

اسم المادة و الكورس

MEDICAL TERMINOLOGY URINARY SYSTEM



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كلية التقنيات الصحية والطبية

Department of Anesthesia

قسم تقنيات التخدير

..... 2 Stage

المرحلة الثانية

محاضرة رقم 6.....

نظري

Lecture No.

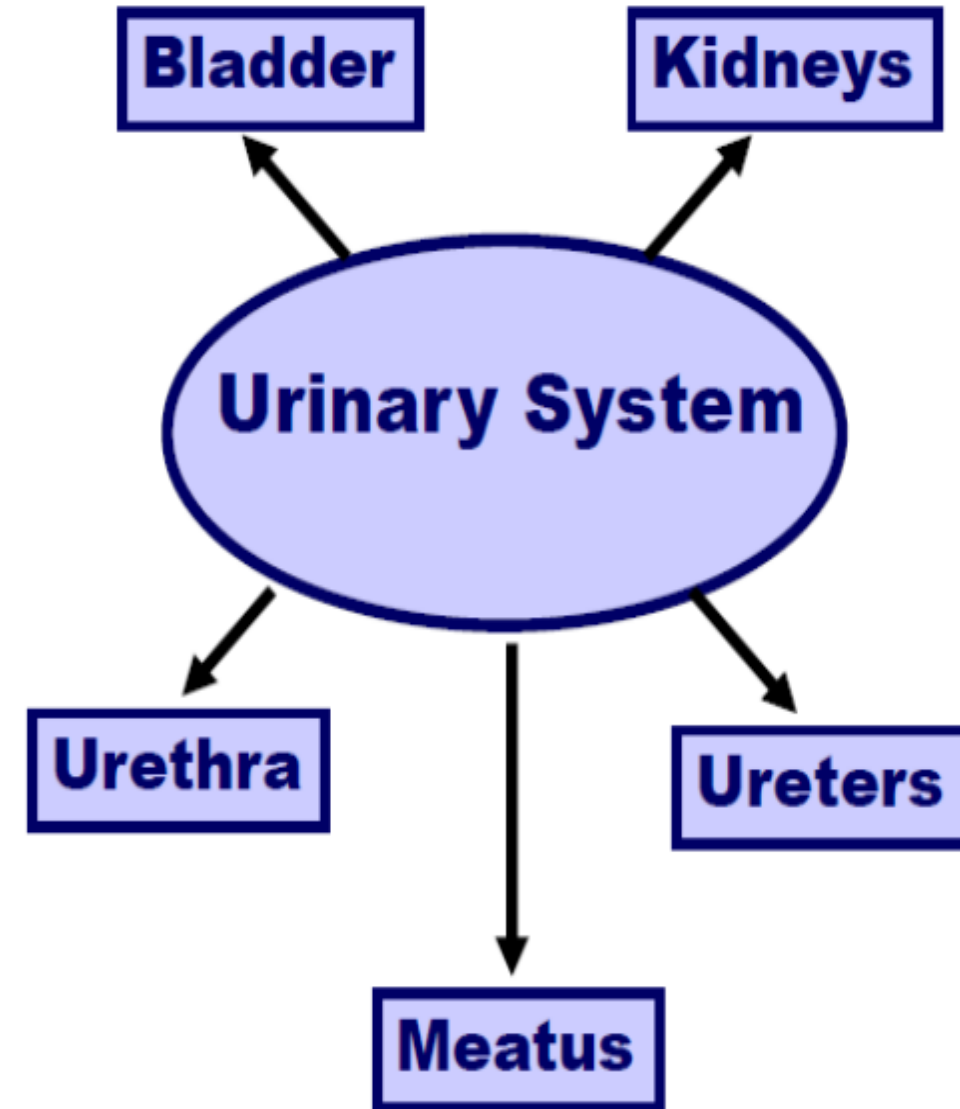
Theoretical

استاذ المادة :الدكتور علي عواد

Structure and Function

The Urinary System

- Also called the excretory system
- Maintains water balance
- Removes waste products from the blood by excreting them in the urine



Structure and Function

Kidneys

The kidneys are bean-shaped organs located in the retroperitoneal portion of the abdominal cavity on either side of the vertebral column.

