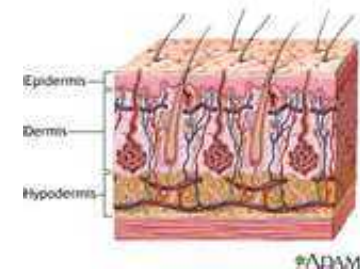
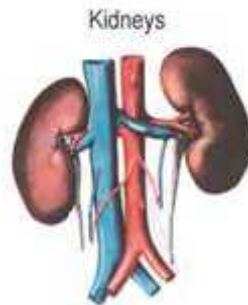
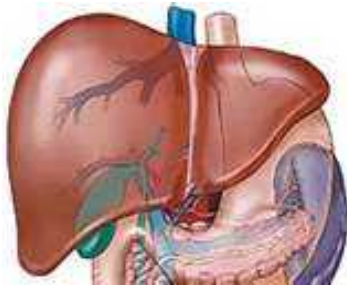


# Excretion

Although the urinary system has a major role in excretion, other organs contribute to the excretory function.

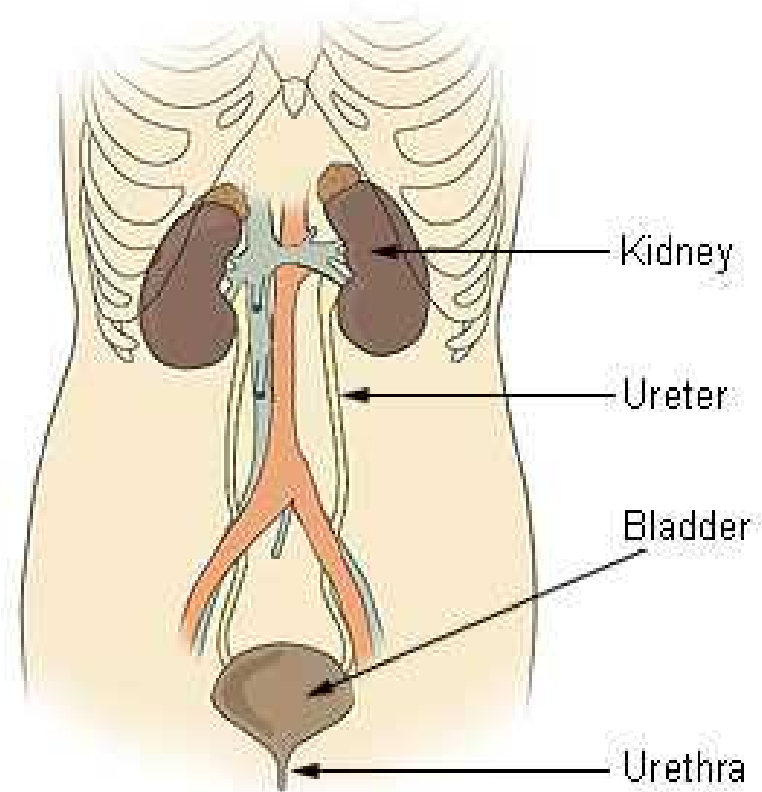


# Kidneys & Urinary System

- Urinary System – excretes waste and maintains homeostasis of body fluids.

