

Osmoregulation

Biology

Controlling water balance, and the hormone that does it.

The response to dehydration.

1

Blood water potential falls

Detected by osmoreceptors in the hypothalamus.

2

Posterior pituitary releases ADH

Into the bloodstream.

3

Collecting duct becomes permeable

Aquaporins inserted into the membrane.

4

More water reabsorbed

Urine is smaller in volume and more concentrated.

5

Water potential rises

ADH release falls — negative feedback.

THE REVERSE

Excess water → less ADH

Collecting duct less permeable

Large volume of dilute urine

Alcohol inhibits ADH release; caffeine has a milder diuretic effect. Both increase urine volume by this route.