Ch 42.4 Notes

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Vocab

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Plasma: A liquid matrix where connective tissue consisting of cells are suspended

Platelets: Cell fragments that are involved in the clotting process

Erythrocytes: Red blood cells

Hemoglobin: Iron containing protein that transports O2

Sickle Cell Disease: An abnormal form of hemoglobin (HbS) polymerizes into aggregates

Leukocytes: White blood cells

Stem Cell: Can reproduce indefinitely, dividing mitotically to produce one daughter cell that remains a stem cell and another that adopts a specialized function

Erythropoietin (EPO): Stimulates the generation of more erythrocytes. Recombinant DNA technology is now used

Thrombus: A blood clot

Atherosclerosis: The hardening of the arteries by accumulation of fatty deposits

Low Density Lipoprotein (LDL): Delivers cholesterol to cells for membrane production

High-density lipoprotein (HDL): Scavenges excess cholesterol for return to the liver

Heart attack: The damage or death of cardiac muscle tissue resulting from blockage of one or more coronary arteries

Stroke: The death of nervous tissue in the brain due to a lack of O2

Hypertension: Another contributor to heart attack and stroke

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Notes

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Parts of the Blood

Blood = tissue because made up of different cells that work together  
Four main parts:  
Red blood cells  
White blood cells  
Platelets  
Plasma (55%)

Red Blood Cells

AKA erythrocyte  
Contain hemoglobin (iron-rich)  
Oxygen binds to hemoglobin, that’s how it’s transported  
Biconcave shape  
4-6 million per cubic millimeter  
Why the shape?  
Larger surface area= more hemoglobin= more oxygen  
Allows entrance to small capillaries

White blood cells

AKA leukocytes  
You have different kinds  
Protect body from illness and infection  
Most only last a few days  
Constantly replaced  
5,000-10,000 per cubic millimeter of blood

Platelets

Small, irregularly shaped pieces of cells that plug wounds and stop bleeding  
Produce proteins to strengthen plug  
150,000-440,000 per cubic millimeter

Plasma

Yellowish, liquid part of blood  
Transports blood cells  
90% water- helps thin the blood  
Dissolves molecules (salt, sugar, vitamins, minerals, proteins, cellular waste)  
Albumin- buffer  
lgs  
Carries chemical messengers/signals that control the amount of salts and glucose that enter cells

Circulatory System Health

Hypertension AKA high blood pressure  
weakened/less flexible walls of arteries  
Atherosclerosis:  
buildup of fatty material in walls of arteries  
can interfere with blood flow  
breaks off= blockage  
in heart= can cause heart attack  
in brain= can cause stroke  
Heart attacks, strokes and heart failure:  
Heart attack= part of heart muscle dies or is damaged  
not enough oxygen reaches heart (usually blocked vessel)  
Stroke= part of brain dies or is damaged  
not enough oxygen reaches brain (blockage in brain)  
Heart failure= heart not working efficiently  
previous heart attack, issue with valves or damage

GPT

1. Plasma: The liquid component of blood that carries blood cells and other substances throughout the body. It is made up of water, salts, proteins, and other chemicals.
2. Platelets: Small, colorless cell fragments in the blood that help stop bleeding by forming clots at the site of an injury.
3. Erythrocytes: Also known as red blood cells, these are the most common type of blood cell. They contain hemoglobin and are responsible for transporting oxygen from the lungs to the body's tissues.
4. Hemoglobin: A protein found in red blood cells that is responsible for binding to oxygen and carrying it throughout the body.
5. Sickle Cell Disease: A genetic disorder that affects the shape of red blood cells, causing them to become crescent-shaped and rigid, which can lead to a range of health problems.
6. Leukocytes: Also known as white blood cells, these are the cells of the immune system that help protect the body against infections and diseases.
7. Stem Cell: A type of cell that has the potential to develop into many different types of cells in the body. They can be used to treat a variety of medical conditions.
8. Erythropoietin (EPO): A hormone produced by the kidneys that stimulates the production of red blood cells in the bone marrow.
9. Thrombus: A blood clot that forms within a blood vessel and can lead to blockages, potentially causing serious health problems.
10. Atherosclerosis: A condition in which plaque builds up inside arteries, narrowing them and reducing blood flow, which can increase the risk of heart attack and stroke.
11. Low Density Lipoprotein (LDL): A type of cholesterol often referred to as "bad" cholesterol because it can contribute to the development of atherosclerosis.
12. High-density lipoprotein (HDL): A type of cholesterol often referred to as "good" cholesterol because it can help remove cholesterol from the bloodstream, reducing the risk of atherosclerosis.
13. Heart attack: A medical emergency that occurs when blood flow to the heart is blocked, often by a blood clot, causing damage to the heart muscle.
14. Stroke: A medical emergency that occurs when blood flow to the brain is interrupted, either by a blood clot or a ruptured blood vessel, causing damage to the brain.
15. Hypertension: Also known as high blood pressure, this is a condition in which the force of blood against the walls of arteries is consistently too high, which can increase the risk of heart attack and stroke.