

MODULE 12 L02

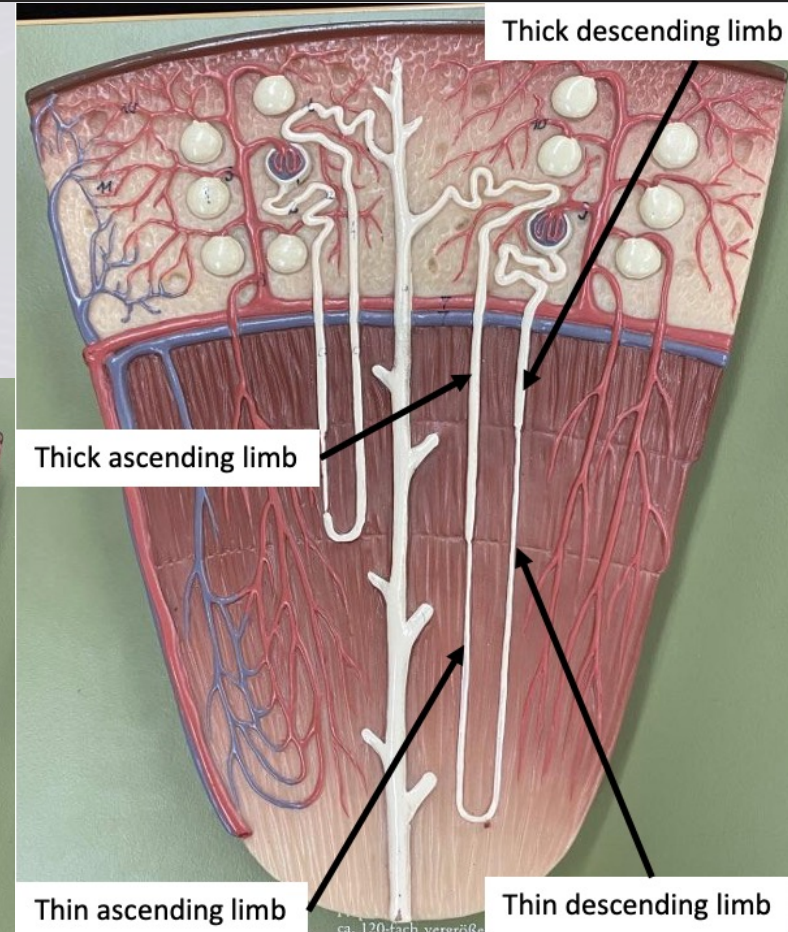
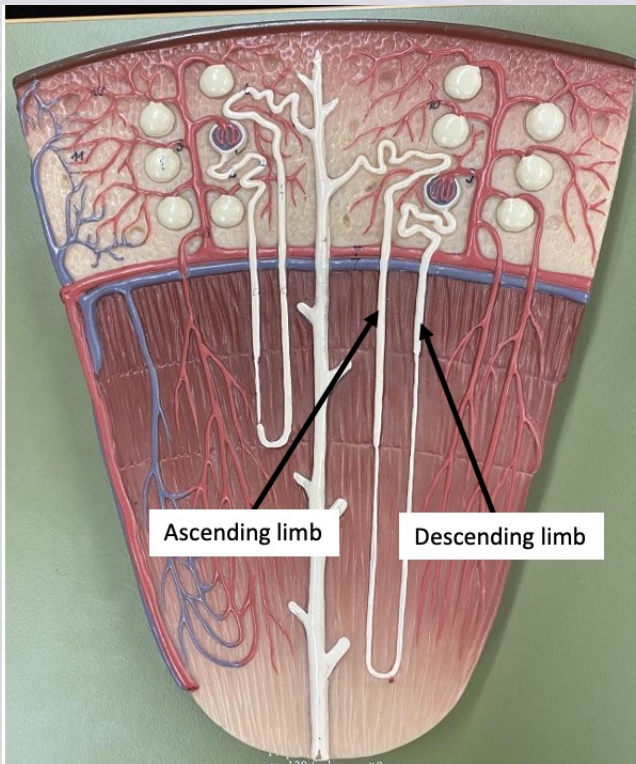
From Nephron Loop to Collecting System

