

Tikrit University

College of Nursing

Basic Nursing Sciences



First Year - 2023-2024

Anatomy

First stage

(عنوان المحاضرة)

Urinary system

by:

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Urinary system :

Many of the body's waste products are passed out of the body in urine.

The urinary system is made up of :

1. Kidneys.
2. Urinary bladder.
3. Ureters.
4. Urethra.

1. Kidneys : The human body has two kidneys, one on either side of the middle back, just under the ribs. Each kidney contains thousands of small filters called nephrons. Each nephron has a mesh of capillaries, connecting it to the body's blood supply. Around 180 litres of blood sieve through the kidneys every day.

The main functions of the kidney include:

Regulating the amount of water and salts in the blood
Filtering out waste products
Making a hormone that helps to control blood pressure.

2. Ureters : Each kidney has a tube called a ureter. The filtered waste products (urine) leave the kidneys via the ureters and enter the bladder.
3. Bladder : The bladder is a hollow organ that sits inside the pelvis. It stores the urine. When a certain amount of urine is inside the bladder, the bladder 'signals' the urge to urinate. Urine contains water and waste products like urea and ammonia.
4. Urethra : The urethra is the small tube connecting the bladder to the outside of the body. The male urethra is about 20 centimeters long, while the female urethra is shorter, about four centimeters. At the urethra's connection to the bladder is a small ring of muscle, or sphincter. This stops urine from leaking out.

Functions of the Human Urinary System:

Each part of the urinary system performs important functions - both for the efficient operation of the urinary system itself, and also therefore, for the body as a whole.

Functions of the Kidneys:

1. Excretion of Waste Products.
2. Regulation of blood volume.
3. Regulation of the pH of the blood.
4. Regulation of the ionic composition of blood.
5. Regulation of blood pressure .
6. Erythrocyte (RBC) Production.

Functions of the Ureters:

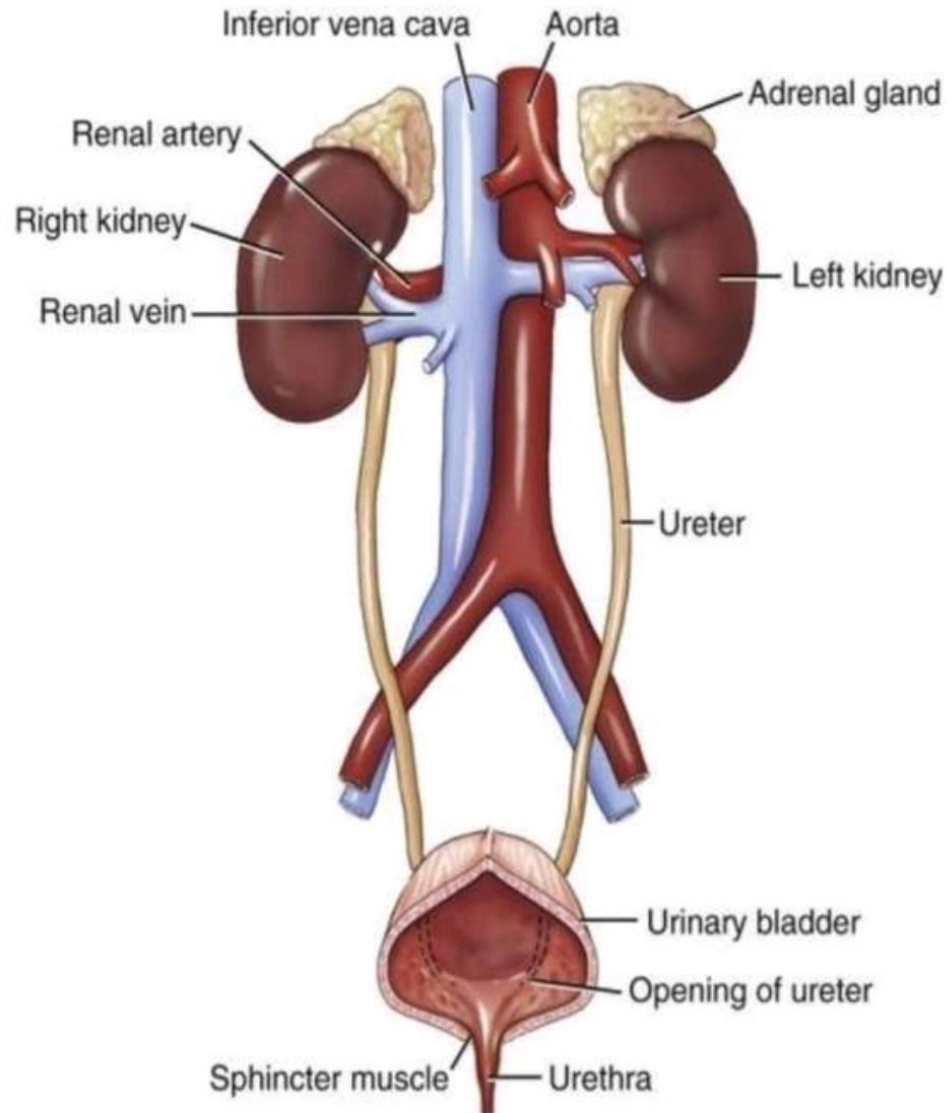
1. Their primary ureter function is to connect kidneys and bladder which are two out of four major organs of your excretory system and transfer urine from the former to the latter through hollow cylindrical tubes. The fibrous, mucus and muscular coats in the lining of ureters play a significant role in the flow of excretory fluid through them.
2. Another function of these tubes is to ensure the unidirectional flow and prevent the backward movement of urine. This function is owed to the presence of ureter vesical junction (UVJ) at the distal end of each ureter that contains ureteric muscles. The smooth involuntary muscles contract about five times in minutes at any point along the tubes and produce peristaltic movements for pushing the fluid downwards.

