

# Animal Transport

## Circulatory System:

- Single Circulation: Blood passes through the heart once (e.g., fish).
- Double Circulation: Blood passes through the heart twice (e.g., mammals), allowing higher blood pressure.

## Blood Flow in Mammals:

- Deoxygenated blood enters the right atrium → right ventricle → lungs (to be oxygenated).
- Oxygenated blood returns to the left atrium → left ventricle → body.

## Heart Structure and Function:

- Right side: Pumps deoxygenated blood to the lungs.
- Left side: Pumps oxygenated blood to the body.
- Valves: Prevent backflow and ensure one-way blood flow.
- Septum: Separates oxygenated and deoxygenated blood.

## Heart Rate and Activity:

- Physical activity increases heart rate to meet the muscles' increased oxygen demand.

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## Coronary Heart Disease:

- Caused by blockage of the coronary artery, leading to heart attacks.
- Risk factors: poor diet, stress, smoking, genetics, age, and gender.
- Treatments include blood-thinning medications, stents, angioplasty, and bypass surgery.

## **Blood Vessels:**

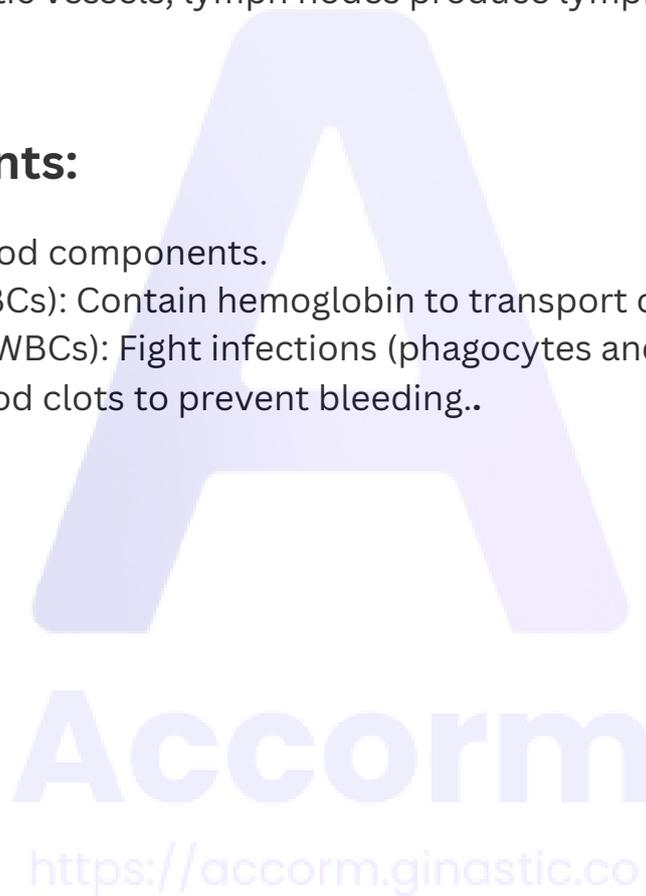
- Arteries: Thick walls, carry blood away from the heart.
- Capillaries: Thin walls, allow nutrient and waste exchange.
- Veins: Thin walls, carry blood toward the heart, have valves to prevent backflow.

## **Tissue Fluid and Lymphatic System:**

- Tissue Fluid: Facilitates nutrient and waste exchange between blood and cells.
- Drained by lymphatic vessels; lymph nodes produce lymphocytes for immunity.

## **Blood Components:**

- Plasma: Carries blood components.
- Red Blood Cells (RBCs): Contain hemoglobin to transport oxygen.
- White Blood Cells (WBCs): Fight infections (phagocytes and lymphocytes).
- Platelets: Form blood clots to prevent bleeding.



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