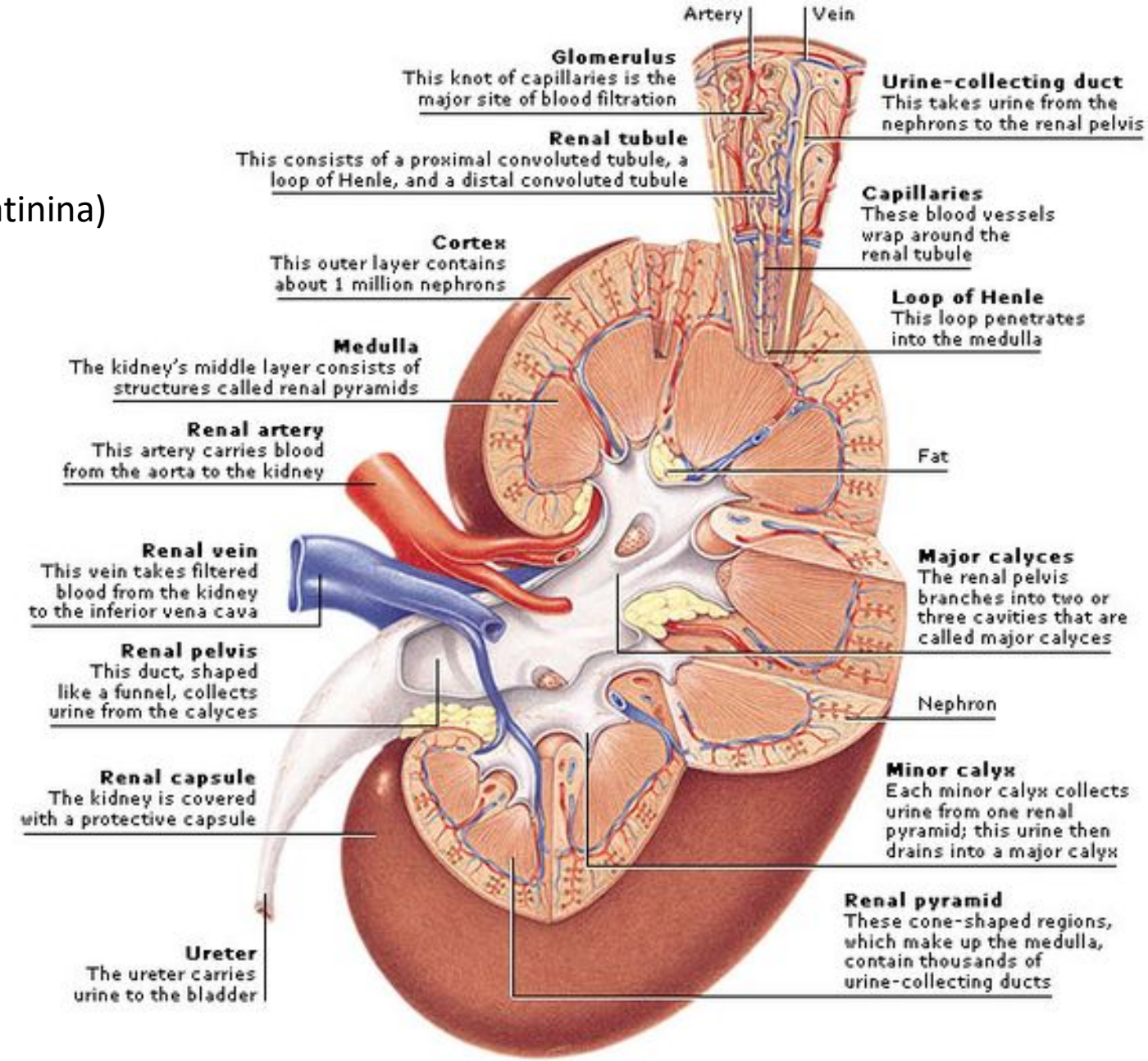
Fisiologia renal

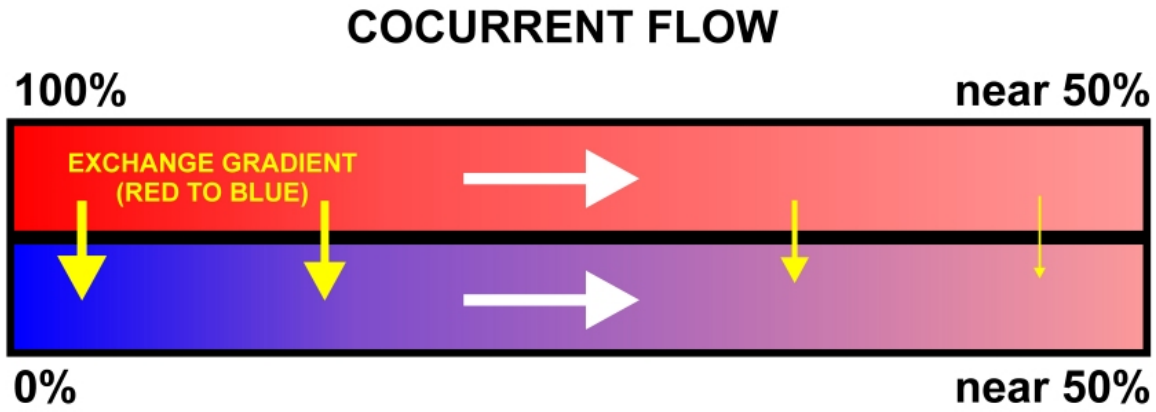
Eliminacion de

