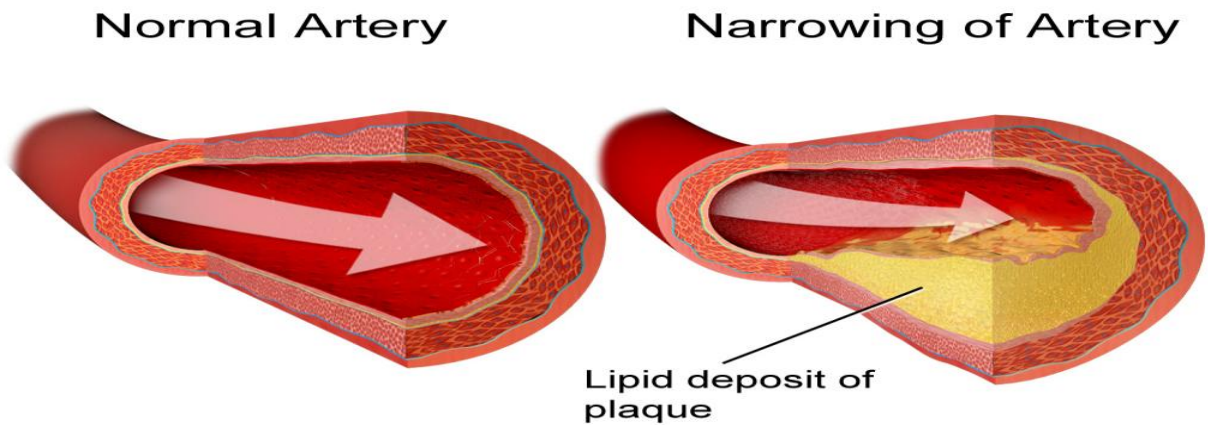


What is ischaemic heart disease?

Ischaemic/ischemic heart disease is a condition in which the heart is starved of oxygen due to a reduced blood supply. Most commonly, this is due to a build-up of plaque (fatty material plus cells) in the wall of one of the arteries supplying blood to the heart, known as the coronary arteries, which become blocked.

Ischaemic heart disease was the leading cause of death for Aboriginal and Torres Strait Islander people in 2023.



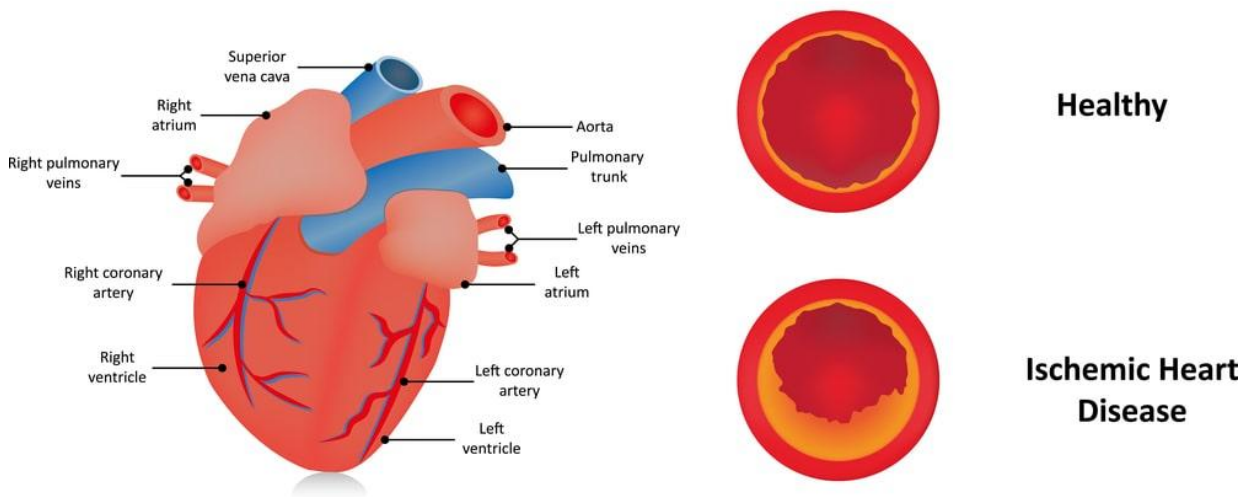
Coronary Artery Disease

Is ischaemic heart disease the same as coronary artery disease?