## **Components of the Urinary System**

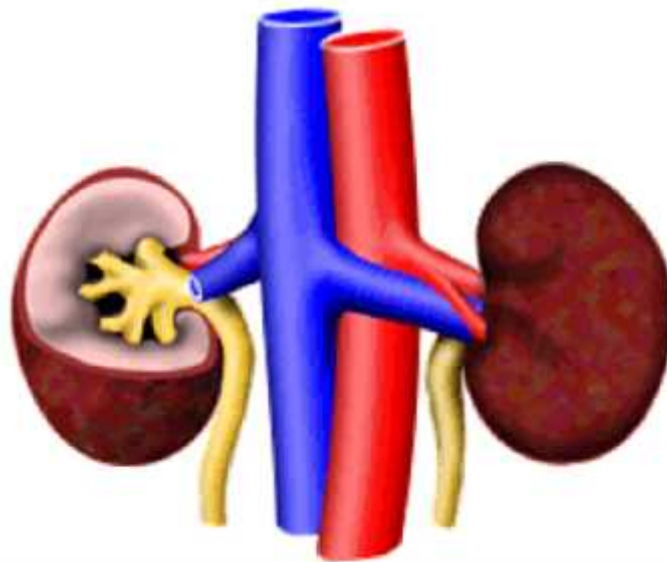
- Kidneys
- Ureters
- Bladder
- Urethra



# Kidneys

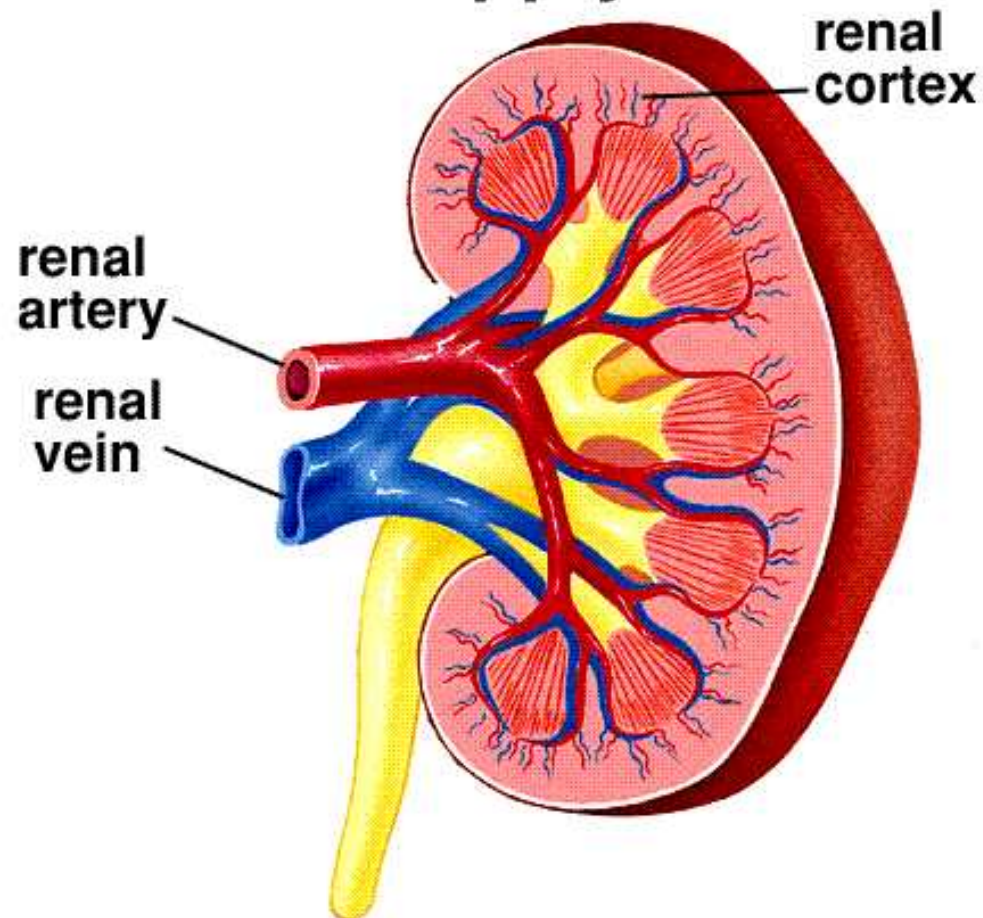
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- Two reddish organs just above the waist behind the stomach
- Filter the blood and removes waste