Two Primary Functions

- To form urine for excretion**
- To retain essential substances the body needs in the process called reabsorption**

Structure and Function

Urine is produced by **filtration of:**

- water
- sugar
- creatinine
- salts
- urea
- uric acid

Each kidney contains more than 1 million **nephrons which are the functional units of the kidneys.**

Blood Flow through the Kidneys

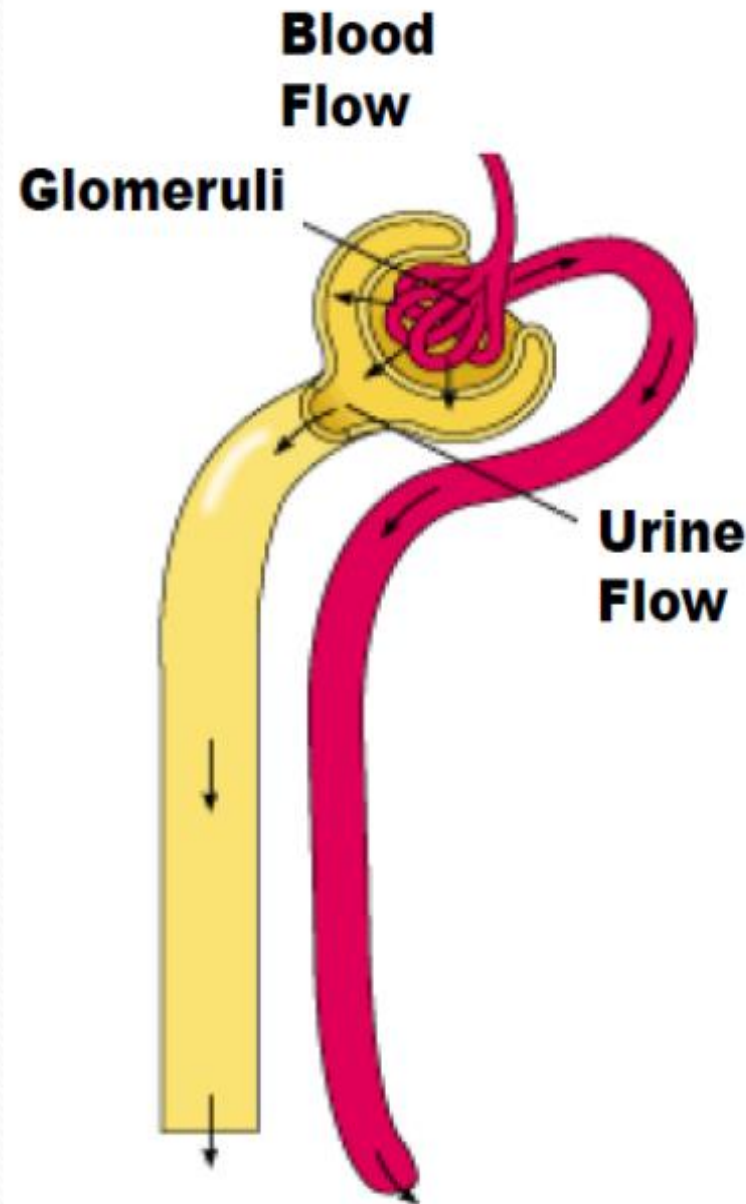
Blood enters through the **renal artery → arterioles →**

Each arteriole leads to a **nephron → **renal corpuscle****

(which has a group of capillaries called the **glomerulus)**

The glomerulus filters fluid from the blood, and is the first place where urine is formed in the kidneys.

Structure and Function



- **Blood flows through the glomerulus at a constant rate.**

- **Each glomerulus is surrounded by a capsule known as **Bowman's capsule**.**

- **Blood then passes into the **renal tubules** where some substances are **reabsorbed** and the remaining become urine.**