Ischaemic heart disease and coronary artery disease are related, but are not the same thing. Rather, ischaemic heart disease is a potential outcome of coronary artery disease.

Plaque may be present, which means the patient has coronary artery disease, but it may not be large enough to limit blood flow enough to cause the heart to become ischaemic.

Ischemic Heart Disease



What are the symptoms of ischaemic heart disease?

The most common symptoms of ischaemic heart disease include:

- chest pain (angina)
- shortness of breath
- fatigue
- sweating
- palpitations

Uncommonly, ischemic heart disease does not cause any symptoms even though the heart is starved for oxygen—this is known as silent ischemic heart disease.

What are the causes of ischaemic heart disease?

In the majority of cases ischaemic heart disease is caused by atherosclerosis, which is a build-up of plaque in the wall of the coronary arteries that supply blood to the heart. As the plaque enlarges, it gradually obstructs the flow of blood, which deprives the heart of oxygen and nutrients.

Other potential causes include:

A blood clot caused by ruptured plaque

coronary artery spasm, which causes temporary tightening of the coronary arteries leading to reduced blood flow

Spontaneous Coronary Artery Dissection (SCAD), which is somewhat like a tearing of a coronary artery.

What are the risk factors for ischaemic heart disease?

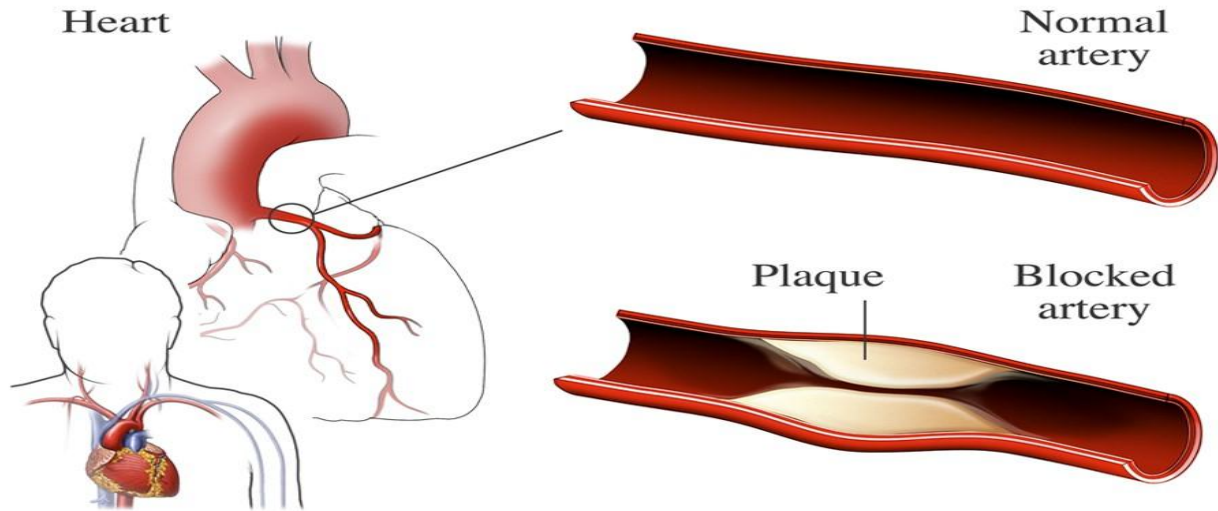
Risk factors that may increase your risk of ischaemic heart disease include:

- high blood pressure
- high cholesterol
- diabetes
- obesity
- poor diet
- lack of physical activity
- smoking

Types of coronary artery disease

Coronary artery disease is divided into three types based on the location of the problem, the degree of blockage, and the nature of the artery involvement, as listed below:

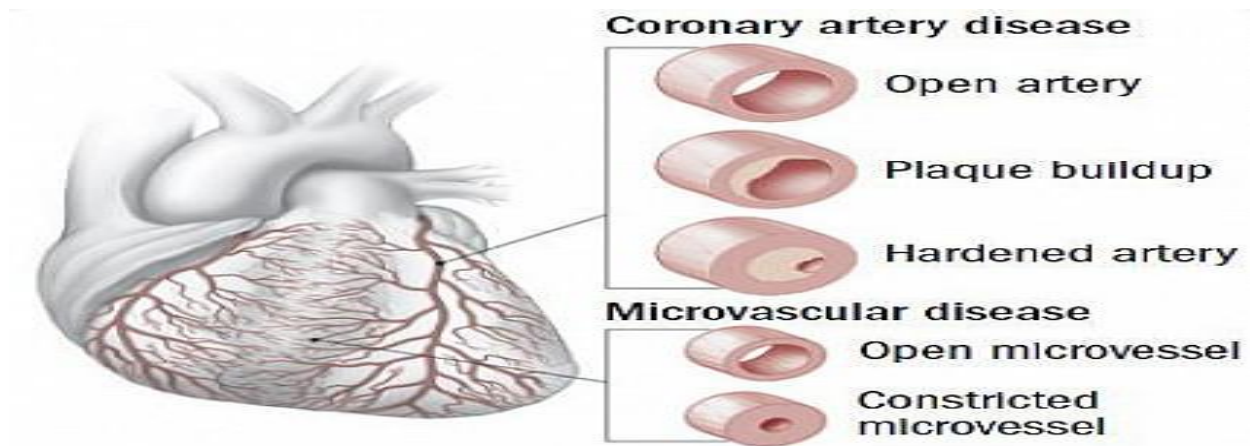
1. **Obstructive coronary artery disease:** It occurs when plaque accumulates in the coronary arteries, medically called atherosclerosis, narrowing the arteries that supply blood to the heart, progressively restricting blood flow and oxygen if the blockage becomes severe, leading to a heart attack .



2. **Non-obstructive coronary artery disease:** It is defined as arterial hardening caused by the accumulation of plaque that remains unblocked and does not severely restrict blood flow or develop angina symptoms .



3. **Microvascular coronary artery disease:** Coronary microvascular disease (MVD) is a cardiac condition affecting small arteries that branch from the larger coronary arteries. It causes inner wall damage and spasms and restricts blood flow to the heart muscle. Unlike other types of coronary artery disease, MVD does not include plaque accumulation, although it may still cause cardiac problems.



Coronary artery disease classification

Coronary artery disease is classified into different types based on symptoms, ECG abnormalities, and the presence or absence of myocardial injury. This classification helps in evaluating the severity of CAD, predicting patient outcomes, and providing appropriate treatment strategies. The common classification includes.

- ❖ **Stable ischemic heart disease (SIHD):** It is a chronic disorder in which the heart's oxygen supply and demand are out of balance.
- ❖ **Acute coronary syndrome:** It refers to a group of disorders in which the blood flow to the heart muscle is suddenly stopped or severely reduced. When blood does not flow to the heart muscles, they can become damaged. Acute coronary syndromes (ACS) include heart attacks, also known as myocardial infarction and unstable angina.
 - ST-elevation myocardial infarction (STEMI): It is a severe type of heart attack that occurs when a coronary artery is completely blocked.
 - Non-ST elevation myocardial infarction (NSTEMI): It is a type of heart attack involving the blockage of one of the coronary arteries, which decreases blood supply to the heart muscles.
 - Unstable angina: It occurs when there is insufficient blood and oxygen delivered to the heart muscles, leading to chest pain.

How can ischaemic heart disease be diagnosed and is this the same for silent ischaemic heart disease?

In order to diagnose either ischaemic heart disease, a doctor will ask questions about your personal and family medical history, order blood tests and conduct a physical examination.