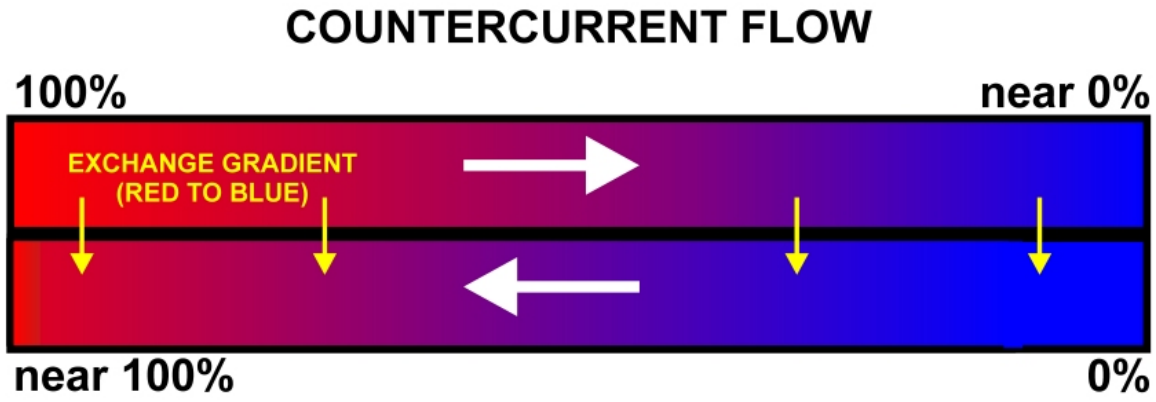
- Sales (Na Cl K Ca)
- Compuestos nitrogenados (urea, creatinina)



