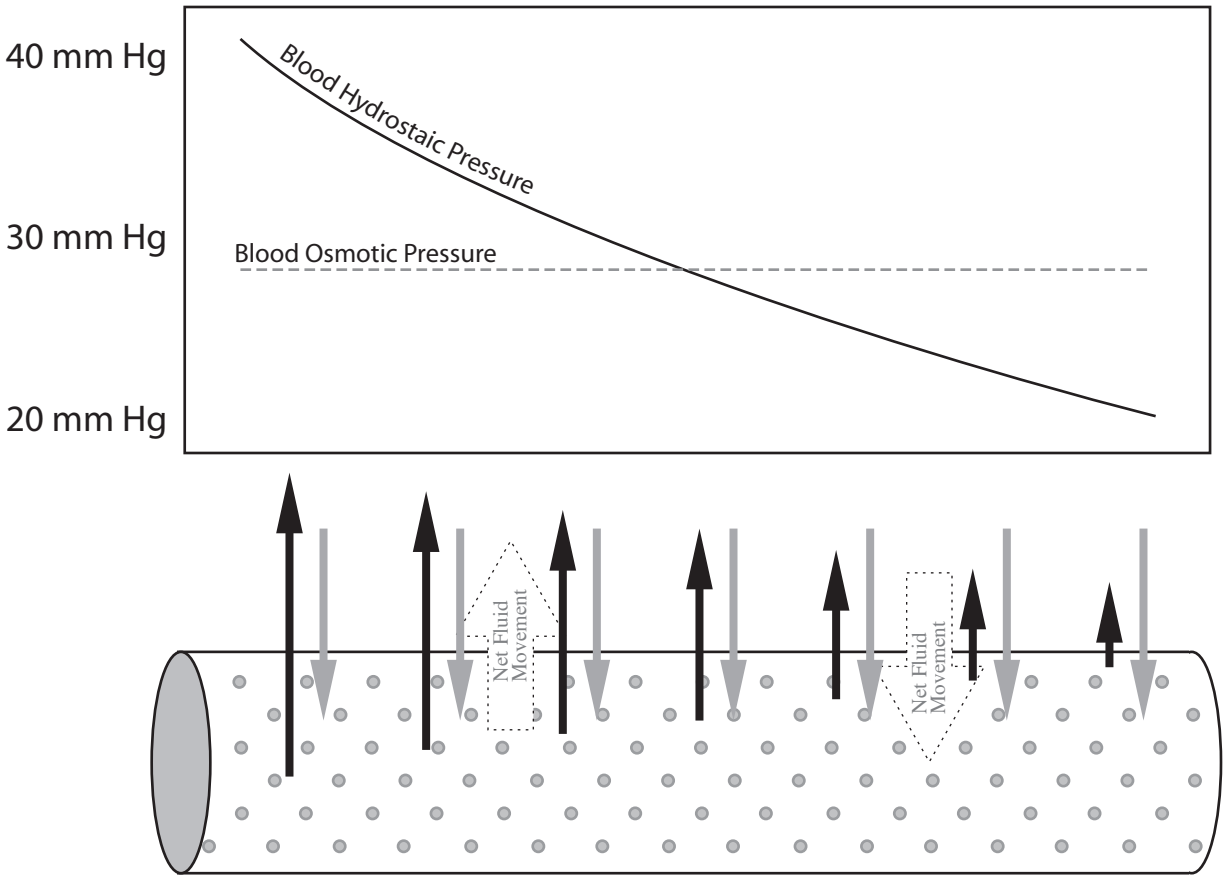
Fluid Movement at the Capillary

Ventricular contraction thrusts blood into elastic arteries and these expanded arteries will then propel the blood through the circulatory system due to their elastic recoil. As the blood moves through the vessels, it meets resistance due to blood viscosity and lumen diameter. Such resistance lowers the hydrostatic pressure further along the vessel. Furthermore, at the capillaries, fluid movement into the interstitial spaces will likewise account for a continued diminishing of hydrostatic pressure.



Countering the hydrostatic pressure at the capillaries is a substantial osmotic pressure created by the osmotically active protein, albumin. However, at the arterial end of a capillary, blood hydrostatic pressure will exceed blood osmotic pressure and this results in a net movement of fluid into the interstitial spaces. As the blood continues to move through the capillary, the hydrostatic pressure will continue to diminish due to continued resistance and fluid loss; and at a certain point, the hydrostatic pressure will be less than the osmotic pressure. Once blood hydrostatic pressure drops below plasma osmotic pressure, fluid will now return into the capillary. As the blood continues to move through the capillary at the venous end, blood hydrostatic pressure diminishes even more, and the net flow of interstitial fluid returning back into the capillary increases proportionally.