Further testing may be required which can include:

- **electrocardiogram (ECG)**

- echocardiogram
 - stress test
 - CT coronary angiogram
 - Coronary artery calcium scoring
 - invasive coronary angiogram
-

1. What is ischaemic heart disease?

- a. Infection of the heart muscle
- b. Enlargement of the heart
- c. **A condition where the heart receives reduced oxygen due to decreased blood supply**
- d. Excess oxygen delivery to tissues
- e. Inflammation of the pericardium

2. The reduced blood supply in ischaemic heart disease most commonly results from:

- a. Viral infection
- b. Valve malfunction
- c. **Plaque buildup in coronary arteries**
- d. Excess red blood cells
- e. Lung disease

3. Which arteries are primarily affected in ischaemic heart disease?

- a. Pulmonary arteries
- b. Carotid arteries
- c. Renal arteries
- d. **Coronary arteries**
- e. Femoral arteries

4. Ischaemic heart disease is best described as a potential outcome of:

- a. Hypertension
- b. Stroke
- c. Heart failure
- d. **Coronary artery disease**
- e. Arrhythmia

5. Coronary artery disease refers to:

- a. Complete heart stoppage
- b. **Presence of plaque in coronary arteries**
- c. Infection of arteries
- d. Valve narrowing
- e. Increased oxygen supply

6. Which symptom is most commonly associated with ischaemic heart disease?

- a. Blurred vision
- b. Fever
- c. **Chest pain (angina)**
- d. Skin rash
- e. Hearing loss

7. Shortness of breath in ischaemic heart disease occurs mainly because:

- a. The lungs collapse
- b. Blood sugar drops
- c. **The heart muscle lacks sufficient oxygen**
- d. The diaphragm enlarges
- e. Kidneys fail

8. Silent ischaemic heart disease is characterized by:

- a. Severe chest pain
- b. Continuous coughing
- c. High fever
- d. **Lack of noticeable symptoms despite reduced oxygen**
- e. Immediate heart attack

9. Which of the following is NOT a typical symptom of ischaemic heart disease?

- a. Fatigue
- b. Sweating
- c. Palpitations
- d. Chest pain
- e. **Hair loss**

10. The primary cause of ischaemic heart disease in most patients is:

- a. Dehydration
- b. **Atherosclerosis**
- c. Vitamin deficiency
- d. Thyroid disease
- e. Anemia

11. Atherosclerosis leads to ischaemia by:

- a. Increasing oxygen production
- b. Strengthening arteries
- c. **Gradually obstructing blood flow**
- d. Lowering cholesterol instantly
- e. Expanding vessel diameter

12. Which event can trigger a sudden blockage in a coronary artery?

- a. Increased hydration
- b. **Blood clot from ruptured plaque**
- c. Faster metabolism
- d. Low heart rate
- e. Improved circulation

13. Coronary artery spasm results in:

- a. Permanent artery widening
- b. **Temporary tightening of coronary arteries**
- c. Increased oxygen supply
- d. Valve rupture
- e. Thickened myocardium

14. Spontaneous Coronary Artery Dissection (SCAD) involves:

- a. Fat accumulation only
- b. Artery infection
- c. **A tear in the coronary artery**
- d. Valve prolapse
- e. Electrical disturbance

15. Which condition is a major risk factor for ischaemic heart disease?

- a. Low cholesterol
- b. **High blood pressure**
- c. Frequent stretching
- d. High vitamin intake
- e. Normal weight

16. Diabetes increases the risk of ischaemic heart disease because it:

- a. Improves circulation
- b. **Damages blood vessels over time**
- c. Eliminates plaque
- d. Raises oxygen levels
- e. Prevents clotting

17. Which lifestyle factor strongly contributes to ischaemic heart disease?

- a. Regular exercise
- b. Balanced diet
- c. Adequate sleep
- d. **Smoking**
- e. Proper hydration

18. Obesity raises risk mainly by:

- a. Lowering cholesterol
- b. Increasing lung capacity
- c. **Promoting plaque formation and hypertension**
- d. Reducing blood pressure
- e. Enhancing metabolism

19. Lack of physical activity primarily leads to:

- a. Stronger arteries
- b. Reduced plaque
- c. **Higher cardiovascular risk**
- d. Increased oxygenation
- e. Improved circulation

20. Obstructive coronary artery disease occurs when:

- a. Arteries expand
- b. **Plaque severely narrows the artery**
- c. Oxygen levels rise
- d. Heart valves fail
- e. Blood becomes thinner