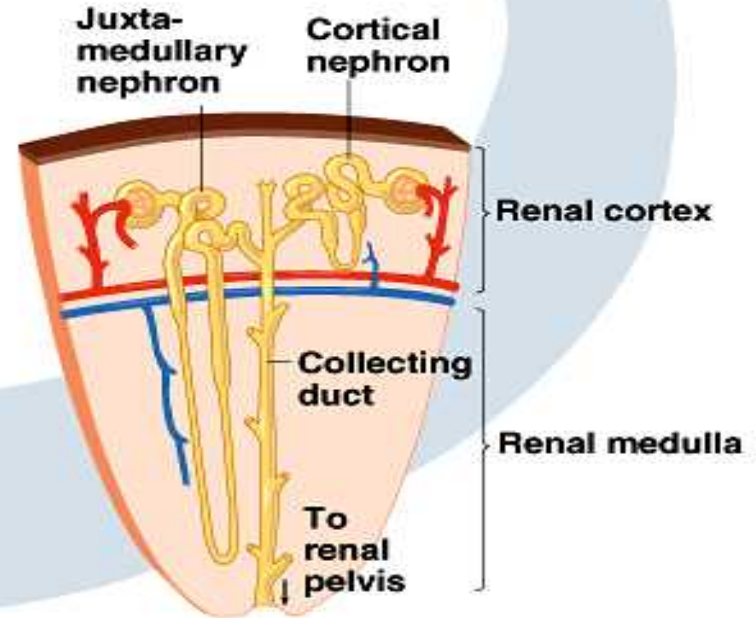
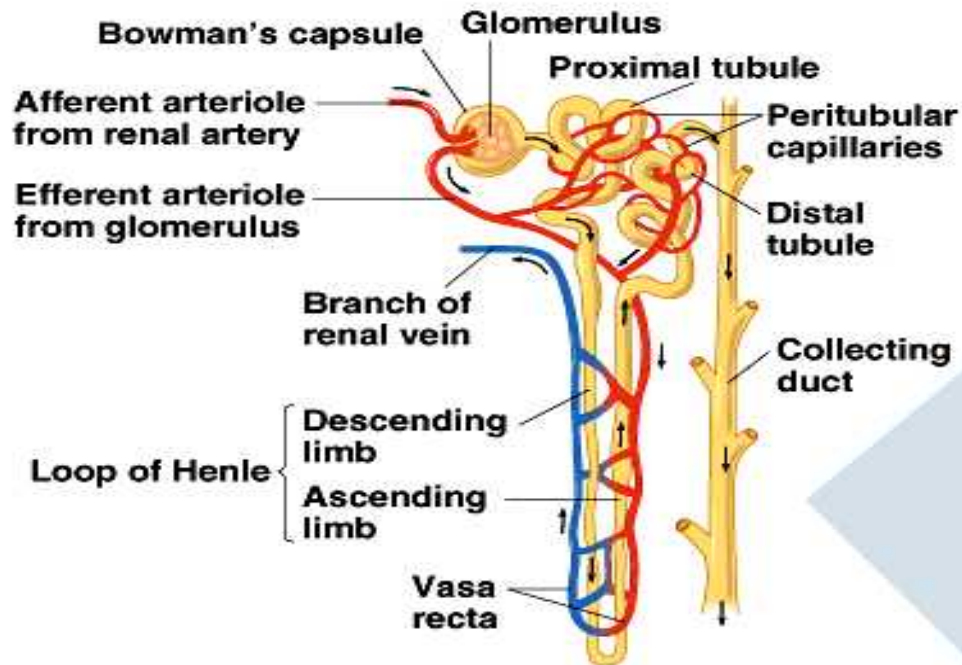
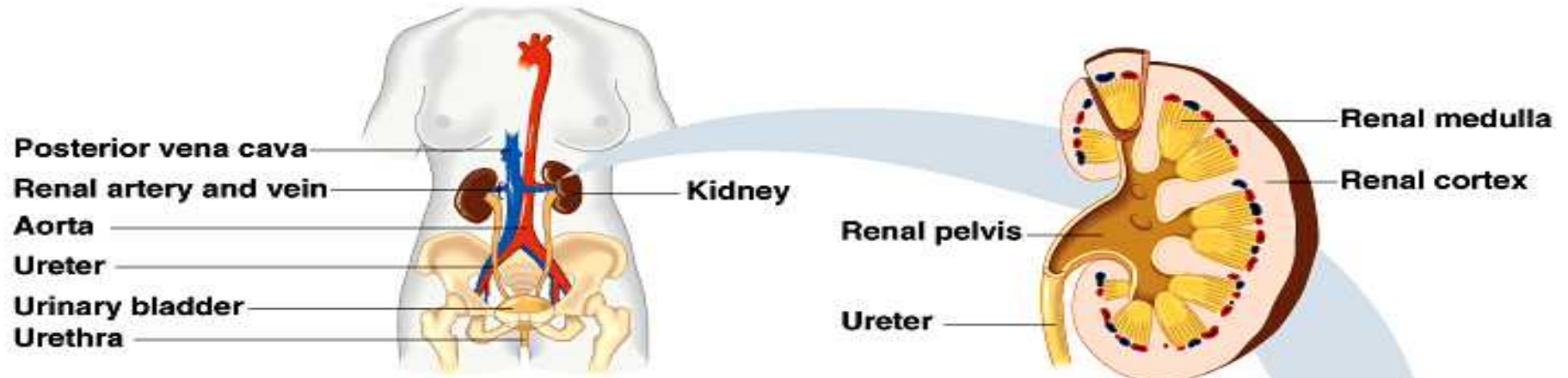


