



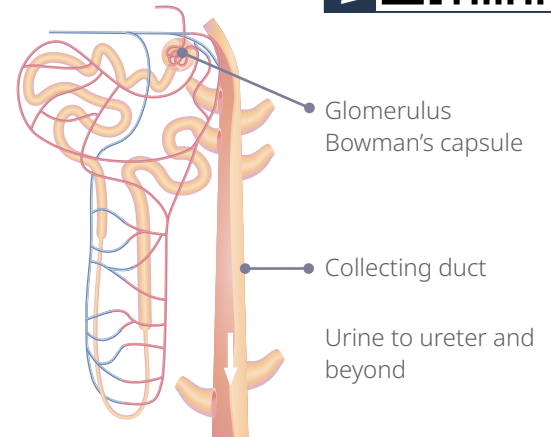
# WHAT DO DIURETICS DO



Diuretics increase the kidney's output of urine in an effort to lower blood pressure and/or decrease edema.

## Nephron

- Functional unit of the kidney
- Each kidney has ~ 1,000,000 nephrons
- Nephrons stretch from the cortex to the medulla of the kidney
- **Nephron has three main parts:**
  - › Tubule (PCT & DCT)
  - › Glomerulus
  - › Bowman's capsule



## Thiazides

- Thiazide effects are similar to loop diuretics. They increase renal excretion on  $\text{Na}^+$ ,  $\text{Cl}^-$ ,  $\text{K}^+$  and  $\text{H}_2\text{O}$  and elevate plasma levels of glucose and uric acid.
- Thiazide is not effective when renal blood flow is low.
- Thiazide-induced diuresis is less than furosemide or a loop diuretic.
- HCTZ is the most commonly prescribed thiazide diuretic.

## Potassium sparing diuretics

- Potassium-sparing diuretics cause mild increase in urine output.
- Not often used in monotherapy, but can be used with loop diuretics to counteract  $\text{K}^+$  loss from other medications.
- Hyperkalemia is an adverse effect which can lead to life-threatening dysrhythmias.
- Use spironolactone with caution when taking other medications that also raise  $\text{K}^+$  (ACE inhibitors, ARBs and DRIs).

## Carbonic anhydrase inhibitors

- Osmotic diuretic given IV
- Most of filtered drug remains in the nephron
- Increases osmotic pressure in lumen of the proximal tubule and the loop of Henle
- Causes increased water diuresis

## Diuretic sites of action in the nephron

