Fluid balance regulated by the kidneys and brain

**Kidneys**

- The kidneys respond to reduced blood flow by releasing the enzyme renin.

  - Renin

  - Renin initiates the activation of the protein angiotensinogen to angiotensin.

  - Angiotensin

    - Angiotensin signals the adrenal glands to secrete aldosterone.
    - Angiotensin causes the blood vessels to constrict, raising pressure.

  - Aldosterone

- Aldosterone and ADH signal the kidneys to retain sodium and water, respectively, thus increasing blood volume.

**Brain**

- The hypothalamus responds to high salt concentrations in the blood by stimulating the pituitary gland.

  - The pituitary gland releases antidiuretic hormone (ADH).