Countercurrent Exchange

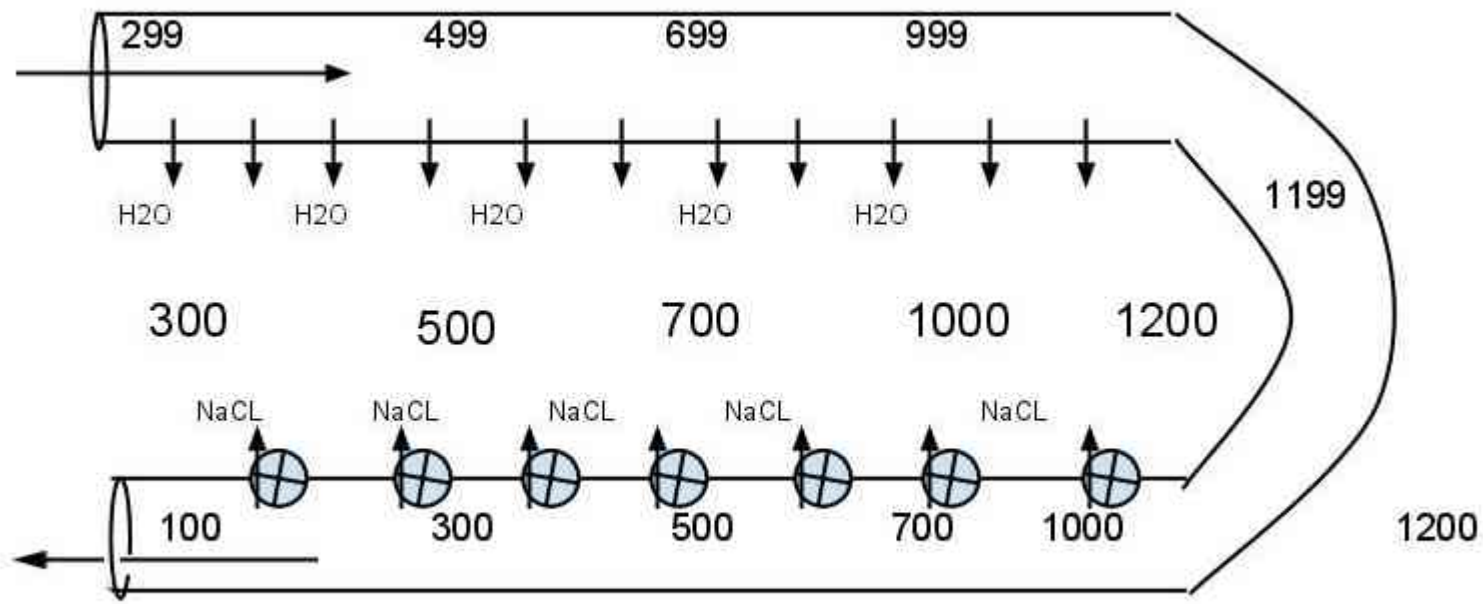
Intercambiador contracorriente



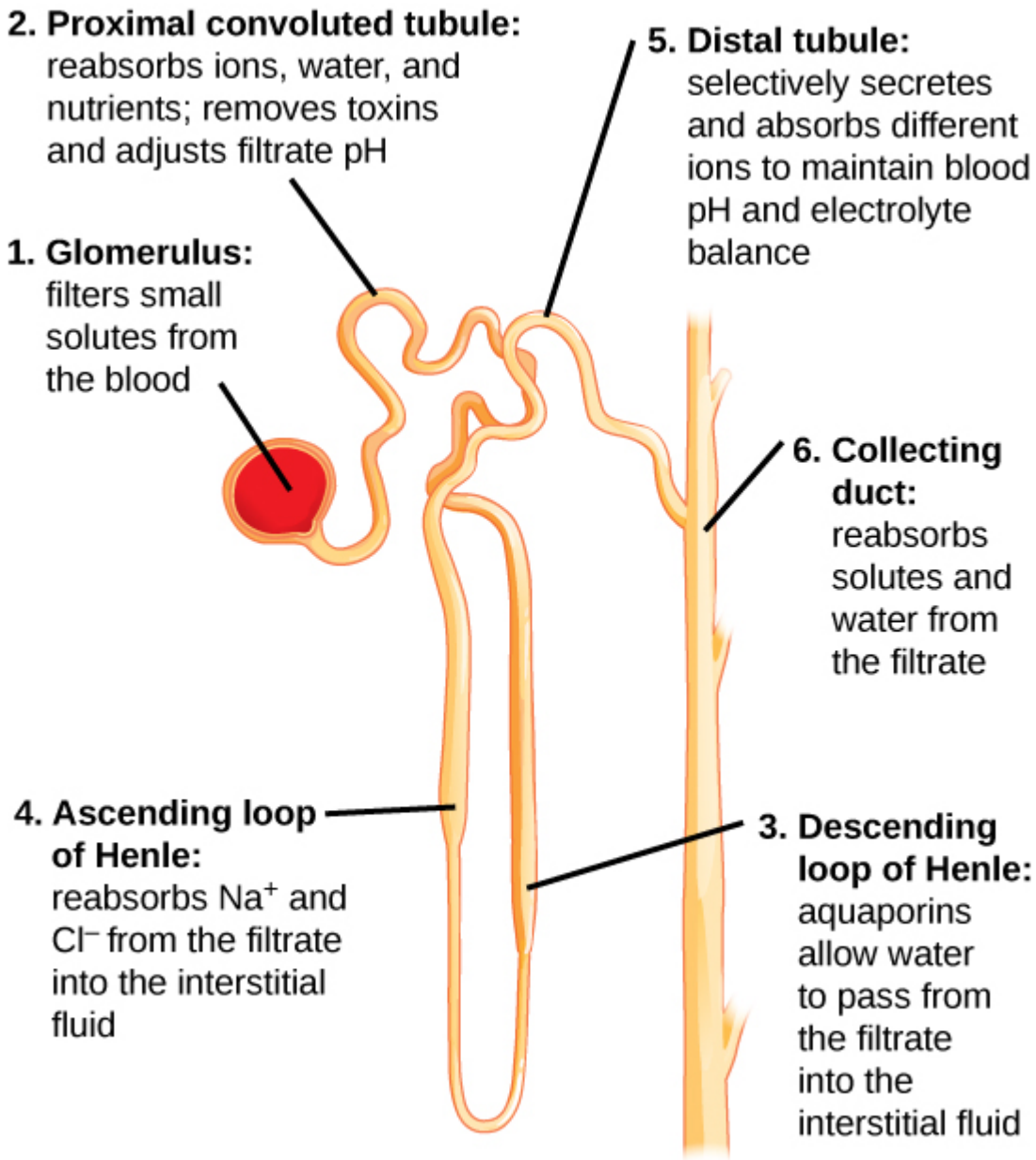


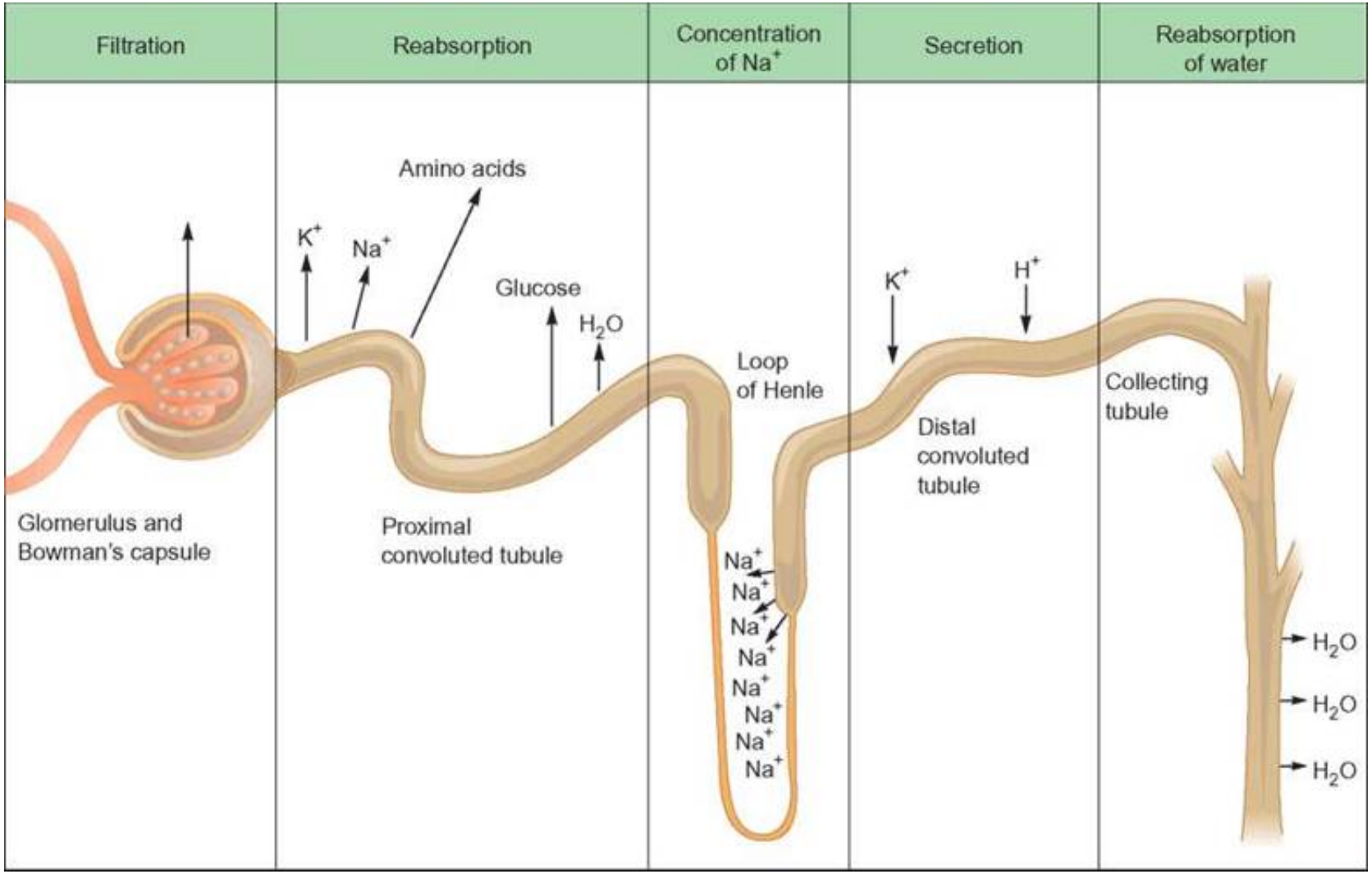
Countercurrent Multiplier

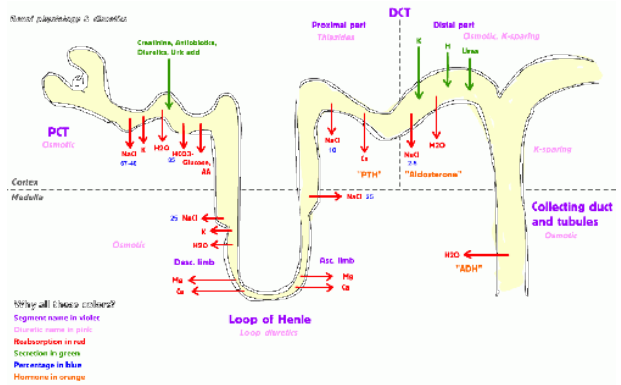
Intercambiador multiplicador



nefron


2. Proximal convoluted tubule: reabsorbs ions, water, and nutrients; removes toxins and adjusts filtrate pH
5. Distal tubule: selectively secretes and absorbs different ions to maintain blood pH and electrolyte balance
1. Glomerulus: filters small solutes from the blood
6. Collecting duct: reabsorbs solutes and water from the filtrate
4. Ascending loop of Henle: reabsorbs Na^+ and Cl^- from the filtrate into the interstitial fluid
3. Descending loop of Henle: aquaporins allow water to pass from the filtrate into the interstitial fluid