21. Severe obstructive coronary artery disease may lead directly to:

- a. Migraine
- b. Asthma
- c. **Heart attack**
- d. Kidney stones
- e. Liver failure

22. Non-obstructive coronary artery disease is defined by:

- a. Complete arterial blockage
- b. **Plaque that does not significantly restrict blood flow**
- c. Absence of arterial hardening
- d. Immediate infarction
- e. Valve calcification

23. Microvascular coronary artery disease mainly affects:

- a. Heart valves
- b. Large arteries only
- c. Veins
- d. **Small coronary artery branches**
- e. Pulmonary vessels

24. Unlike other forms of CAD, microvascular disease typically:

- a. Causes full blockage
- b. Involves large plaques
- c. **Does not include plaque accumulation**
- d. Eliminates spasms
- e. Prevents ischemia

25. Stable ischemic heart disease is considered:

- a. An acute emergency
- b. Temporary condition
- c. **A chronic imbalance between oxygen supply and demand**
- d. A lung disorder
- e. A neurological disease

26. Acute coronary syndrome refers to conditions where:

- a. Oxygen supply increases suddenly
- b. **Blood flow to the heart is abruptly reduced or stopped**
- c. Heart valves enlarge
- d. Blood pressure normalizes
- e. Arteries become elastic

27. STEMI is best described as:

- a. Mild chest discomfort
- b. Partial oxygen surplus
- c. **A heart attack caused by complete coronary blockage**
- d. A harmless rhythm change
- e. Temporary fatigue

28. NSTEMI differs from STEMI because it involves:

- a. No arterial blockage
- b. **Partial blockage reducing blood supply**
- c. Only lung impairment
- d. Valve damage
- e. Excess oxygen

29. Unstable angina occurs when:

- a. Blood flow is excessive
- b. Heart muscle thickens
- c. **Insufficient oxygen reaches the heart muscle**
- d. Blood pressure drops permanently
- e. Arteries widen

30. The first step in diagnosing ischaemic heart disease usually includes:

- a. Surgery
- b. Radiation therapy
- c. **Reviewing medical history and physical examination**
- d. Chemotherapy
- e. Genetic modification

31. Which diagnostic test records the electrical activity of the heart?

- a. MRI
- b. Ultrasound abdomen
- c. **Electrocardiogram (ECG)**
- d. Bone scan
- e. Spirometry

32. An echocardiogram is primarily used to:

- a. Measure lung volume
- b. Assess liver function
- c. **Visualize heart structure and function**
- d. Detect skin cancer
- e. Evaluate kidney filtration

33. A stress test evaluates the heart by:

- a. Measuring glucose levels
- b. Checking vision
- c. **Monitoring performance during physical exertion**
- d. Testing reflexes
- e. Recording brain waves

34. CT coronary angiography helps by:

- a. Treating plaque
- b. Strengthening arteries
- c. **Providing detailed images of coronary arteries**
- d. Increasing heart rate
- e. Preventing clots

35. Coronary artery calcium scoring detects:

- a. Oxygen saturation
 - b. Blood sugar spikes
 - c. **Calcium deposits indicating plaque presence**
 - d. Valve infections
 - e. Neural damage
-

36. Invasive coronary angiography is mainly performed to:

- a. Improve digestion
- b. Measure lung pressure
- c. **Directly visualize arterial blockages**
- d. Test hearing
- e. Examine bones

37. Palpitations refer to:

- a. Slow digestion
- b. **Awareness of irregular or rapid heartbeats**
- c. Reduced sweating
- d. Joint stiffness
- e. Vision loss