Structure and Function

Flow of Urine

glomerulus



renal tubules



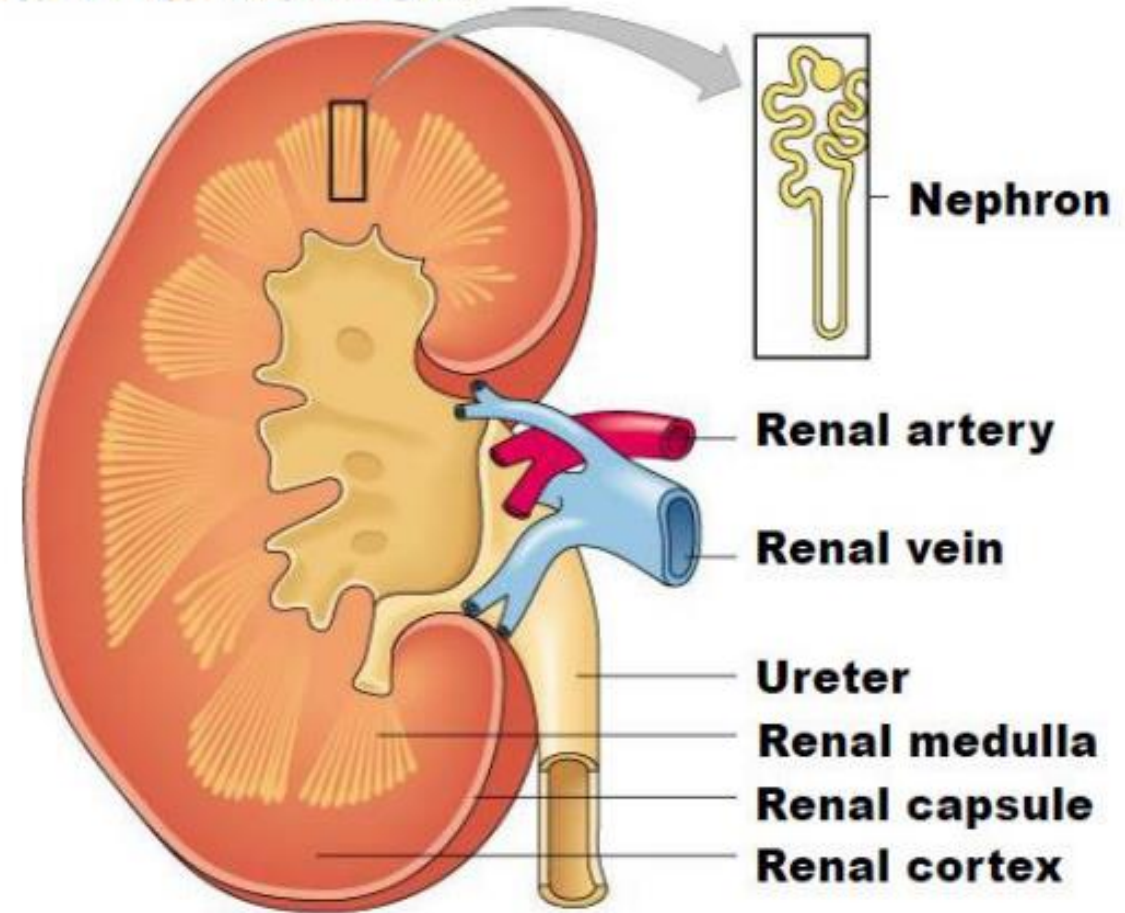
renal pelvis



renal calices



ureters



Filtered blood exits the kidneys via the renal vein.

The renal tubules carry urine to ducts in the renal cortex.