Sylvia S. Mader, Inquiry into Life, 8th edition. Copyright © 1997 The McGraw-Hill Companies, Inc. All rights reserved.

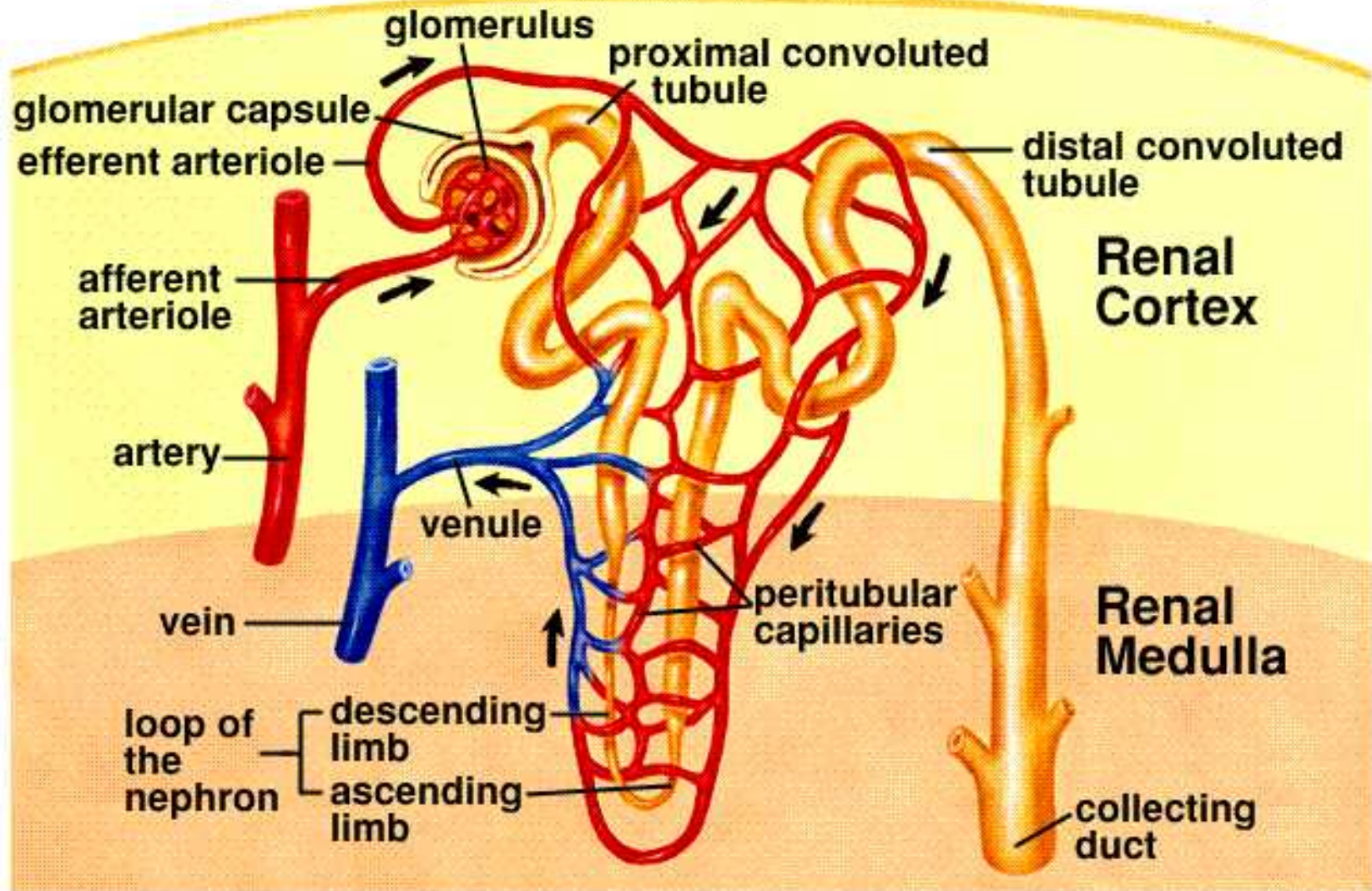
## Blood Supply of Kidney



# The Human Kidney & Nephron



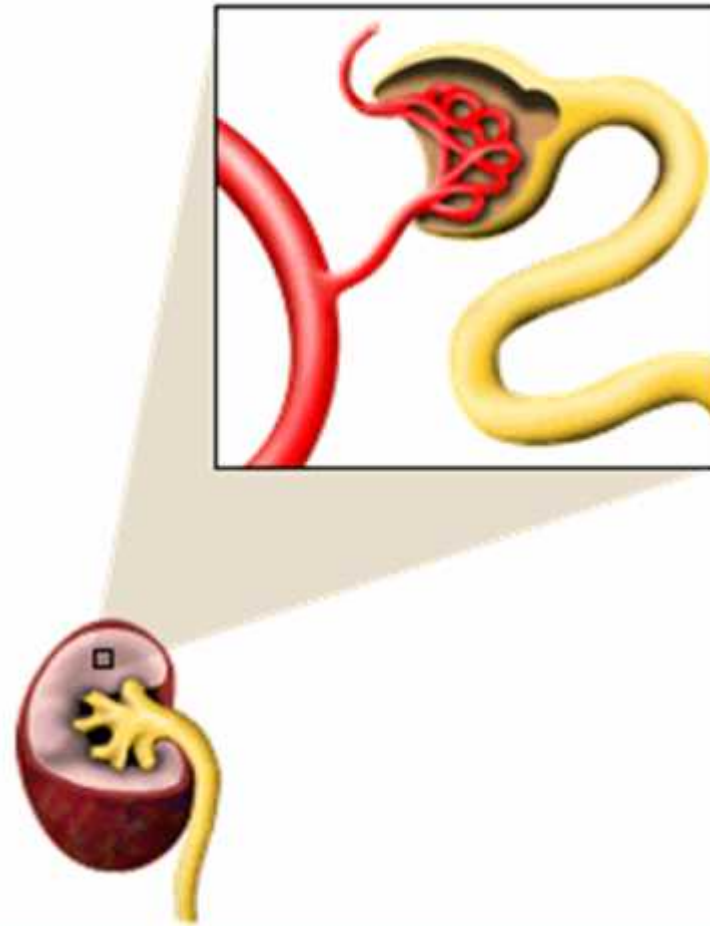
# Nephron Macroscopic Anatomy



# Nephron

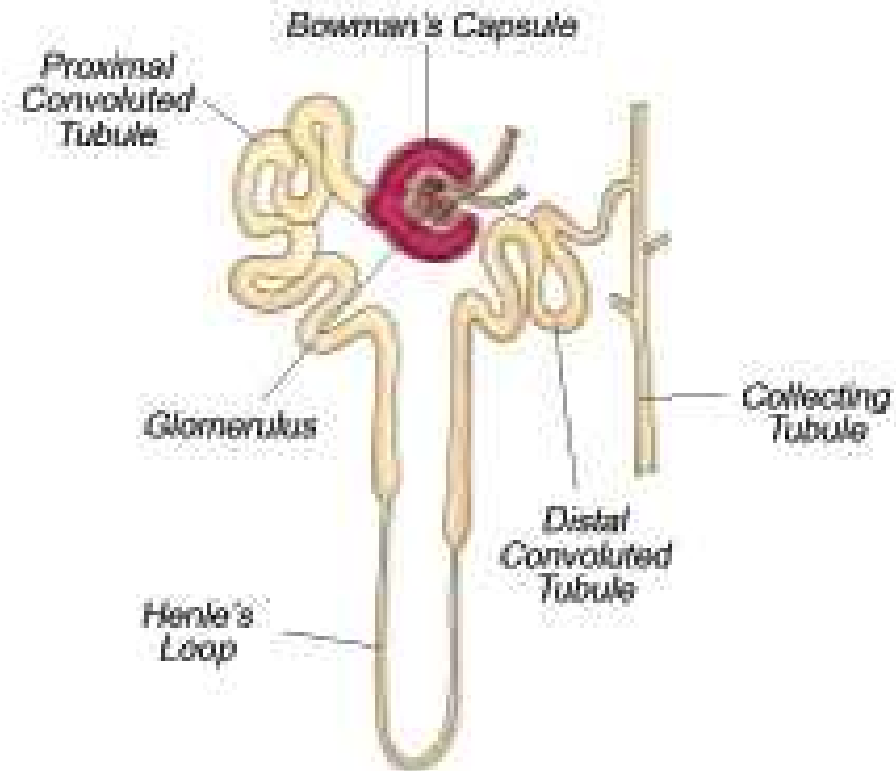
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- Filtering unit of the kidney
