

Science 30	Unit A: Biology
Lesson 5 - Cardiovascular Diseases and Disorders	84 mins

Cardiovascular Diseases

- one of many disorders that affect the heart and/or the blood vessels	- coronary heart disease, strokes, and varicose veins
--	---

Examples

Cardiovascular Disease	Description of Disorder	Heart Disease	Blood Vessel Disease
atherosclerosis coronary	hardening of arteries due to accumulation of fatty deposits		X
heart disease	restricted blood flow through coronary arteries resulting in chest pain and heart attack	X	
heart attack	clot in a coronary artery cuts off blood supply to heart muscle and tissue dies	X	
stroke	sudden loss of brain function caused by an interruption in blood flow to brain		X
aneurysm	bulging or weakness in wall of artery or vein		X
valvular heart disease	diseases of heart valves leading to narrowing, leaking, or improper closing of valves	X	
septal heart defects	opening within septum that allows blood to flow between left and right ventricles of heart	X	

Problems with Arteries

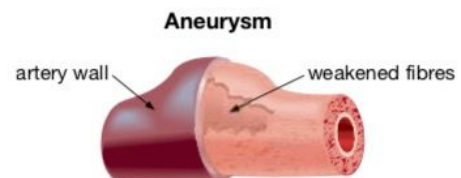
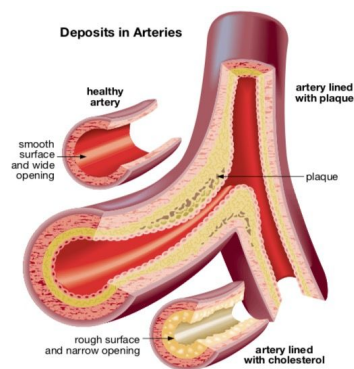
Plaque: a semi-hardened accumulation of substances originally suspended in a fluid

Cholesterol: a waxy, fat-like substance present in the cell membrane of every body cell and in food from animal sources.

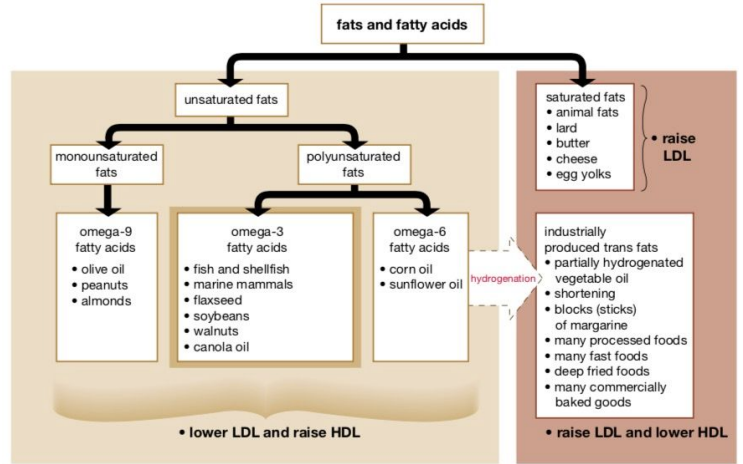
- Good - high-density lipoprotein (HDL): a blood protein that carries cholesterol in the bloodstream from the body cells to the liver
- Bad - Low-density lipoprotein (LDL): a blood protein that carries cholesterol in the bloodstream from the liver to the rest of the body

Aneurysm - widening or bulging of a blood vessel due to a weakening of the vessel wall

- Caused by high pressure



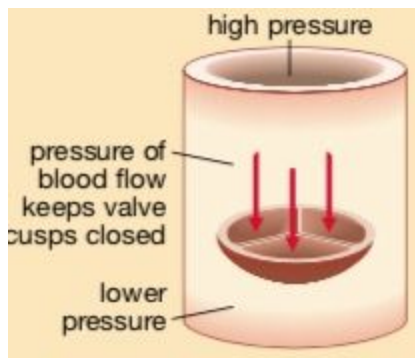
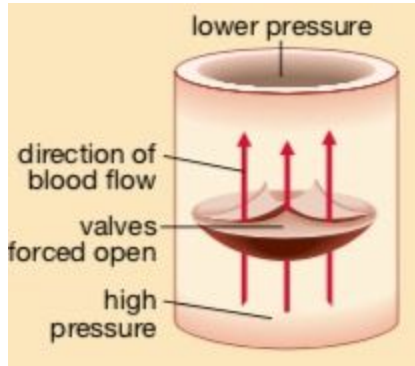
Classifying Fats and Fatty Acids