Filtration
Reabsorption
Concentration of Na+
Secretion
Reabsorption of water
Amino acids
K+
Na+
Glucose
H2O
Loop of Henle
K+
H+
Collecting tubule
Glomerulus and Bowman's capsule
Proximal convoluted tubule
Distal convoluted tubule
Na+
H2O


DCT
Proximal part
Distal part
PCT
Osmotic
Cortex
Medulla
Loop of Henle
Collecting duct and tubules
Osmotic
"PTH"
"Aldosterone"
"ADH"

Intercambiador multiplicador en el circulo de Henle

Crea un gradiente de osmolaridad tanto dentro del túbulo como en el liquido intersticial

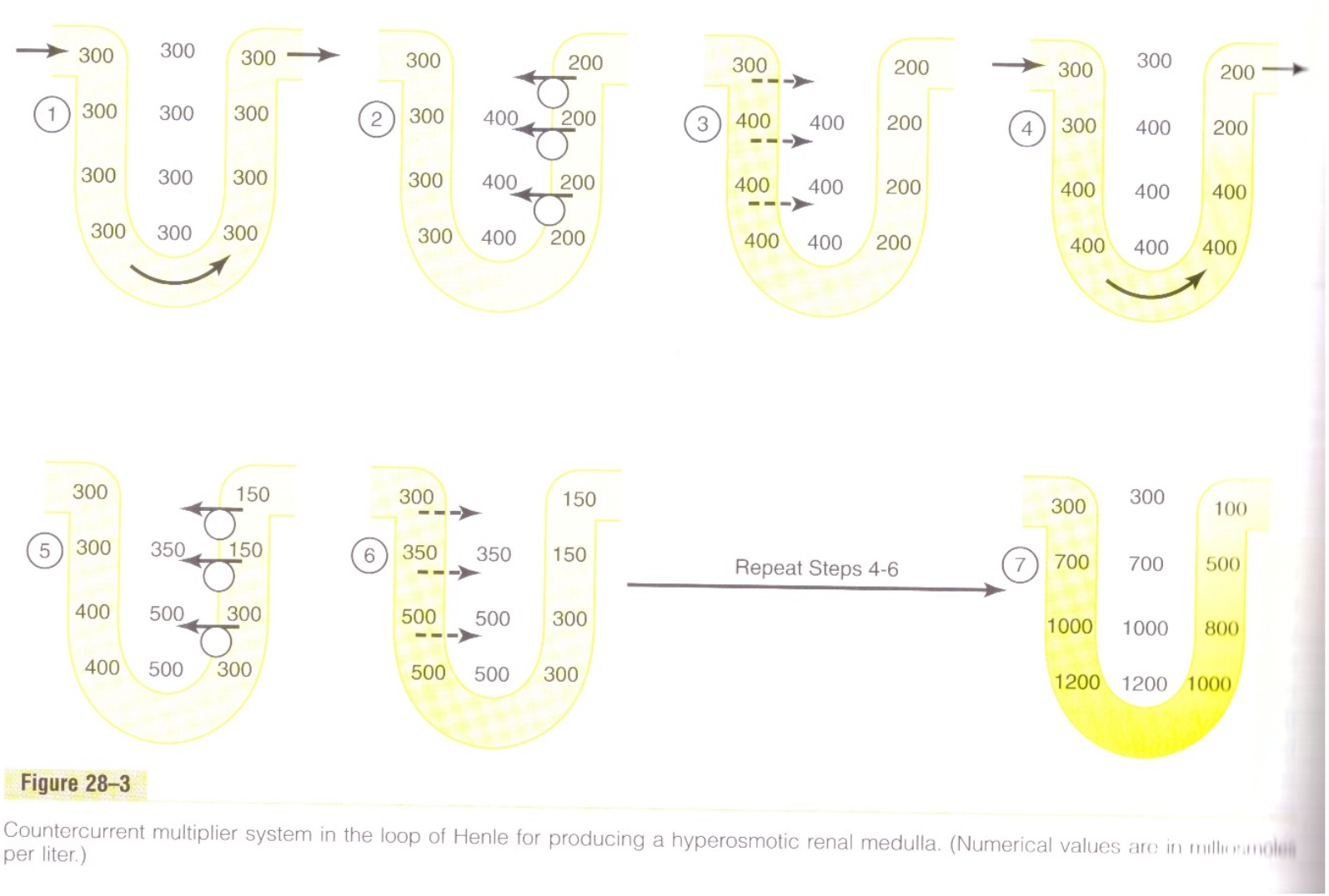


Figure 28–3

Countercurrent multiplier system in the loop of Henle for producing a hyperosmotic renal medulla. (Numerical values are in milliosmoles per liter.)

