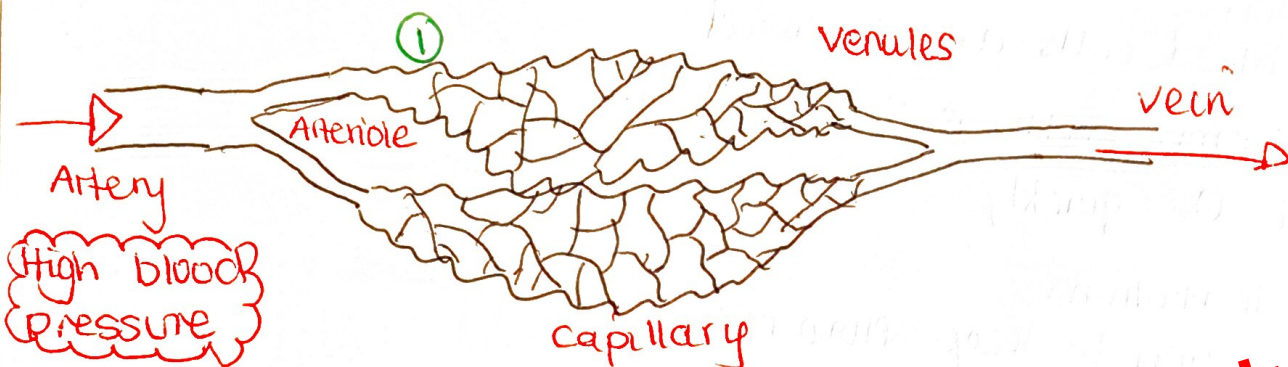
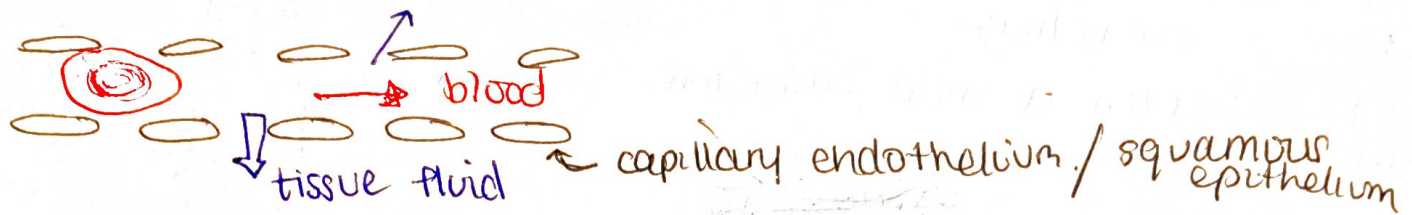


Tissue fluid

This bathes the cells of individual tissues to allow nutrients to diffuse into cells which can't access nutrients directly from the blood



[left over from heart contraction]

① * when blood reaches capillaries at the arteriole end, the blood pressure is still quite high due to contraction of left ventricle: "hydrostatic pressure"

* This forces plasma to push through thin permeable wall and out of capillary pores, along with dissolved O_2 , glucose, minerals etc.

* This is the tissue fluid

* only certain molecules can pass through the squamous epithelium: ultrafiltration:

- water, glucose & minerals leave
- larger proteins & cells remain

* Thus the amount of liquid in the capillaries falls, so blood pressure is lowered

* Hydrostatic pressure $\gg$ osmotic effect of water

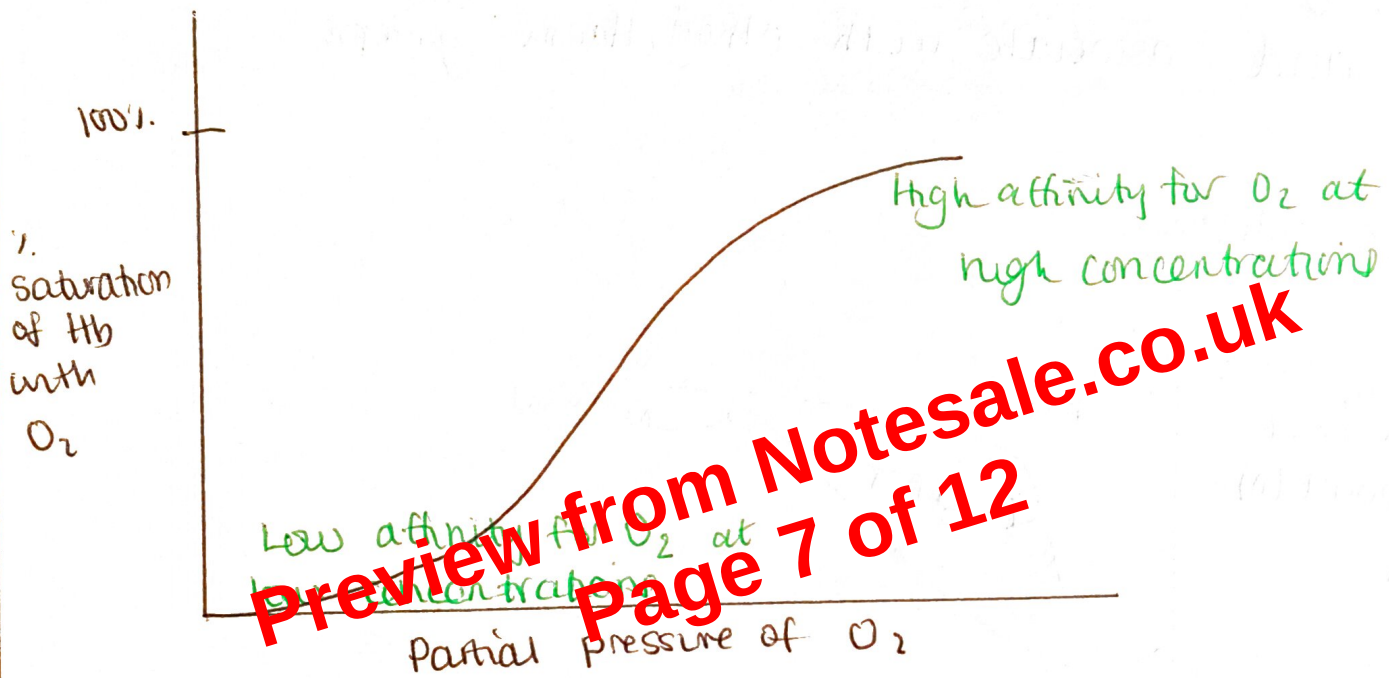
Transporting Oxygen
Oxygen is transported in haemoglobin in red blood cells.



Haemoglobin (Hb)

- made of 2 α and 2 β subunits
- is globular protein

Fe^{2+} subunits x4



① In lungs

- Here, oxygen is "loaded" onto Hb, where O_2 conc is the highest
- so Hb needs to pick up as much O_2 as possible
- Thus it needs to have a high affinity for O_2 when O_2 concentrations are high.



② Muscles

- Here oxygen is released to be used by cells in aerobic respiration
- so Hb must release O_2 "dissociation"
- Thus Hb has a low affinity for O_2 at low oxygen partial pressures.