Structure and Function

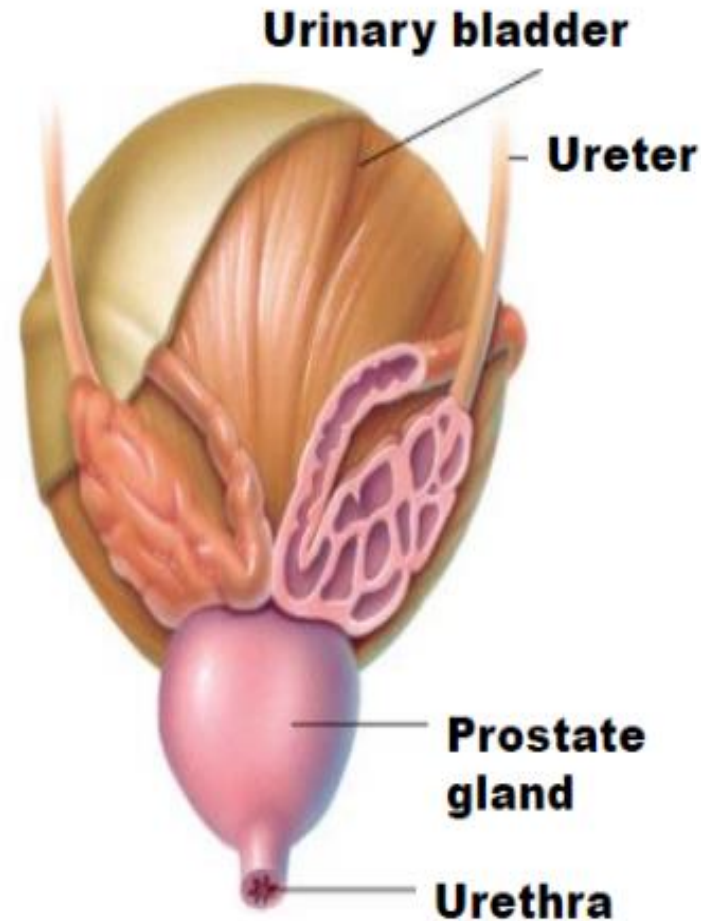
Ureters

- **A tube approximately 6 to 7 inches long attached to each kidney**
- **Made up of three layers of tissue**
 - smooth muscle
 - fibrous tissue
 - mucous layer

Peristalsis, a rhythmic contraction of the ureter smooth muscle which helps to move the urine into the bladder.

Structure and Function

Urinary Bladder



- **Hollow, muscular organ that stores urine**
- **Sphincter muscles** hold the urine in place
- **Holds 300 to 400 milliliters of urine before emptying**
- **Walls contain epithelial tissue that stretch to allow the bladder to hold twice its capacity**
- **The trigone** is a triangular area at the base of the bladder where the ureters enter and the **urethra** exits

Structure and Function

Urethra

A tube of smooth muscle with a mucous lining that carries urine from the bladder to the outside of the body.

Female Urethra

- **Approximately 1.5 inches long**
- **Opens through the meatus**

Excreting urine is called voiding or micturition

Male Urethra

- **Approximately 8 inches long**
- **Passes through three different regions:**
 - **prostate gland**
 - **membranous portion**
 - **penis**

Combining Forms and Abbreviations

Combining Forms

Meaning

cali(o)	→	calix
cyst(o)	→	bladder
glomerul(o)	→	glomerulus
meato	→	meatus
nephr(o)	→	kidney
pyel(o)	→	renal pelvis
ren(o)	→	kidney

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Combining Forms and Abbreviations

Combining Forms

Meaning

trigon(o)	→	trigone
urin(o)	→	urine
ureter(o)	→	ureter
urethr(o)	→	urethra
vesic(o)	→	bladder

Abbreviation

Meaning

ADH	→	antidiuretic hormone
A/G	→	albumin/globulin
AGN	→	acute glomerulonephritis
ARF	→	acute renal failure
ATN	→	acute tubular nephrosis
BNO	→	bladder neck obstruction
BUN	→	blood urea nitrogen

Pathological Terms

Urinary Tract Infection

Glomerulonephritis

Nephritis

**Inflammatory
&
Infectious Disorders**

Nephrosis

Hydronephrosis

Polycystic kidney disease

Nephroblastoma

Cystitis

Pathological Terms

Terms Used to Describe Difficulties in Urination

anuresis

- **No urinary output**

dysuria

- **Painful urination**

enuresis

- **Lack of bladder control**

polyuria

- **Excessive urination**

incontinence

- **Involuntary discharge of urine or feces**

oliguria

- **Scanty urination**

Surgical Terms

Parts of the urinary system may be surgically removed

- **Nephrectomy**- removal of a kidney
- **Ureterectomy**- removal of a ureter
- **Cystectomy**- removal of the bladder



Surgical repair procedures

- **Pyeloplasty**- repair of the renal pelvis
- **Cystoplasty**- repair of the bladder
- **Urethroplasty**- repair of the urethra

A **urostomy** is the creation of an artificial opening in the abdomen through which urine exits the body.

Surgical Terms

Other Surgical Procedures

Nephrolysis

- Removal of an adhesion in the kidney

Nephrolithotomy

- Removal of a kidney stone

Nephropexy

- Surgical fixation of the kidney

Nephrorrhaphy

- Suturing of a damaged kidney



Pharmacological Terms

Medications used for urinary conditions assist t

- **Relieve Pain (analgesic)**
- **Relieve Spasms (antispasmodic)**
- **Inhibit the growth of microorganisms (antibiotic)**
- **Increase urine output (diuretic)**
- **Decrease urine output (antidiuretic)**