38. Fatigue in ischaemic heart disease results from:

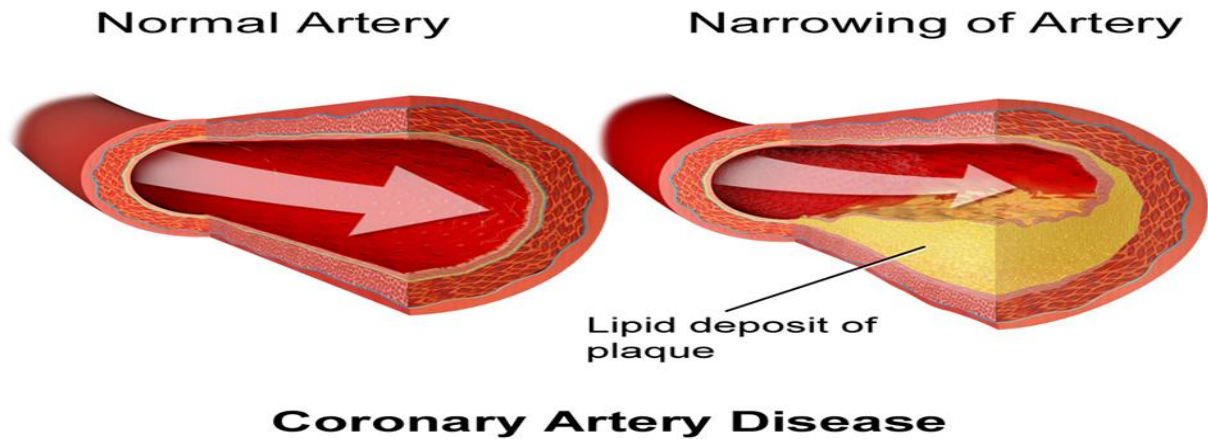
- a. High oxygen supply
- b. Increased muscle strength
- c. **Inadequate oxygen delivery to tissues**
- d. Excess hydration
- e. Elevated calcium

39. Poor diet contributes to ischaemic heart disease mainly by:

- a. Reducing plaque
- b. Lowering cholesterol drastically
- c. **Increasing cholesterol and plaque formation**
- d. Enhancing vascular elasticity
- e. Eliminating fats

40. The ultimate consequence of prolonged myocardial ischaemia is:

- a. Improved circulation
 - b. Stronger myocardium
 - c. **Damage or death of heart muscle**
 - d. Increased lung capacity
 - e. Faster metabolism
-



1. Coronary artery disease primarily results from:

- a. Viral infection of the heart
- b. Valve dysfunction
- c. **Lipid plaque buildup within the arterial wall**
- d. Excess oxygen in blood
- e. Increased vein pressure

2. Compared to a normal artery, a narrowed artery shows:

- a. Faster blood circulation
- b. Thinner vessel walls
- c. No blood movement
- d. Increased elasticity
- e. **Reduced lumen due to plaque accumulation**

3. What is the main effect of plaque deposits in coronary arteries?

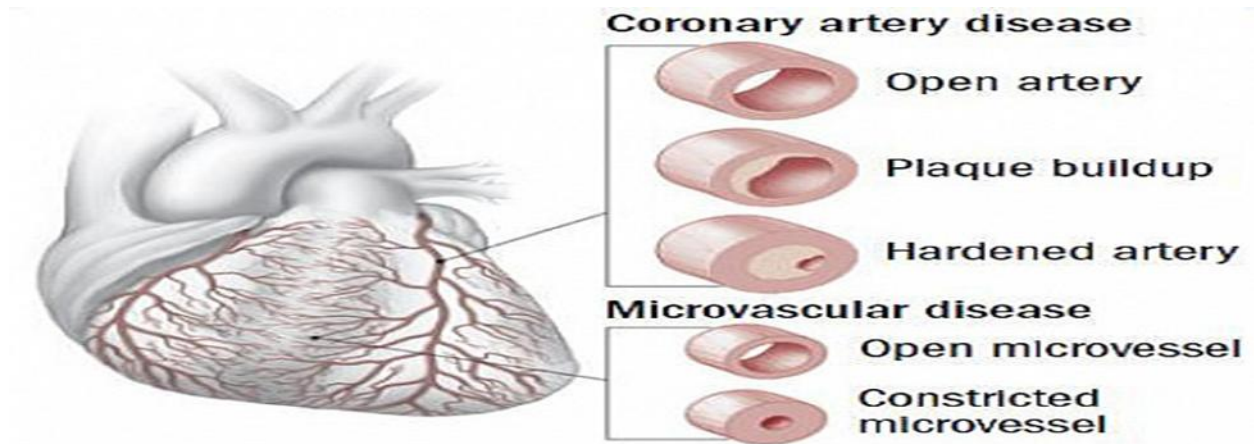
- a. Improved nutrient delivery
- b. Expansion of the artery
- c. **Restricted blood flow to the heart muscle**
- d. Increased heart size
- e. Lower cholesterol production

