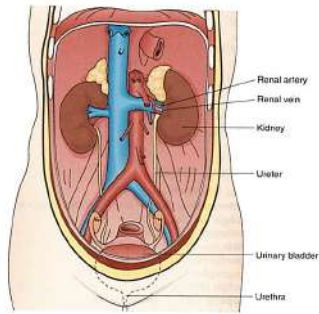


# The Urinary System

## FUNCTIONS:

performs many functions that are important in maintaining homeostasis.

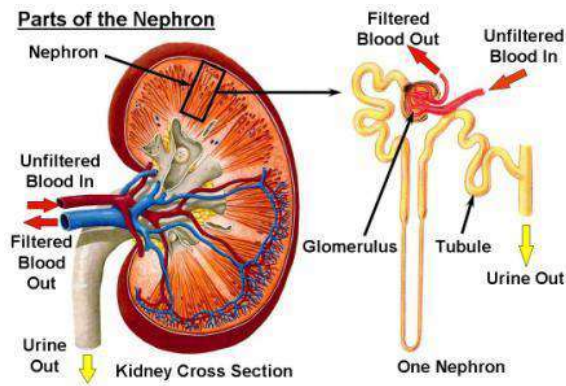
1. Maintain Fluids	How:
2. Filter Blood	How:
3. Excrete Waste	How:



## STRUCTURES:

Structure	Function
<p>KIDNEYS</p> <p>Three regions</p> <ol style="list-style-type: none"> <li>1. Cortex</li> <li>2. Medulla</li> <li>3. Pelvis</li> </ol> <p>A cross-section diagram of a kidney. It shows the outer layer (cortex), the inner layer (medulla), and the central part (pelvis). The cortex is the outermost layer, the medulla is the inner layer, and the pelvis is the central part. The diagram also shows the renal arteries and veins entering and exiting the kidney.</p>	<p>What?</p> <p>Located where?</p> <p>It has 2 layers which surround a <b>renal pelvis</b>:</p> <ol style="list-style-type: none"> <li>1. Outer=</li> <li>2. Inner=</li> </ol>

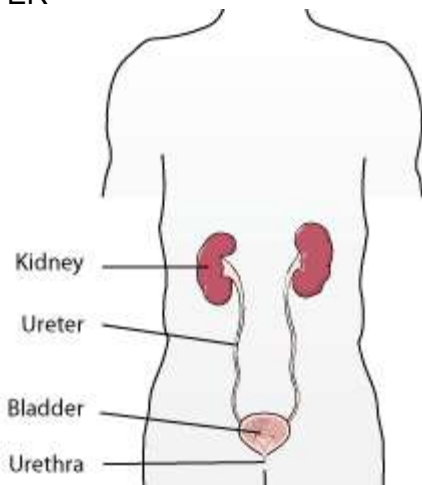
(WITHIN THE KIDNEYS):



- NEPHRON
- GLOMERULUS
- BOWMAN'S CAPSULE
- RENAL ARTERY & VEIN

More Structures:

URETER



URINARY BLADDER

What is urochrome?-

	<b>Urea?-</b>
URETHRA	<p>Contains 2 urinary_____.</p> <p><b>Meatus:</b></p>

### THE EXCRETION OF URINE:

As the bladder fills up, **pressure** is placed on the base of the urethra, resulting in the urge to urinate or **micturate** or “**void**”

- **Urination** requires the \_\_\_\_\_ of the bladder muscles + \_\_\_\_\_ of \_\_\_\_\_.
- POTTY TRAINING...REMEMBER THOSE DAYS??

