

Module: Introduction to Physiology

Module code: BMHP5003

Assessment: Component 1

Topic: CORONARY ARTERY DISEASE

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Overview

- 1. Objectives**
- 2. Introduction**
- 3. Coronary Arteries**
 - 3.1. Anatomy**
 - 3.2. Structure**
 - 3.3. Functions**
- 4. Coronary Arteries Disease**
 - 4.1. Stable ischemic heart**
 - 4.2. Acute coronary syndrome**
- 5. NHS Health lifestyle questionnaire**
- 6. Healthy lifestyle diet**
- 7. Health Risks**
- 8. Recommendations**
- 9. Conclusion**
- 10. References**

1. Objectives

- Understand the anatomy and physiology of the coronary arteries of the heart.
- Recognise unhealthy lifestyle habits that can contribute to heart disease.
- The relationship between coronary artery disease and the lifestyle of patient A.
- recommendations to prevent the disease,
- Change the lifestyle of patient A so that the disease does not progress.

2. Introduction

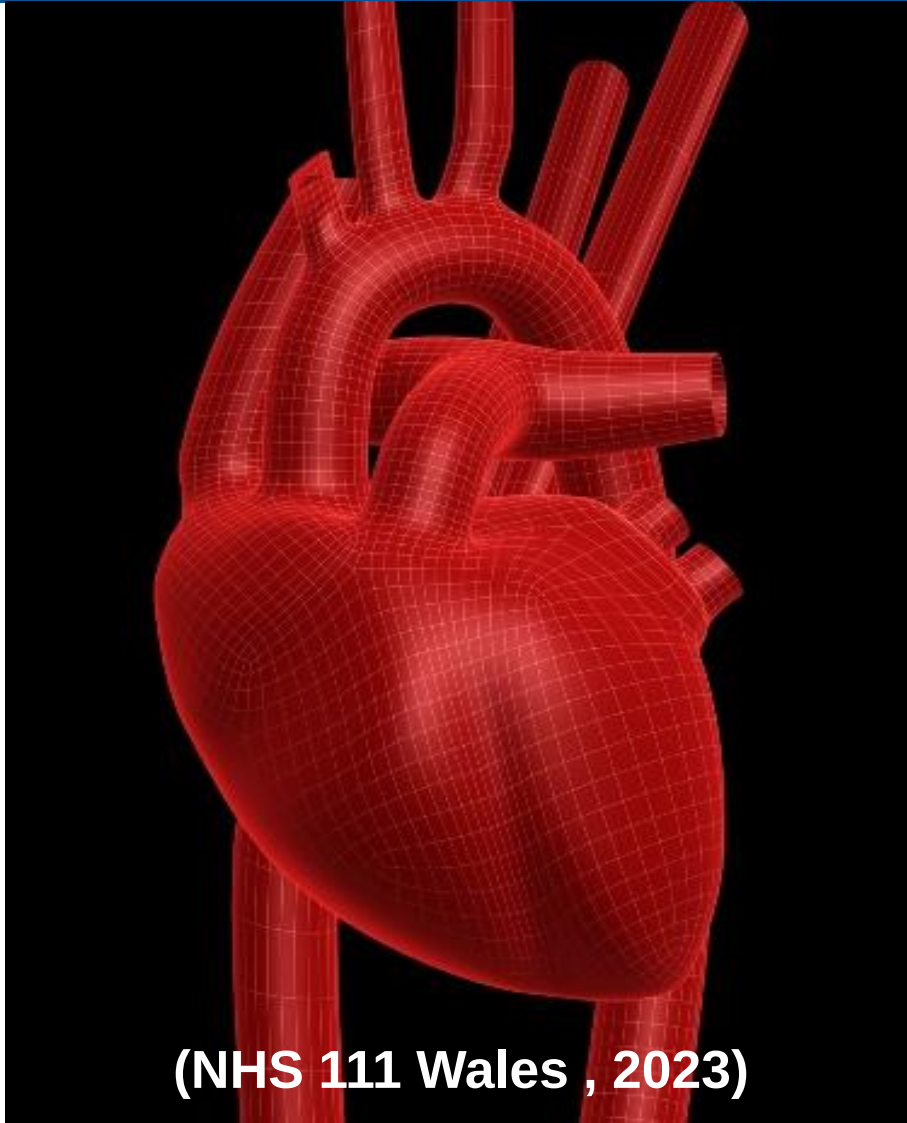
- **Coronary artery disease affects the heart.**
- **It is defined by the thickening and narrowing of the blood vessels that supply oxygen and nutrients to the heart as a result of an unhealthy lifestyle.**
- **If the arteries constrict too much, the heart will not receive enough blood, which will cause chest pain.**
- **The heart will have to work twice as hard to circulate blood throughout the body, leading to heart failure or arrhythmia.**
- **Over time, damaged arteries can become fully clogged, resulting in a heart attack. (Johns Hopkins Medicine, 2023).**

3. Coronary Arteries

3.1 Anatomy

- Blood vessels are around and inside the heart muscle.
- They branch off into the aorta.
- They begin at the aortic root.
- The first segment of the aorta emerges from the left ventricle of the heart.