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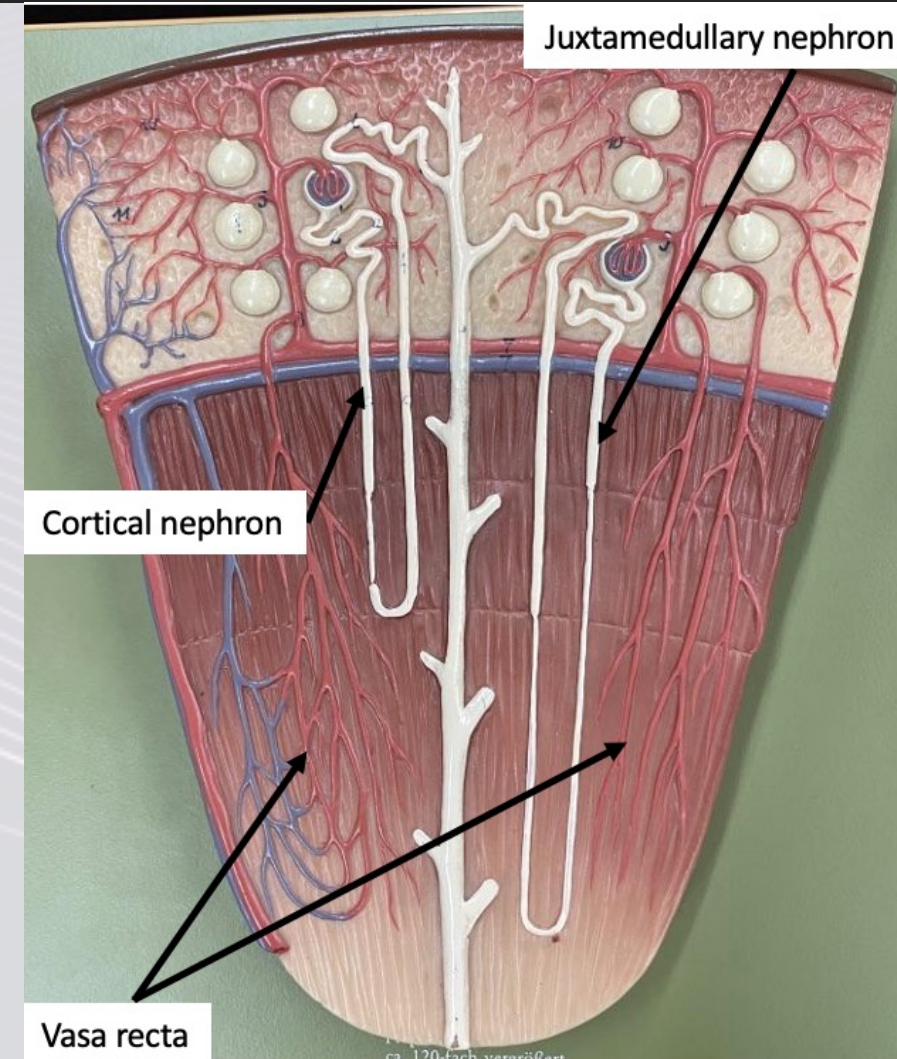
Nephron Loop

- Also known as loop of Henle
- Components
 - ❖ Thick descending limb
 - Simple cuboidal
 - ❖ Thin descending limb
 - Simple squamous
 - ❖ Thin ascending limb
 - Simple squamous
 - ❖ Thick ascending limb
 - Simple cuboidal



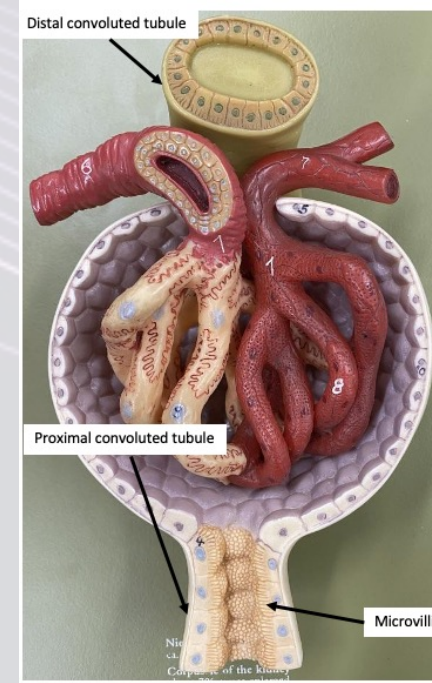
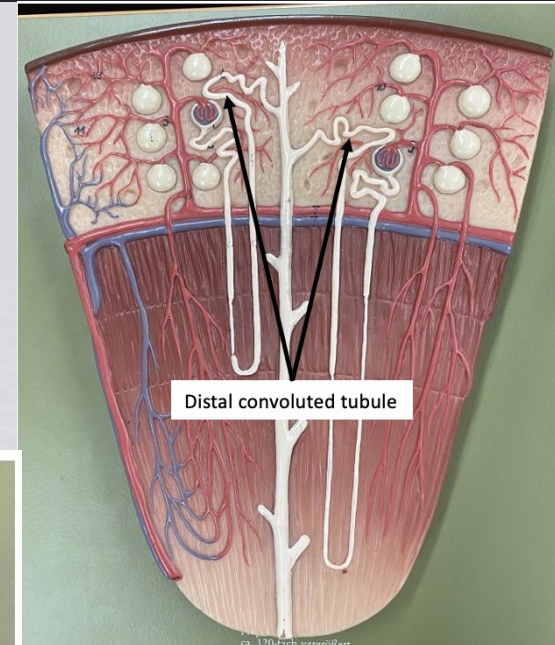
Nephron Types