### PATHOLOGY OF THE URINARY SYSTEM

<b>Kidney Failure</b>	Inability of the kidneys to function because too many nephrons have been damaged. Q:What causes the damage?
<b>Diabetic Nephropathy</b>	Damage to the kidney's capillaries as a result of diabetes
<b>Anuria</b>	
<b>Uremia</b>	
<b>Acute Renal Failure</b>	
<b>Nephrotic Syndrome</b>	Group of symptoms referring to edema, hyperproteinemia, hyperproteinuria, and hyperlipidemia!
<b>Edema</b>	Excessive fluid in body tissue
<b>Hyperproteinemia</b>	
<b>Hyperproteinuria</b>	
<b>Hyperlipidemia</b>	
<b>Nephrosis/Nephropathy</b>	

\*\*Use your knowledge of medterm parts to put these pathology definitions together!\*

### PATHOLOGY OF THE KIDNEYS

<b>Glomerulonephritis</b>	
<b>Hydronephrosis</b>	Enlargement of the renal pelvis due to water retention
<b>Nephritis</b>	
<b>Nephroptosis</b>	("Floating Kidney")
<b>Nephropysis</b>	
<b>Pyelitis</b>	
<b>Pyelonephritis</b>	
<b>Renal Colic</b>	

**Table 9.1**

### **TYPES AND LOCATIONS OF URINARY STONES**

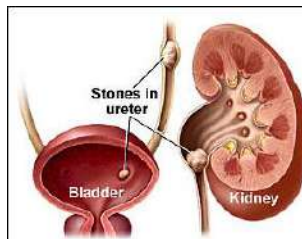
<b>Type of Stone</b>	<b>Word Parts</b>	<b>Location</b>
<b>Cystolith</b> (SIS-toh-lith)	<b>cyst/o</b> means bladder and <b>-lith</b> means stone	Urinary bladder
<b>Nephrolith</b> (NEF-roh-lith), also known as <b>renal calculus</b> or a <b>kidney stone</b>	<b>nephro/o</b> means kidney and <b>-lith</b> means stone	Kidney
<b>Ureterolith</b> (you-REE-ter-oh-lith)	<b>ureter/o</b> means ureter and <b>-lith</b> means stone	Ureter

#### **Stones (-lith)**

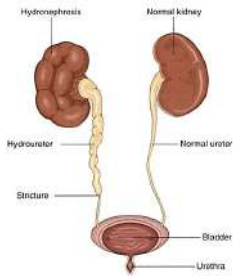
- **Calculus:**

Stones are named by the organ they invade. *i.e.* *cystolith*, *nephrolith*, *ureterolith*

- **Nephrolithiasis-**



## **PATHOLOGY OF THE URETERS**

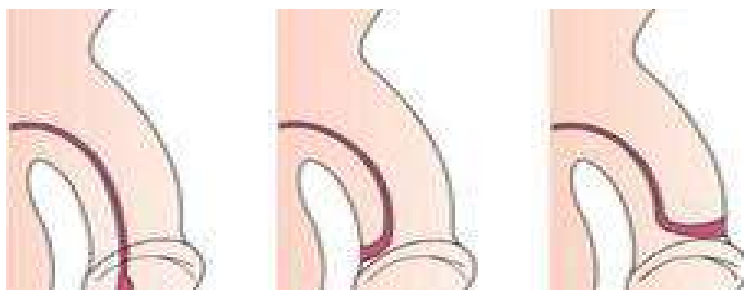
Hydroureter	
Ureterectasis	
Ureterorrhagia	
ureterostenosis	Narrowing of a ureter

## PATHOLOGY OF THE URINARY BLADDER

cystalgia	
cystitis	
Interstitial cystitis	Inflammation in the wall of the bladder
cystocele	Hernia of the bladder through the vaginal wall
cystorrhagia	
Urinary Tract Infection (UTI)	
Vesicovaginal fissure	(lookup; crazy!)

## PATHOLOGY OF THE URETHRA

Reflux	Blockage of the urethra- can cause urine to back up
Urethralgia	
Urethritis	
Urethrorrhagia	
Urethrorrhea	
Urethrostenosis	
Abnormal Urethral Openings	<p>Very rare, genetic disease in which the urethral openings in males is located on the top, undersurface, or side of the penis.</p> <ul style="list-style-type: none"> <li>• <i>epispadias</i></li> <li>• <i>Hypospadias</i></li> <li>• <i>paraspadias</i></li> </ul>