(Cleveland Clinic, 2022)



(NHS 111 Wales , 2023)

3.2 Structure

- It is made up of two arteries: the **right coronary artery (RCA)** and the **left main coronary artery (LCA)**

3.3 Functions

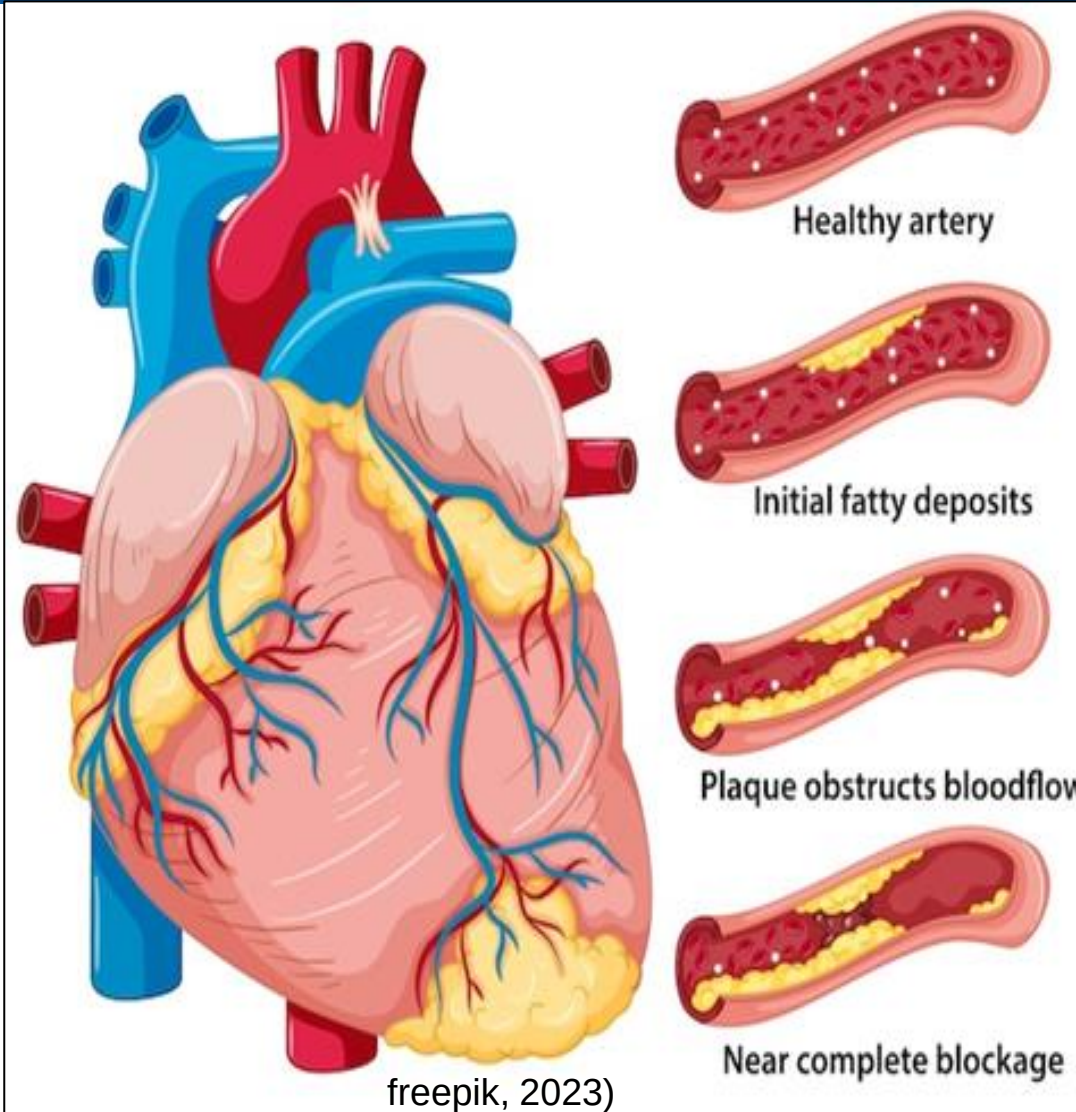
- Transporting blood to the heart.
- Provide oxygen and nutrients that it needs to stay healthy heart and function normally.

(Cleveland Clinic, 2022)

4. Coronary Artery Disease

4.1 Stable ischemic heart:

- Chronic form.
- The coronary arteries are narrowed.
- The heart receives less blood.
- The patient can live with these symptoms.



