

Aim: Study of urinary systems and organs with the help of charts, models, and specimens.

Introduction: The urinary system, also known as the renal system, is responsible for producing, storing, and eliminating urine. Maintaining the body's water and electrolyte balance, regulating blood pressure, and eliminating waste products are crucial.

1. Kidneys:

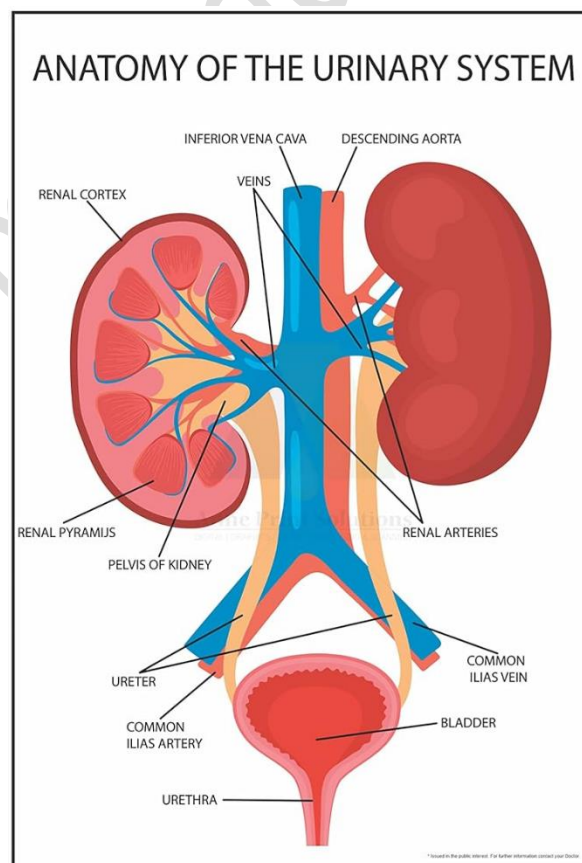
Functions: Primary organs of the urinary system, kidneys filter blood to remove waste products, excess fluids, and electrolytes. They play a key role in maintaining homeostasis by regulating blood pressure, electrolyte balance, and acid-base balance.

Structures: Each kidney consists of an outer cortex and an inner medulla. Renal arteries bring blood to the kidneys for filtration, and renal veins carry filtered blood away.

2. Ureters:

Functions: Tubes that transport urine from the kidneys to the urinary bladder.

Structure: Ureters are muscular tubes with a lining that uses peristaltic contractions to move urine toward the bladder.



3. Urinary Bladder:

Functions: Storage of urine until it is ready for elimination.

Structure: The bladder is a muscular organ with elastic walls that expand to accommodate urine. The urethra connects the bladder to the external environment for urine release.

4. Urethra:

Functions: Conducts urine from the bladder to the external environment for elimination.

Structure: The urethra has different lengths in males and females. In males, it is longer and also serves as the passage for semen during ejaculation.

Urination Process:

- 1. Filtration:** Blood is filtered in the kidneys to remove waste products and excess substances.
- 2. Reabsorption:** Essential substances, such as water and electrolytes, are reabsorbed back into the bloodstream.
- 3. Secretion:** Additional waste products are actively transported into the urine.
- 4. Urine Storage:** The urine is collected in the bladder for temporary storage.
- 5. Voiding (Micturition):** The release of urine from the bladder through the urethra.

The urinary system is vital in maintaining the body's internal environment. It regulates fluid and electrolyte balance, removes metabolic waste, and contributes to blood pressure regulation. Dysfunction in any part of the urinary system can lead to various health issues, emphasizing the importance of its proper functioning.