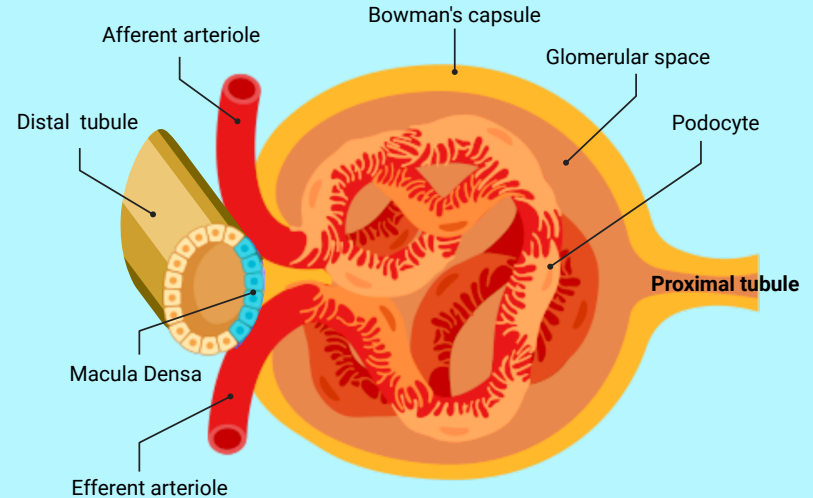
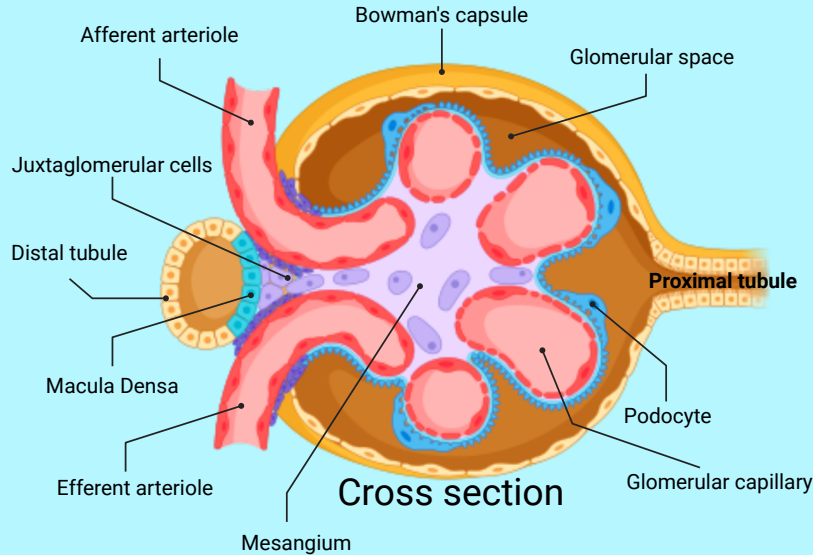


Renal Corpuscle

The renal corpuscle is the blood-filtering component of the nephron.



The glomerulus and Bowman's capsule are the two structures that make up the renal corpuscle.

Glomerulus - A tuft of capillaries located inside Bowman's capsule of the nephron. These capillaries *receive blood through the afferent arteriole*. The blood is filtered and passed through the walls of the capillaries through the glomerular basement membrane and between podocyte foot processes. The water and soluble substances that pass through enter the glomerular space inside Bowman's capsule and make up **ultrafiltrate**. The rate at which filtrate is produced from the plasma by the glomerulus known as **glomerular filtration rate (GFR)**. The filtrate that is produced is passed down the length of the nephron tubule to form urine. The filtered blood *leaves the glomerulus via the efferent arteriole*.

The glomerular capillaries are selectively permeable to different substances. *The oncotic pressure on glomerular capillaries resists filtration*. Large and negatively charged molecules are far less permeable and will rarely pass through. Sodium and potassium pass freely while large protein molecules (Hgb, albumin) have almost no permeability.

GFR is determined by the Starling equation

Macula Densa - Specialized cells that line the wall of the distal tubule (specifically the thick ascending limb of the loop of Henle) where it comes into contact with the glomerulus. The cells of the macula densa *sense sodium concentration* in the thick ascending LOH. Decreases in sodium concentration in the thick ascending limb trigger a signal from the macula densa causing an **increased renin release** from juxtaglomerular cells and an **increase in glomerular hydrostatic pressure** in an effort to restore normal GFR.