4.2 Acute coronary syndrome:

- Sudden form is a medical emergency.
- Heart attack.

(Cleveland Clinic, 2022)

5. NHS Health lifestyle questionnaire, British patient A:

- 1. The patient is a pensioner who walks slowly for half an hour.**
- 2. Smoked 20 cigarettes a day for the last 30 years.**
- 3. Drinks a bottle of wine three times a week.**
- 4. The parents have never had a cardiac heart before the age of 60.**
- 5. The patient has never had a heart attack or stroke.**
- 6. The patient is drunk so he almost always forgets what happened.**
- 7. The patient cannot carry out his normal activities because he is drunk almost every day.**
- 8. The patient's friends have repeatedly advised him to stop drinking.**

(NHS Health Check. 2023)

6. Healthy lifestyle diet

- 1. He does not eat his breakfast everyday.**
- 2. He does not consume 5 fruits or vegetables per day.**
- 3. Consume saturated fat.**
- 4. Consume starchy foods.**
- 5. Too much sugar in his drinks.**
- 6. Too much salt in the diet.**
- 7. He does not drink enough water.**

7. Health Risks

- High blood pressure
- Smoking
- High cholesterol
- Diabetes
- Inactivity
- Obese
- Ethnic background
- Diet
- Alcohol

(NHS,2022)

(NHS, 2023)

8. Recommendations

Eat a well-balanced diet

- Consume 5 servings of fruits and vegetables a day, as well as whole grains.
- Take one teaspoon of salt per day.
- Do not eat any saturated fat.
- Eat unsaturated fats because they raise good cholesterol.
- Do not take excess sugar in the diet.

Increase physical activity

- Exercise increases the efficiency of the cardiovascular and circulatory systems.
- Exercise lowers cholesterol and keeps blood pressure stable.
- Exercise prevents a cardiac attack.
- If the heart is healthy, it can pump more blood throughout the body.
- Aerobic exercises such as walking, swimming, and dancing are recommended.

Maintain a healthy weight

- To find out the exact weight, we will ask a doctor or a nurse.
- It will be obtained through height and build.
- We can find out the body mass index (BMI) by using the BMI calculator.

(NHS, 2023) 8. Recommendations

Give up smoking

- Reduce the development of coronary disease.
- It will slow the progression of atherosclerosis.
- Reduce lung cancer
- Reduce cases of coronary thrombosis.
- Using NHS support and pharmacological treatments such as patches or gum will be helpful to stop smoking.

Reduce alcohol consumption

- Do not exceed the recommended maximum alcohol limits.
- Men and women should not consume more than 14 units of alcohol per week.
- If you consume up to 14 units of alcohol per week, spread it out over three days or more.
- Excessive drinking increases the risk of having a heart attack.

Maintain a healthy blood pressure

- Blood pressure should be less than 140/90 mmHg.
- Eat a diet low in saturated fat.
- Exercise regularly.
- Take blood pressure medicine if the doctor recommends it.
- If you have high blood pressure, your doctor should check it regularly.

Diabetes is kept under check

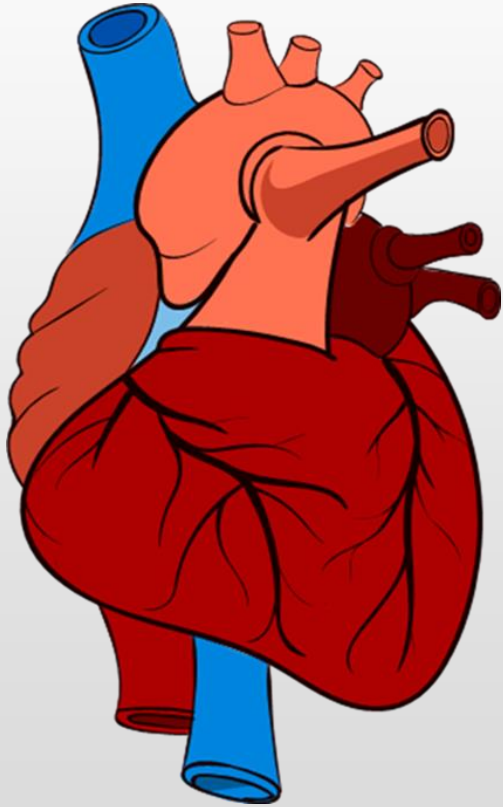
- Maintain a blood pressure of less than 130/80 mmHg.

9. Conclusion

- **Lifestyle changes will slow the course of coronary artery disease.**
- **Learning about this disease will enable me to advise those around me on how to improve their health and eating habits.**
- **Following the NHS recommendations on a regular basis can help prevent heart disease and improve the quality of life for people who already have it.**

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THANKS!

Any questions?