4. The arrow inside the normal artery represents:

- a. Nerve conduction
- b. Oxygen storage
- c. Valve movement
- d. **Unobstructed blood flow**
- e. Calcium buildup

5. If coronary artery narrowing becomes severe, it may lead to:

- a. Enhanced lung function
 - b. Reduced heart workload
 - c. Improved circulation
 - d. **Heart attack (myocardial infarction)**
 - e. Faster metabolism
-



1. What is the primary pathological feature shown in coronary artery disease in the image?

- a. Spasm of microvessels
- b. Inflammation of veins
- c. **Plaque buildup causing arterial narrowing**
- d. Congenital absence of arteries
- e. Valve thickening

2. In the image, an “open artery” indicates:

- a. Complete blockage of blood flow
- b. Presence of calcified plaque
- c. **Normal arterial lumen allowing adequate blood flow**
- d. Ruptured arterial wall
- e. Microvascular constriction

3. Hardened arteries in coronary artery disease are mainly caused by:

- a. Acute infection
- b. Venous thrombosis
- c. Smooth muscle relaxation
- d. **Atherosclerotic plaque and loss of arterial elasticity**
- e. Increased lymphatic drainage

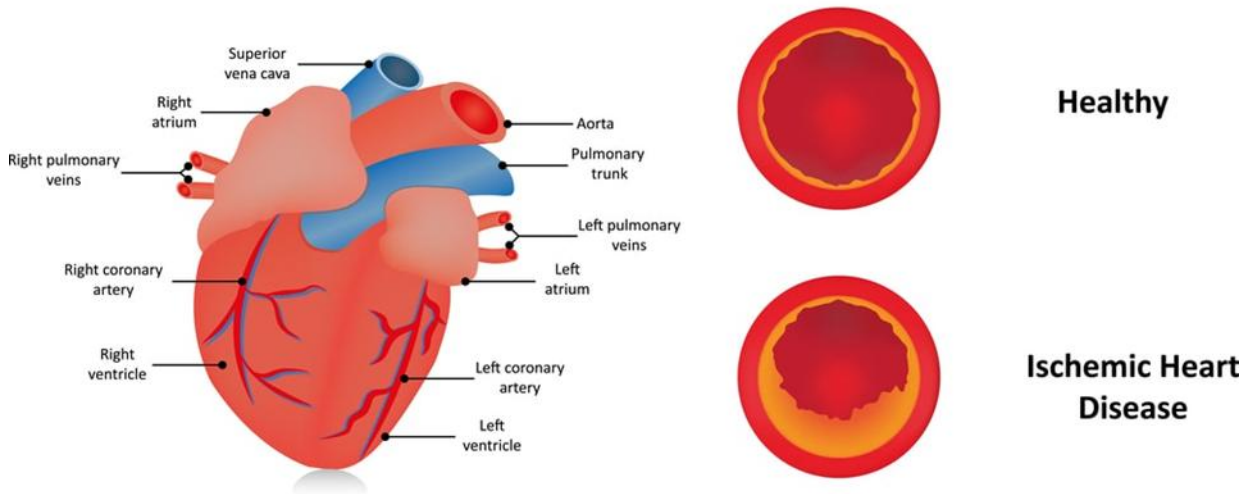
4. Microvascular disease primarily affects which blood vessels as shown in the image?