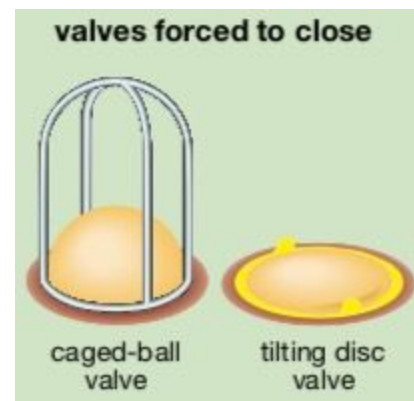
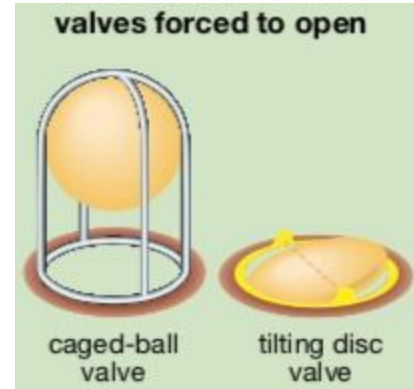
Valvular Heart Disease

- Heart valve not working
- May need to be replaced

Natural Valve



Artificial Valve



Science 30 - Lesson 5 - Cardiovascular Diseases and Disorders

Name: _____

1) Match each of the following terms with a description of its circulatory problem.

- Plaque
- atherosclerosis • angina
- heart attack
- Stroke
- Aneurysm
- septal defect

a) a chest pain during exertion due to constricted coronary arteries

b) a death of brain cells due to a blood clot in an artery supplying the brain with blood

c) a hole between the two halves of the heart that hasn't yet closed after birth

d) a hardening of the arteries due to a buildup of plaque in the vessel

e) a material with a rough, hard surface that forms on the inside of arteries due to the buildup of cholesterol and fatty substances

f) a condition that is caused by a blockage in the coronary arteries

g) a weakened bulge in a blood vessel that could rupture

2) A woman with a family history of heart and circulatory problems visits her doctor. List at least four things the doctor might ask about the patient's lifestyle, and describe changes the doctor might suggest to reduce the risk of the patient developing a circulatory disease.

3) Compare the analogy of a city's water delivery system to the human circulatory system. Explain what the following problems with a water delivery system can be compared to in the human circulatory system.

a) Something is stuck in one of the pipes and has caused some homes to lose water service.

b) The water pressure is so high that it is putting a strain on the pipes and causing them to leak.

c) A valve in the water pump is faulty.

Nutrient (Serving Size)	Raw Moose Meat (100 g)	Raw Beef (100 g)
energy	427 kJ	1163 kJ
protein	22.24 g	17.48 g
total fat	0.74 g	22.55 g
• saturated fatty acids	0.22 g	9.16 g
• omega-6 fatty acids	0.14 g	0.57 g
• omega-3 fatty acids	0.03 g	0.23 g

- 4) Compare the total fat content to the serving size for both moose meat and beef. Express your answers as a percentage.
- 5) Account for the difference in food energy between the serving of moose meat and the beef serving.
-
- 6) Compare the saturated fat content to the serving size for both moose meat and beef. Express your answers as percentages.
- 7) Refer to your answers for question 6. Explain the significance of these numbers in terms of the effects on blood cholesterol levels.
-
- 8) Compare the omega-6 and the omega-3 fatty acid content to the total fat content for both moose meat and beef. Express your answers as percentages.
- 9) Refer to your answer to question 8. Explain the significance of these numbers in terms of the effects on blood cholesterol levels.
-
- 10) Refer to your answers for questions 4 to 9 to explain why moose meat is a good food choice for reducing the risk factors associated with cardiovascular diseases.
-
-