B3.2 Transport

What the Cell · DP Biology · note-taking sheet · animal statements B3.2.1–6

Name _____ **Date** _____

How to use this sheet: go through the slides and videos with it, then close them and write from memory. Use your own words and add page numbers from the book where you want more detail.

Guiding questions. Which adaptations help animals and plants move fluids around? How does transport in animals compare with transport in plants? (The plant half is in Plant Systems.)

B3.2.1 How capillaries are adapted for exchange

Textbook p. 296

Feature	How it helps exchange
Branching	
Narrow diameter	
Wall one cell thick	
Fenestrations in some capillaries	

Name one place where you would expect fenestrated capillaries, and explain why.

B3.2.2 The structure of arteries and of veins

Textbook pp. 296–297

Sketch an artery and a vein in cross-section, side by side. Label **lumen**, **tunica intima**, **tunica media** and **tunica externa**.

How to tell them apart	Artery	Vein
Wall thickness compared with lumen		
Shape in a section		
Tunica media		

B3.2.3 How arteries are adapted

Textbook pp. 297–298

Explain how each layer helps an artery to **withstand** and **maintain** high blood pressure.

Tissue in the wall	What it does when a pulse of blood arrives, and afterwards
Elastic fibres	
Smooth muscle	
Collagen	

B3.2.4 Measuring pulse rate

Textbook pp. 298–299

Name the two arteries normally used. Why should you use two fingers and not your thumb?

	Fingertips	Digital device
Your resting pulse / beats per minute		
One advantage		
One limitation		

B3.2.5 How veins are adapted

Textbook p. 299

Draw a vein with two pocket valves, one open and one closed. Add arrows for blood flow and for squeezing by muscles.

Explain how a flexible wall and valves work together to return blood at low pressure.

B3.2.6 What blocks coronary arteries, and what follows

Textbook pp. 300–302

Why does the heart muscle need its own arteries?

Put the stages in order, then add a consequence.

Fatty deposit forms under the endothelium	_____	Plaque ruptures	_____	Heart muscle is starved of oxygen	_____

List risk factors for coronary heart disease.

Look at a data set on saturated fat and heart disease. Give one strength and one limitation of the evidence. Why does a correlation not prove a cause?

Before you finish

Tick the ones you can explain without notes. Circle anything to ask about.

- ☐ Four adaptations of capillaries
- ☐ Telling arteries and veins apart in a micrograph
- ☐ The three layers of a vessel wall
- ☐ How elastic fibres keep pressure up
- ☐ How to take a pulse accurately
- ☐ How valves prevent backflow
- ☐ How muscles help blood return
- ☐ The stages of atherosclerosis
- ☐ Why an occlusion causes a heart attack
- ☐ Why correlation is not causation

What the Cell. Original material written for this course.