



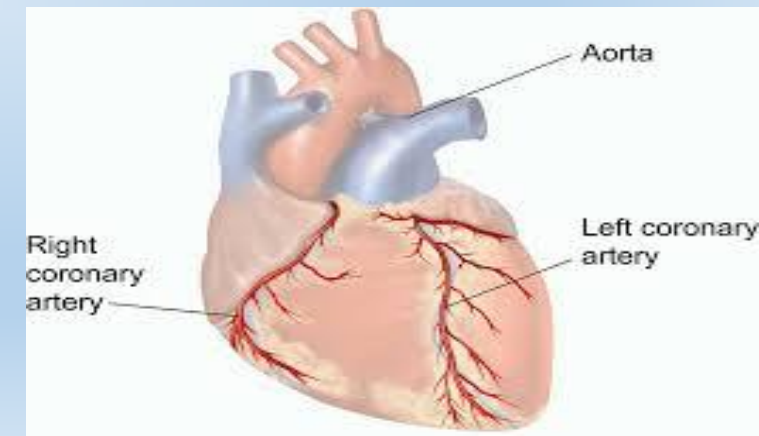
Biology Grade 9

CHAPTER 3: CARDIAC SYSTEM

INSTRUCTOR: SUHAIB AUDI

Activity 3: Cardiovascular Accidents

- A significant number of people suffer from cardiovascular accidents such as the **infarction** of the heart or vascular accidents of the brain. These accidents affect the arteries and the heart and represent the most common cause of death.
- What are the main causes of an infarction? How to avoid it?
- Cardiovascular accident is a medical condition that affects the heart and its ability to efficiently supply blood to certain organs.
- Coronary arteries: The arteries that run on the surface of the heart, it delivers the oxygenated blood and nutrients to the heart muscle (myocardium).



❑ A normal artery (1) and an artery partially blocked because of plaque (2)

1. Compare the aspect of a normal artery to that of an artery partially blocked because of plaque.

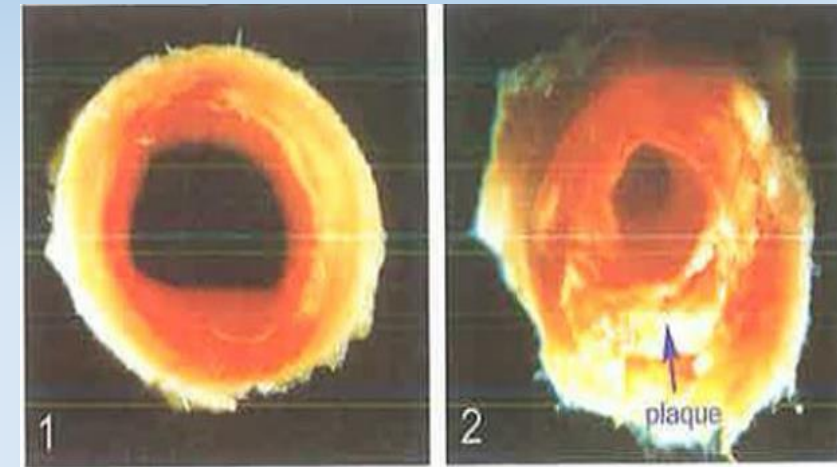
The wall of an artery that is partially blocked because of plaque is thicker and the opening end is narrower compared to a normal artery.


2- Indicate the effect of the plaque in arteries on the blood circulation.

The accumulation of the plaque in arteries leads to a reduction in the blood flow to tissues causing a major circulatory problem.

3- Name the constituents of a plaque.

Fats and cholesterol deposits are the main constituents of a plaque.



 A normal artery (1); an artery partially blocked because of plaque (2).

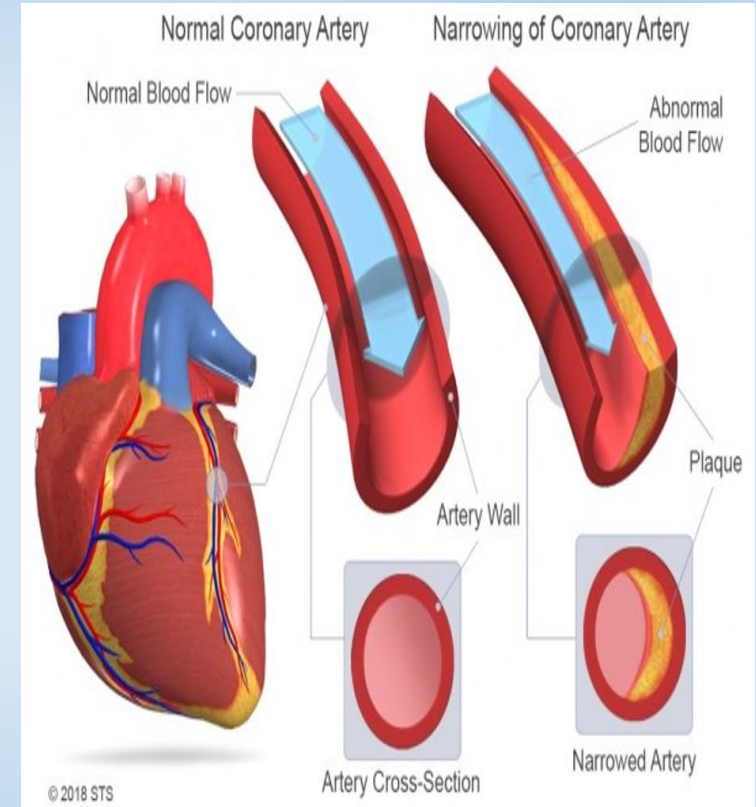
Passive development of plaque can occur also in coronary arteries. Thickening the walls of arteries and narrowing the opening inside them due to the accumulation of the plaques (deposit linked to high fat diet) lead to a reduction in the blood flow to the heart.

1. Explain why a narrowed coronary artery leads to problems in the functioning of the cardiac muscle.

This is due to a partial blockage of a coronary artery by plaque (fat deposits and cholesterol), the area of the heart that is normally supplied with blood from this artery would be deprived of nutrients and oxygen gas. This area stops contracting and eventually dies. The cardiac cycle can be disturbed.

2. Name the disease caused by the formation of plaque in the arteries.

Myocardial infarction is the disease caused by the formation of plaque in the arteries.



❖ Clinical signs of infarction

- Sever chest pain
- Sweat
- Nausea
- Vomiting
- Fatigue and intense discomfort



- People who possess combination of certain risk factors are more likely to develop **Coronary Artery Disease (CAD)**.
- Risk factors: factors that are statistically associated with greater chance to develop CAD.

☐ **List the factors that increase the risk of CAD.**

- Smoking (this is the number one risk factor)
- High blood pressure
- Diabetes
- High cholesterol levels
- Obesity (being overweight)
- Sedentary lifestyle (lack of physical activity)

☐ **Suggest a list of attitudes to adopt in order to prevent infarction.**

- Reduce high fat diet
- Exercise regularly
- Stop smoking completely



- Diagnosis of coronary artery blockage is done by using **Angiography** which is a medical imaging technique used to visualize the inside of blood vessels.
- Treatment: **Angioplasty** is the technique of mechanically widening narrowed or obstructed arteries.