## URINATION DISORDERS

**diuresis-** peeing often

**dysuria-**

**enuresis-** involuntary discharge of urine

- **nocturnal enuresis-**

**nocturia-**

**oliguria-**

**polyuria-** large output of urine

**urinary retention-** The inability to empty the bladder

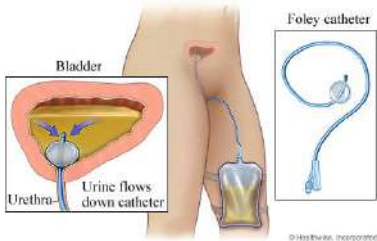


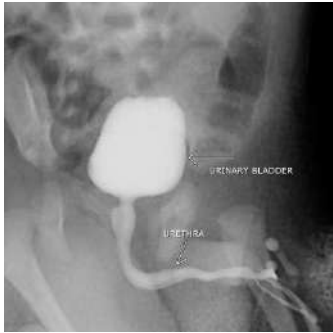


## INCONTINENCE

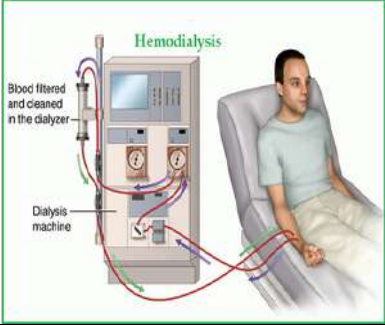
The inability to control excretory functions (urine &/or stool)

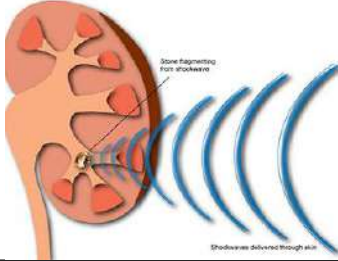
- **Urinary Incontinence -**
- **Urinary stress incontinence-**
  - o Ex.)
- **Urge incontinence-**
  - o Ex.)

## DIAGNOSTICS

<p><u>Catheterization</u></p> 	<p><u>Cystoscopy</u></p>	<p><u>Intravenous pyelogram (IVP)</u></p> 
<p><u>KUB</u> Examines the kidneys, ureters &amp; bladder Same as IVP, but without contrast. "Flat plate of the abdomen"</p>	<p><u>IV Urography</u> Another type of contrast x-ray of the UT</p>	<p><u>Excretory Urography</u> Traces the action of the kidney as it processes and excretes dye injected into the bloodstream.</p>
<p><u>Urinalysis</u></p> 	<p><u>Voiding Cystourethrography</u></p> 	<p><u>Retrograde Urography</u> Radiograph of the UT after dye has been inserted via the urethra and flown backward through the UT</p>
<p>Cystography-</p>		

## TREATMENTS FOR THE KIDNEYS

<p>Diuretics (medication)</p>	
<p>Dialysis:</p>	
<ul style="list-style-type: none"> <li>Hemodialysis</li> </ul>	
<ul style="list-style-type: none"> <li>Peritoneal Dialysis</li> </ul>	

Kidney Transplant	
Nephrolysis	Freeing of a kidney from a _____
Nephropexy	Surgical fixation of a floating kidney
Nephrostomy	Creating a surgical opening in kidney leading to a urine bag outside the body
pyeloplasty	Repair of _____
Pyelotomy	
Kidney Stone Removal	
<ul style="list-style-type: none"> <li>lithotripsy</li> </ul>	
<ul style="list-style-type: none"> <li>nephrolithotomy</li> </ul>	

### **TREATMENT FOR THE URETERS**

Ureterectomy	
Ureteroplasty	
Ureterorrhaphy	

### **TREATMENTS FOR THE BLADDER**

Cystectomy	
Cystopexy	
Cystorrhaphy	
Lithotomy	
Suprapubic catheter	a catheter placed into the bladder through a small incision made through the abdominal wall

### **TREATMENTS FOR THE URETHRA**

Meatotomy	
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Urethropexy	Fixing the urethra usually for urinary stress incontinence
Urethroplasty	
Urethrostomy	
Urethrotomy	

***Career Opportunities:***

Dialysis Technician  
Urology Licensed Practical Nurse  
Nephrologist  
Urologist