

2.4.2

Portal System

Portal systems are a type of vascular arrangement where blood from one capillary bed or beds converges into one or a few small vessels that carry the blood to a secondary capillary system before it returns to the heart. Three important portal systems are shown in the figure below. The hypothalamic-hypophyseal portal system transports hormone-rich blood from capillaries in the hypothalamus to capillaries in the anterior pituitary gland. The hepatic portal system transports nutrient rich blood from capillary beds in the gastrointestinal tract to capillary beds in the liver. The renal efferent artery transports blood from a renal corpuscle where blood is filtered to nearby tubes called nephrons that reabsorb much of the material in the filtrate and pass it back to the blood.

There are three portal systems in the body. In the image above we see a portal vessel carrying blood from a capillary bed in the hypothalamus to a capillary bed in the anterior pituitary. We also see a vessel carrying blood from capillary beds around the intestines to a capillary bed in the liver. Finally, in the kidney we see a vessel carrying blood from the glomerulus capillary bed in a renal corpuscle to a capillary bed that wraps around portions of the nephron.



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