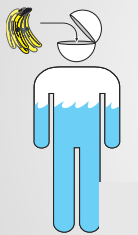




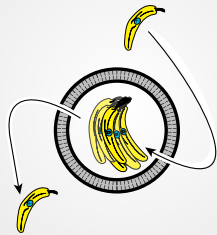
Potassium

Regulation: excretion

Potassium is regulated by three steps



Intake

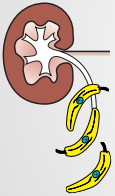


Cellular distribution



Renal excretion

Stool losses are 10 mmol/day

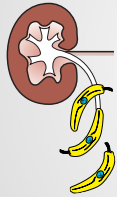


Renal excretion



The rest is handled by the kidney

Kidney can compensate for a wide range of potassium intake

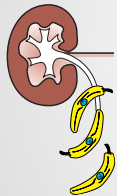


Renal excretion

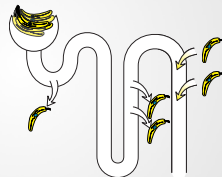
➡ Renal excretion can range from 10-400 mmol/day

➡ Paleolithic diets had 280 mmol of daily potassium (11,000 mg)

Renal potassium handling

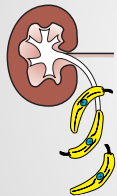


Renal excretion



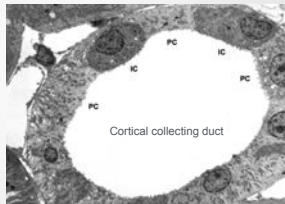
All of the potassium in the urine is secreted by the cortical collecting duct.

The Cortical Collecting Duct



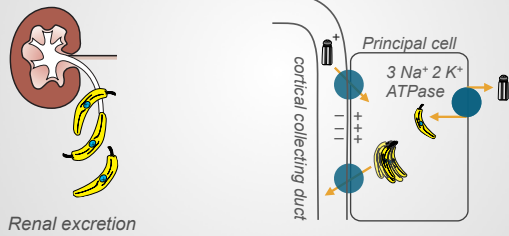
Renal excretion

Principal cells secrete potassium



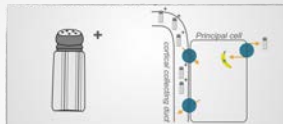
Intercalated cells secrete hydrogen

The Cortical Collecting Duct

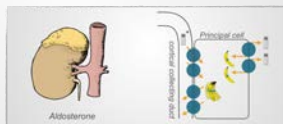


Two factors that regulate potassium excretion

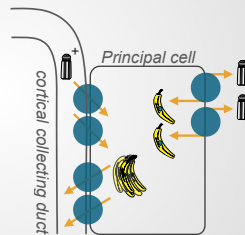
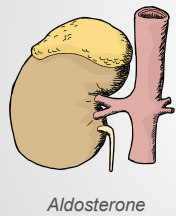
Distal Na delivery



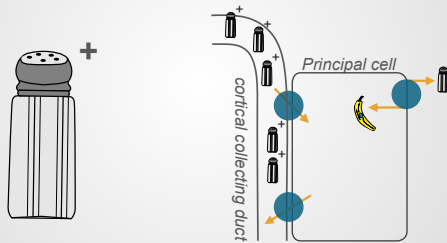
Aldosterone



Cortical collecting duct: Aldosterone



Cortical collecting duct: distal Na delivery



	Distal Na delivery	Aldosterone
Na loading	increase	decrease
CHF	decrease	increase
Volume depletion	decrease	increase
Chronic kidney disease	decrease	increase

	Distal Na delivery	Aldosterone	potassium secretion
Na loading	increase	decrease	neutral
CHF	decrease	increase	neutral
Volume depletion	decrease	increase	neutral
Chronic kidney disease	decrease	increase	neutral