- Cortical nephron
 - ❖ Renal corpuscle found in middle of cortex
 - ❖ Short nephron loops
 - ❖ 85%
- Juxtamedullary nephron
 - ❖ Renal corpuscle found in cortex closer to medulla
 - ❖ Long nephron loops
 - ❖ 15%



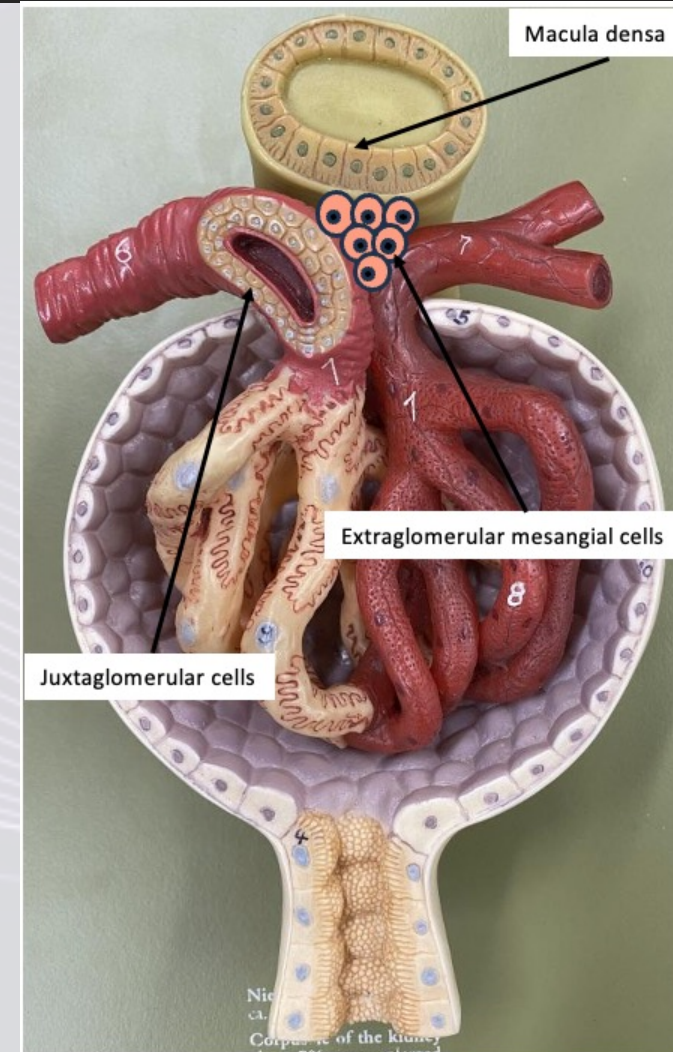
Distal Convoluted Tubule

- Passes between afferent and efferent arterioles
- DCT X PCT
 1. DCT has smaller luminal diameter
 2. DCT epithelial cells lack microvilli
 3. DCT epithelial cells boundaries are easily seen
- Functions
 - ❖ initial adjustments made to filtrate
 - Aldosterone
 - Reabsorption of Na^+ and Cl^-
 - Secretion of K^+ and H^+
 - Reabsorption of HCO_3^-
 - Small H_2O reabsorption



Juxtaglomerular Complex

- Functions
 - ❖ Regulates blood pressure and filtrate formation
 - ❖ Releases:
 - Renin
 - Promotes production of angiotensin
 - Promotes aldosterone secretion
 - ✓ Promotes sodium absorption
 - Raises blood pressure
 - Erythropoietin
 - ↑ RBCs production when O_2 ↓
- Components
 - ❖ Macula densa – regulate the release renin
 - ❖ Juxtaglomerular cells - release erythropoietin and renin
 - ❖ Extraglomerular mesangial cells – provide feedback control between macula densa and juxtaglomerular cells



Collecting System

- Components
 - ❖ Connecting tubules
 - ❖ Collecting duct
 - ❖ Papillary duct
- Final adjustments
 - ❖ ADH – antidiuretic hormone
 - Antidiuretic drug
- Urine composition
 - ❖ Water
 - ❖ Urea
 - ❖ Sodium
 - ❖ Chloride
 - ❖ Potassium
 - ❖ Creatinine
 - ❖ Inorganic substances