Funcion del túbulo distal

En el túbulo distal la orina vuelve a concentrarse para igualar la concentración del liquido intersticial

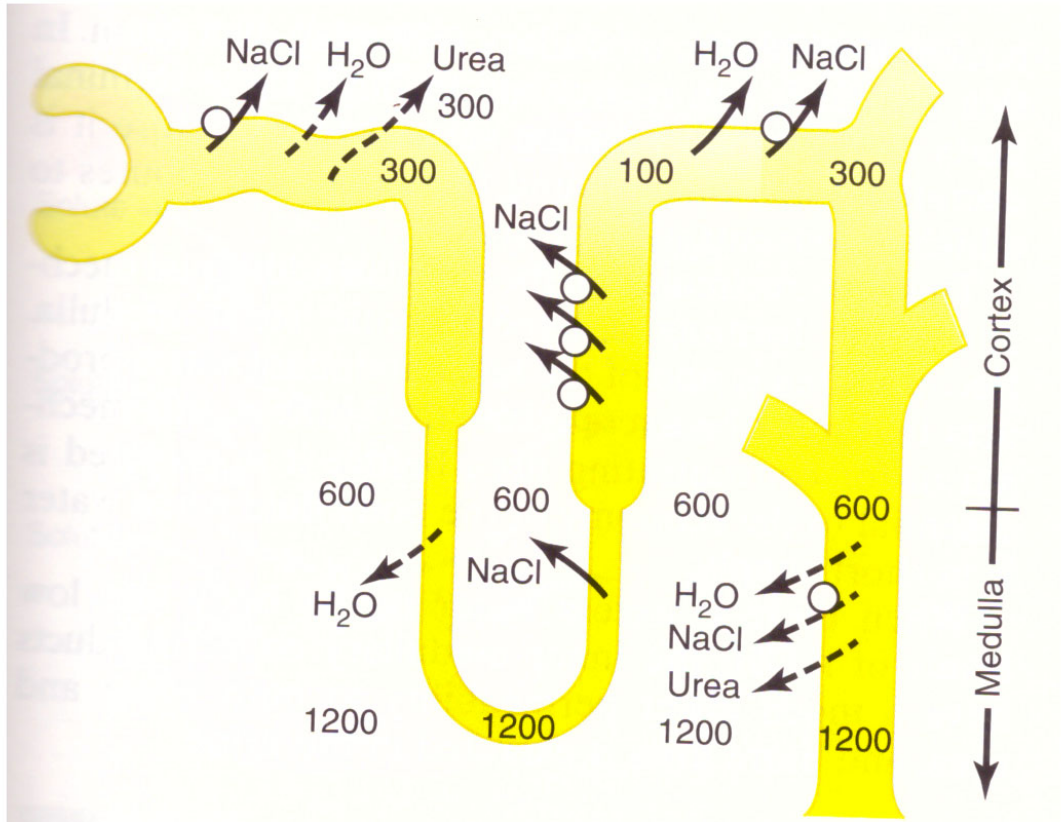


Figure 28–4

Formation of a concentrated urine when antidiuretic hormone (ADH) levels are high. Note that the fluid leaving the loop of Henle is dilute but becomes concentrated as water is absorbed from the distal tubules and collecting tubules. With high ADH levels, the osmolarity of the urine is about the same as the osmolarity of the renal medullary interstitial fluid in the papilla, which is about 1200 mOsm/L. (Numerical values are in milliosmoles per liter.)