- Blood enters full of waste and leaves filtered
- Blood enters under high pressure and flows into the capillary beds



# U-shaped Tubules (Loop of Henle)

- Most of the ions and water
- All of the glucose and amino acids
- Reabsorbed into the bloodstream
- This is how the body's water is conserved
- Homeostasis is maintained



The Nephron (filtering unit of the kidney)



# Reabsorption

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- The peritubular capillaries reabsorb several materials
  - Some water
  - Glucose
  - Amino acids
  - Ions
- Some reabsorption is passive, most is active
- Most reabsorption occurs in the proximal convoluted tubule

## **Materials Not Reabsorbed**

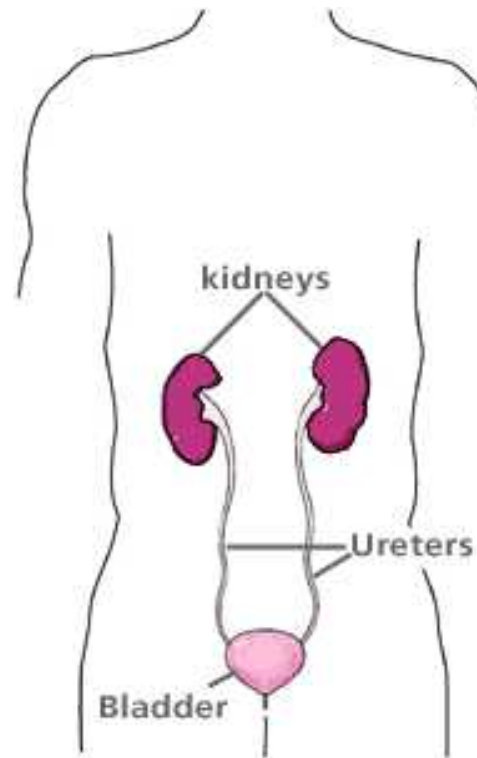
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- Nitrogenous waste products
  - Urea
  - Uric acid
  - Creatinine
- Excess water