- a. Large coronary arteries
- b. Pulmonary arteries
- c. Veins of the myocardium
- d. Aorta
- e. **Small intramyocardial microvessels**

5. Compared with coronary artery disease, microvascular disease is characterized by:

- a. Complete blockage of major arteries
- b. Visible large-vessel plaques
- c. **Constriction of small vessels with normal large arteries**
- d. Valve stenosis
- e. Cardiac chamber dilation

Ischemic Heart Disease



1. Ischemic heart disease occurs primarily due to:

- Increased cardiac muscle mass
- Valvular insufficiency
- Electrical conduction defects
- Reduced blood supply to the myocardium**
- Congenital heart malformations

2. In the image, the difference between a healthy artery and one with ischemic heart disease is best described as:

- Presence of aneurysm
- Arterial wall rupture
- Increased vessel diameter
- Narrowed lumen due to plaque deposition**
- Complete venous obstruction

3. Which artery shown in the diagram is most commonly involved in ischemic heart disease?

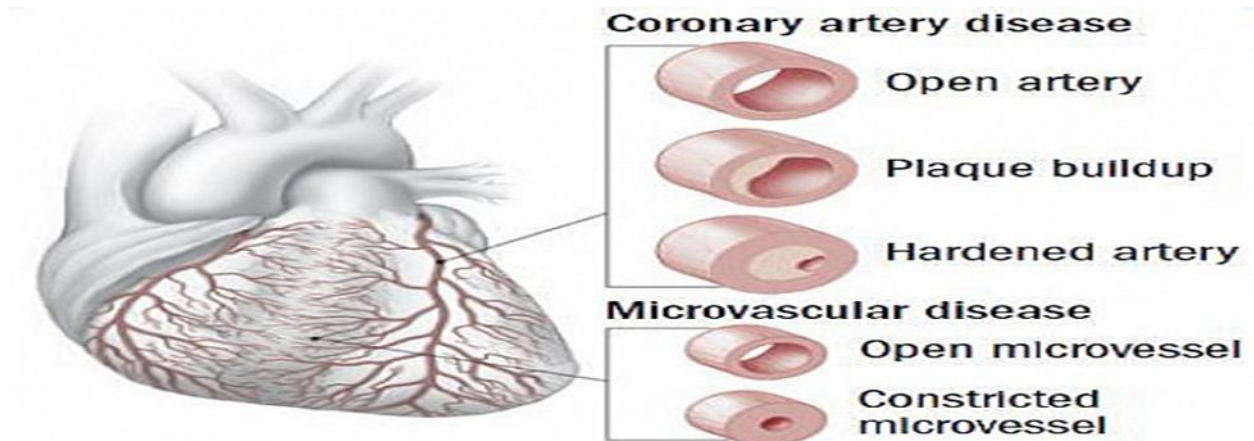
- Pulmonary artery
- Aorta
- Superior vena cava
- Coronary arteries**
- Pulmonary veins

4. The main physiological consequence of the narrowed artery in ischemic heart disease is:

- Increased oxygen delivery
- Enhanced myocardial contraction
- Myocardial hypoxia and chest pain (angina)**
- Cardiac hypertrophy
- Reduced heart rate

5. Which cardiac chamber is most at risk of damage in ischemic heart disease due to high oxygen demand?

- Right atrium
- Left atrium
- Right ventricle
- Interventricular septum
- Left ventricle**



1. The image shows that coronary artery disease is mainly caused by:

- Spasm of cardiac veins
- Congenital vessel defects
- Plaque buildup in large coronary arteries**
- Inflammation of heart valves
- Myocardial fibrosis

2. An “open artery” in the image indicates:

- Complete obstruction
- Ruptured vessel wall
- Presence of thrombus
- Normal lumen with unobstructed blood flow**
- Constricted microvessel

3. Hardened arteries in coronary artery disease result primarily from:

- Acute infection
- Venous congestion
- Loss of smooth muscle
- Atherosclerosis and arterial wall thickening**
- Increased capillary permeability

4. Microvascular disease, as shown in the image, mainly affects:

- Major coronary arteries
- Pulmonary arteries
- Cardiac veins
- Aorta
- Small coronary microvessels**

5. Compared with coronary artery disease, microvascular disease is characterized by:

- a. Large visible plaques
- b. Complete arterial blockage
- c. Hardened major arteries
- d. **Constriction of small vessels despite normal large arteries**
- e. Cardiac chamber dilation