Functions of the Bladder:

1. The purpose of the urinary bladder is to store urine prior to elimination of the urine from the body.
2. The bladder also expels urine into the urethra by a process called micturition (also known as urination). Micturition involves the actions of both voluntary and involuntary muscles. Lack of voluntary control over this process is referred to as incontinence.

Functions of the Urethra :

1. The urethra is the passageway through which urine is discharged from the body.
2. In males the urethra also serves as the duct through which semen is ejaculated (see the section about reproduction for further detail about this function).



The Functions of the Urinary System :

1. The kidneys regulate blood volume and composition, help to regulate blood pressure and pH, participate in red blood cell production and synthesis of vitamin D, and excrete waste products and foreign substances.
2. The ureters transport urine from the kidneys to the urinary bladder.

3. The urinary bladder stores urine and expels urine into the urethra,
4. The urethra discharges urine from the body.

Urinary System Organs and Their Functions :

Kidneys : Location : Posterior abdominal wall, Right kidney is inferior to left kidney.
Description/character : Paired, bean-shaped organs, composed of outer cortex and Inner medulla.

Ureters : Location : Extend from kidneys to trigon of bladder, along posterior abdominopelvic wall. Description/character : Paired thin, fibromuscular tubes composed of inner mucosa, Middle muscularis of smooth Muscle and an outer adventitia.

Urinary bladder : Location : Pelvic cavity, posterior to public symphysis (when full extends into inferior part of abdominal cavity). Description/character : Muscular distensible sac composed of inner mucosa, a submusoca, a muscularis, and an outer adventitia or serosa. The neck of the bladder is the inferior constricted region where Bladder and urethra meet, contains internal urethra sphincter.

Urethra : Location : Inferior to neck of urinary Bladder, extends through muscles of pelvic floor and opens into perineum. Description/character : Single muscular tube, 3-5 cm long females, 18-20 cm long in males.

Components of the Urinary System