# Ureter

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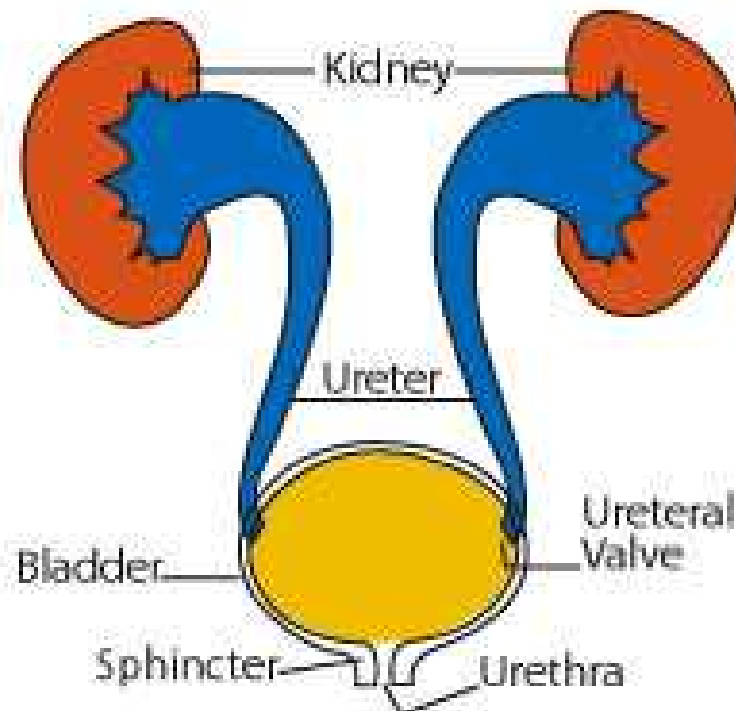
- Connects the kidneys to the urinary bladder



# Urinary Bladder

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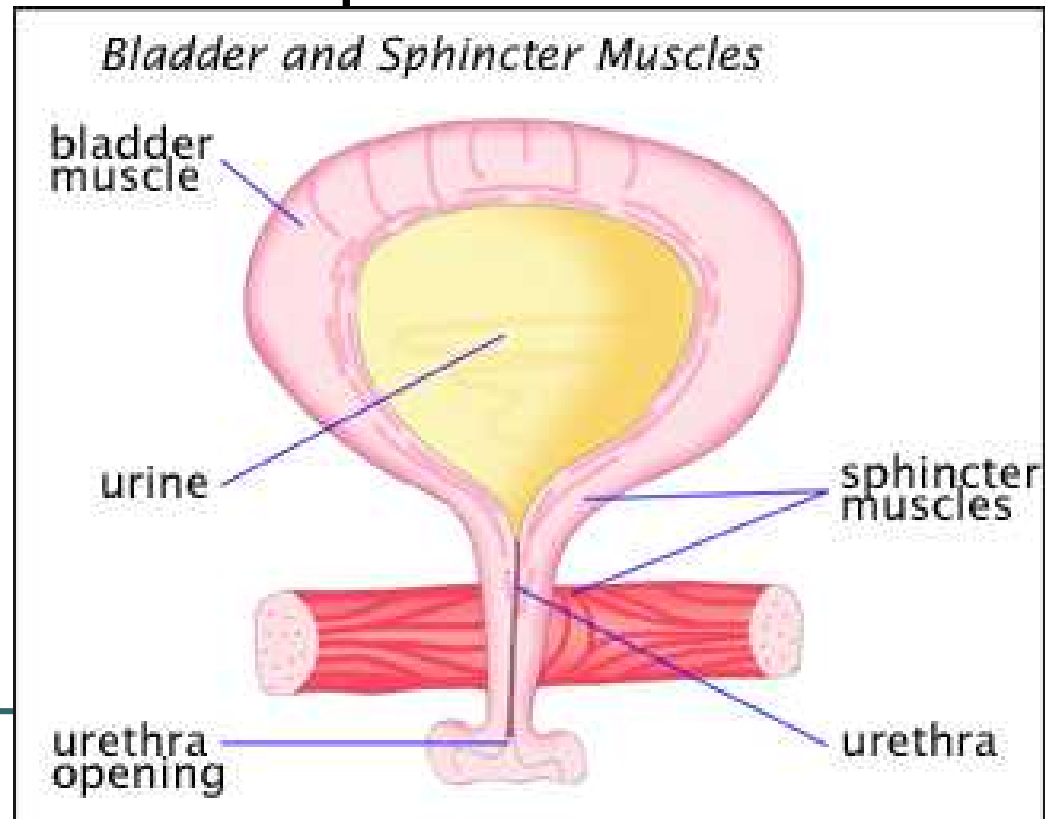
- Smooth muscle bag
- Stores waste solution - urine