Concentracion (osmolaridad) a lo largo del túbulo renal

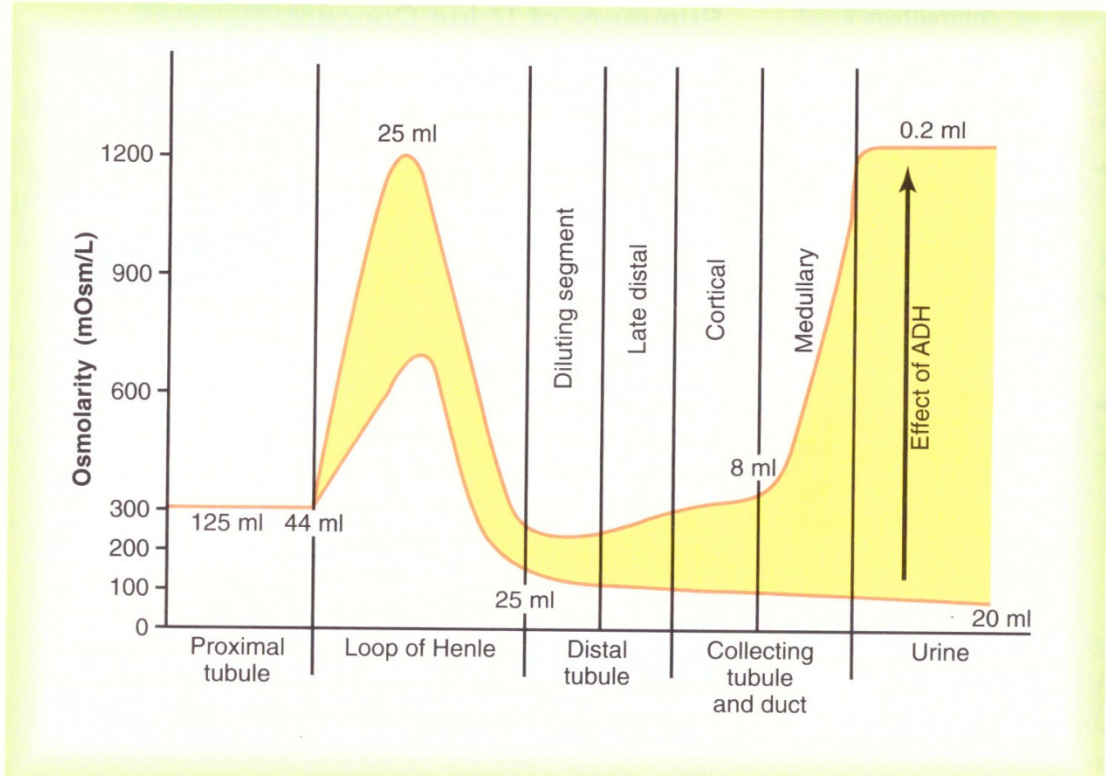


Figure 28–7

Changes in osmolarity of the tubular fluid as it passes through the different tubular segments in the presence of high levels of antidiuretic hormone (ADH) and in the absence of ADH. (Numerical values indicate the approximate volumes in milliliters per minute or in osmolarities in milliosmoles per liter of fluid flowing along the different tubular

Importancia de

Transportadores de Na+/Cl-/K+
Utilizo de ATP
Vasopresina (ADH)
Aquaporinas
Aldosterona

Efectos de farmacos

Diureticos
Antibioticos