Biology 20

Unit D: Human body systems

Kidney regulation and dialysis

Pores appear when ADH arrives

- The left duct is marked little ADH, and its water arrow stays inside.
- The right duct has green pores, and water arrows leave when ADH is present.

Two hormones, two saved materials

- Antidiuretic hormone saves water at the collecting duct.
- Aldosterone saves sodium and supports blood pressure.
- Caffeine and alcohol lead to a larger urine volume.

Key terms

antidiuretic hormone

The hormone, also called ADH, that adds water channels to the collecting duct.

dialysis

A treatment that lets wastes and extra water leave the blood across a membrane when kidneys fail.

aldosterone

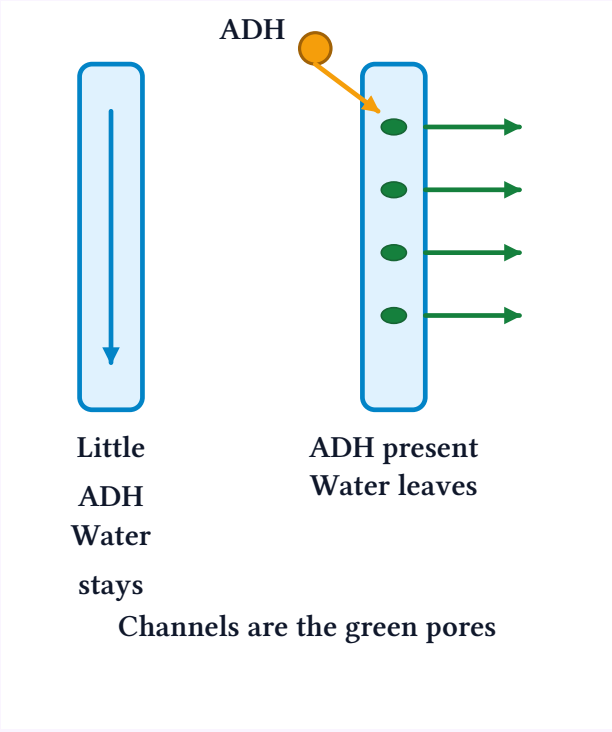
The hormone that increases sodium reabsorption and helps support blood pressure.

collecting duct

The last channel of the nephron, where ADH decides how much water returns to the blood.

ADH changes how much water returns

- Green pores mean antidiuretic hormone is present.
- Water leaving the duct returns to the blood.
- A duct with little hormone keeps the water in the lumen.

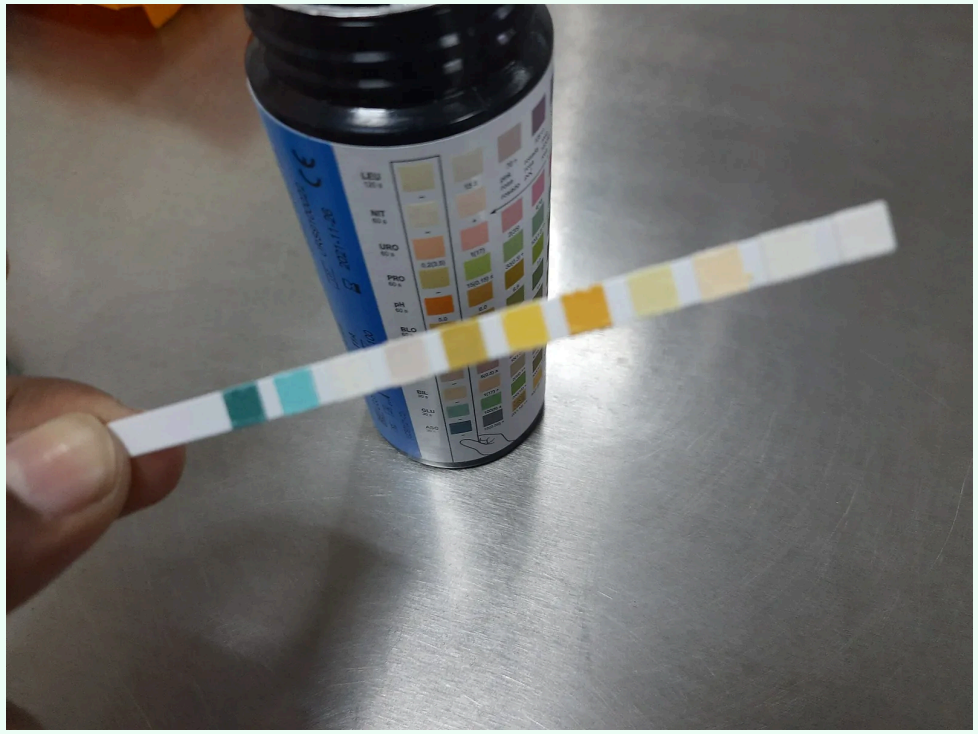


Urine and fluid intake

- A large water intake lowers antidiuretic hormone.
- The duct then keeps water in the urine.

Urine test strips and their limits

- Compare each simulated result with the expected range.
- A single strip is a class model, and a clinical lab uses a tighter method.



Pores and machines

- Compare the duct when antidiuretic hormone is present and when it is scarce.
- Say what dialysis moves out of the blood.

Muscles move the rest of the body

- Smooth, cardiac, and skeletal muscle support these organs.
- The sliding filament is the next mechanism.

Image credits

Ajay Kumar Chaurasiya, Special urine test during urine analysis, CC BY-SA 4.0