Urinary Excretory Anatomy

The excretory system is responsible for filtration and excretion from the body. It is primarily located in the kidneys. It begins with the glomerulus, which is a set of capillaries derived from the afferent arterioles, which bring blood to the kidneys for filtration. Those capillaries are surrounded by Bowman’s capsule, which serves as a primary filter and keeps cells, platelets, and large proteins in the blood rather than in the filtrate entering the nephron.The nephron is the functional unit of the kidney. It spans the renal cortex, the outermost layer of kidney tissue, and the renal medulla, the inner layer of tissue. The renal cortex tissue surrounds the proximal tubule, a location for the absorption of ions, organic molecules, vitamins, and water. After traveling through the proximal tubule, filtrate enters the loop of Henle, which has an ascending and descending limb. The descending loop is more permeable to water, while the ascending loop is more permeable to salts and urea. Filtrate then enters the distal tubule, where salt and water are reabsorbed in roughly equal proportions. It then travels to the collecting duct and is concentrated.The ureter uses smooth muscle to force urine from the nephron to the urinary bladder, and the urine is stored there until it is excreted. Urine leaves the body through the urethra.

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Characteristics

Renal Medulla
Medusa
The medulla is the inner layer of kidney tissue, often called the renal medulla. The nephron spans both the renal cortex and medulla. The renal medulla contains the structures of the nephrons responsible for maintaining the salt and water balance of the blood.

Renal Cortex
Cortez on cortex of kidney
The renal cortex is the outer layer of kidney tissue where a lot of nutrient absorption occurs.

Nephron
Nerf-darts in Nephron
The nephron is the functional unit of the kidney responsible for absorption and secretion of nutrients.

Bowman's Capsule
Bow-man
Bowman's capsule surrounds the glomerulus and prevents filtration of cells, platelets, and large proteins into the nephron. Those molecules remain in the blood.

Glomerulus
Glow-mare
The glomerulus is a cluster of capillaries derived from the afferent arterioles that bring blood to the kidney.

Proximal Tubule
P-rocks at opening of Tube
The proximal tubule is the site of absorption for many ions, organic molecules, vitamins and water.

Loop of Henle
Loop of Hens
The loop of Henle has ascending and descending limbs. The descending limb is more permeable to water, while the ascending limb is more permeable to salts and urea.

Distal Tubule
Disco Tube
The distal tubule is the last major absorption area of the nephron. It absorbs roughly equal amounts of salt and water.

Collecting Duct
Collection Duck
The collecting duct is the location where urine becomes concentrated, and is prepared to be excreted.

Ureter

U-rooster

The ureter is outside of the nephron and connects the collecting duct and the urinary bladder. It contains smooth muscle which helps push urine to the bladder.

Urinary Bladder

Urinal with Bladder

The urinary bladder is the storage location of urine until it is ready to be excreted. Urine makes its way to the bladder via the ureters, which bring newly made urine to the bladder.

Urethra

U-wreath

The urethra is the last organ that urine travels to before being excreted out of the body. It is a tube that connects the urinary bladder to the urinary meatus for the removal of fluids from the body.