

*As blood is pumped along arteries, arterioles and capillaries, this creates a hydrostatic pressure.

*So at the arterial end of the capillaries, this hydrostatic pressure forces water and small molecules through the endothelium out of the blood plasma.

*The tissue fluid normally contains solutes in concentrations similar to those in blood plasma; however it has little if any proteins and no red blood cells.

*However, the hydrostatic pressure of the tissue fluid prevents outward movement of liquid from capillaries.

*The lower water potential of the blood due to plasma proteins draws water back into capillaries.

5).Capillary structure related to function:

*Exchange metabolic materials (e.g. oxygen, carbon dioxide, glucose) between the blood and the tissues

*Flow of blood in capillaries is slow to allow more time for the exchange of materials.

*Capillaries contain only the endothelium, so there is a short diffusion distance, allowing rapid diffusion of materials between the blood and the cells.

*Capillaries are highly branched, providing a large surface area for diffusion.

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