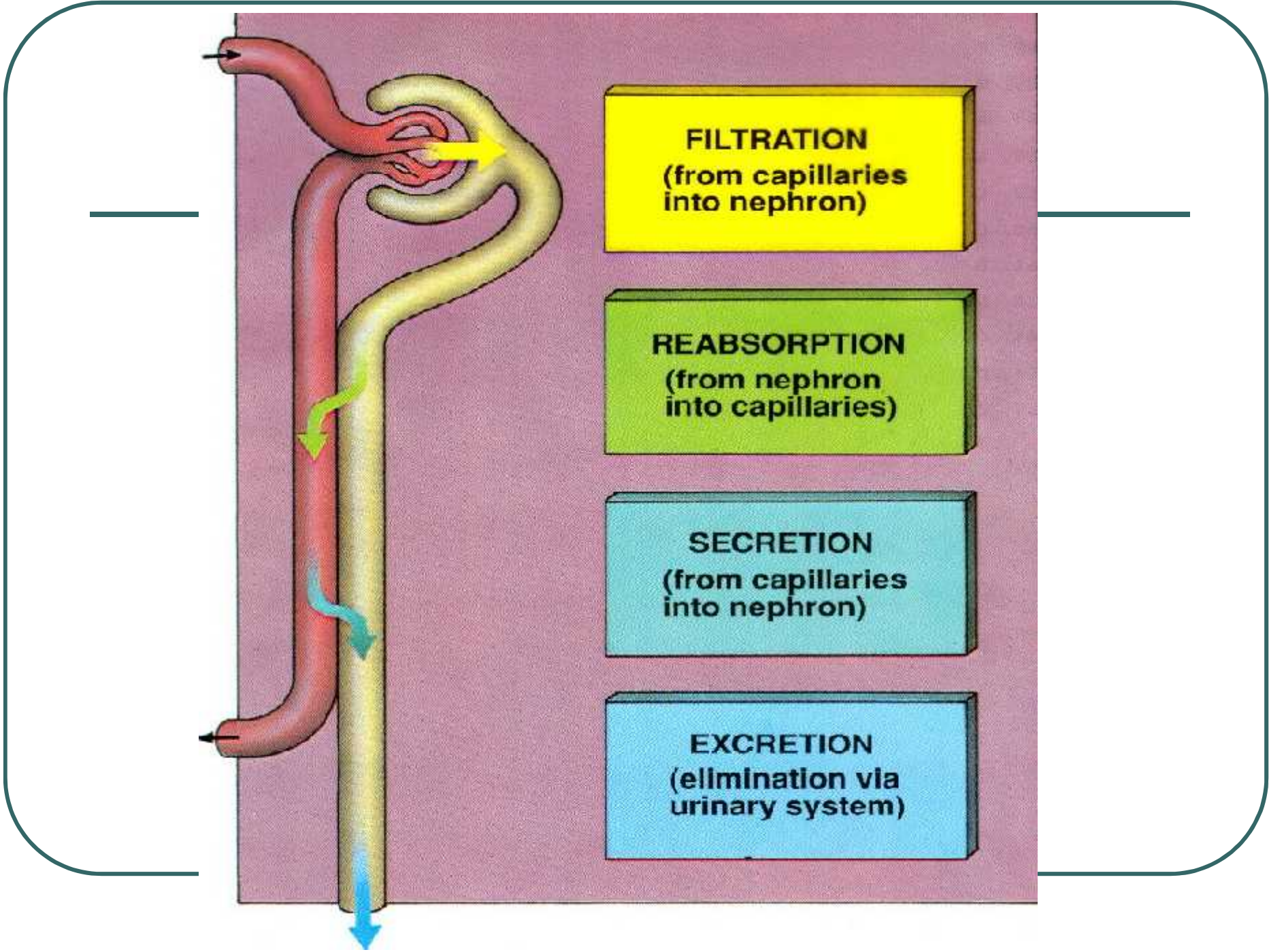


# Urethra

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- Connects bladder to outside of the body
- Allows urine to pass out of the body





**FILTRATION**  
(from capillaries  
into nephron)

**REABSORPTION**  
(from nephron  
into capillaries)

**SECRETION**  
(from capillaries  
into nephron)

**EXCRETION**  
(elimination via  
urinary system)

# Dialysis

