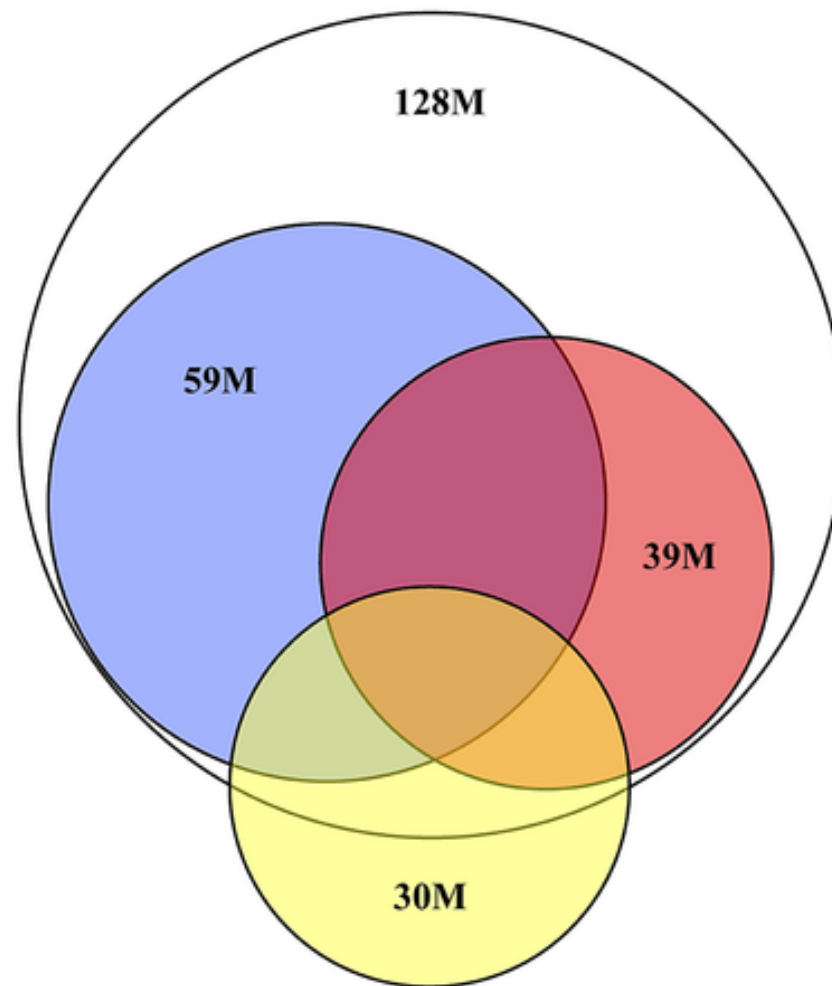
- Unilateral weakness of the face, arms or legs
- Confusion, difficulty speaking or understanding speech
- Dizziness
- Difficulty seeing with one or both eyes
- Headache
- Fainting

Mortality



- All cardiovascular
- High blood pressure

Burden of disease



- High cholesterol
- Overweight and obesity

Potential Benefits of Cardiorespiratory Fitness

Physiological Benefits

Reduced blood pressure

Improved heart rate variability

Increased myocardial infarction

Improved endothelial function

Reduced blood and plasma viscosity

Increased mitochondrial density

Reduced systemic inflammation

Improved insulin sensitivity

Decreased myocardial oxygen demands

Maintain lean mass

Reduced visceral adiposity

Increased capillary density

Improved mood and psychological stress

Improved sleep

Reduced Risk of Developing:

Hypertension

Depression

Metabolic Syndrome

Diabetes Mellitus

Osteoporosis

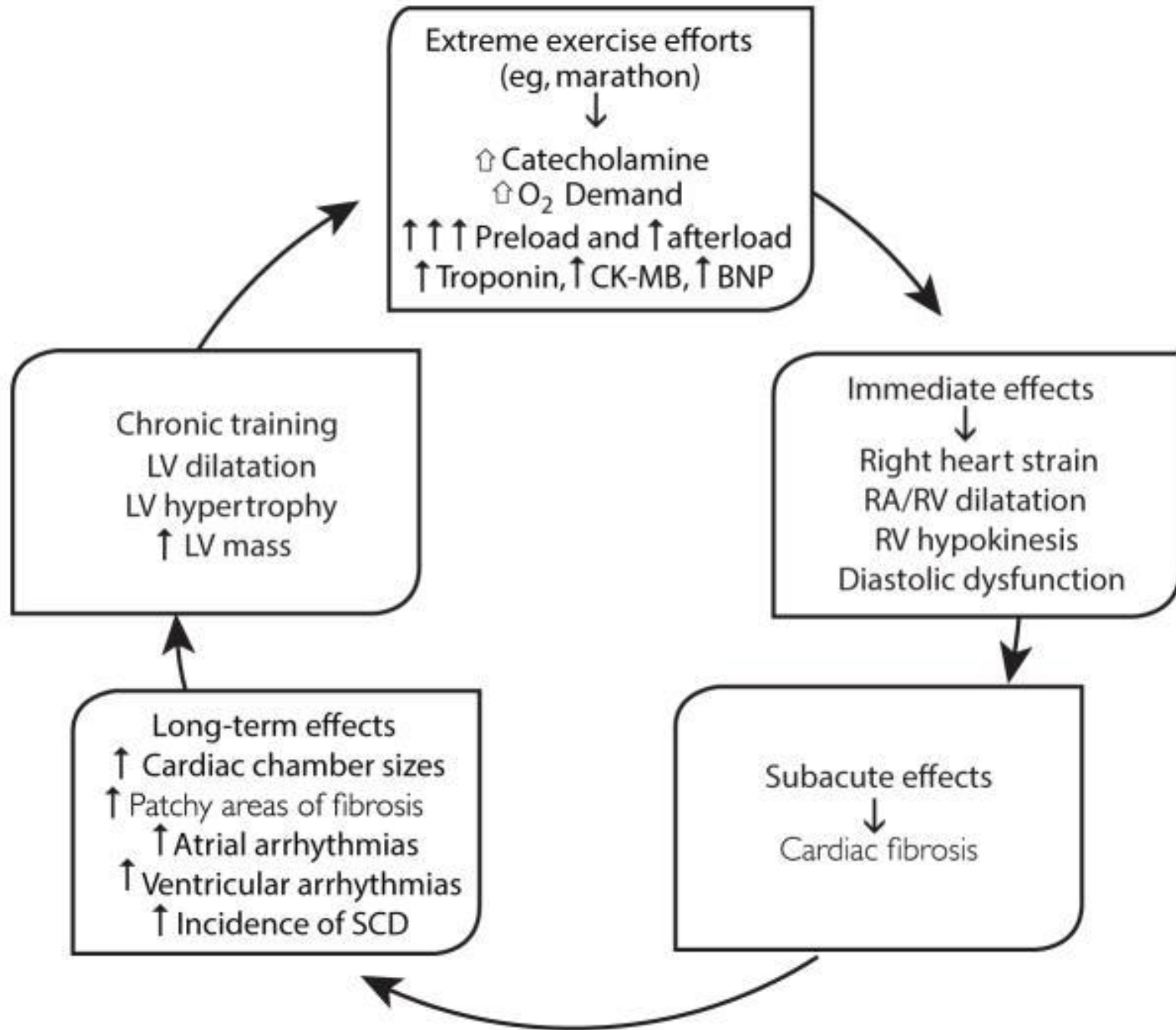
Osteoarthritis

Dementia and Alzheimer's Disease

Breast, colon, and other cancers

Potential Benefits of Exercise Training on Heart Failure

- Increased exercise capacity
- Reduced heart rate response to submaximal exercise
- Increased skeletal muscle function
- Improved endothelial function
- Enhanced autonomic nervous system function
- Reduced inflammatory cytokines
- Increased muscle strength and endurance
- Improved health status and quality of life
- Lower hospitalizations and hospital stay
- Reduced all-cause mortality



CK-MB – Creatine Kinase isoenzymes
 BNP - Brain natriuretic peptide
 SCD - Sudden cardiac death