

□ Hypotonic Urine

□ Definition

Hypotonic urine refers to urine that is **less concentrated than plasma**, typically indicating a failure to conserve water.

Parameter	Threshold	Interpretation
Urine osmolality	< 300 mOsm/kg	Hypotonic
Urine specific gravity (SG)	< 1.005 g/mL	Suggests AVP deficiency or water diuresis

□ Clinical Relevance

In the postoperative neurosurgical setting (e.g. after [pituitary surgery](#)), hypotonic urine may signal **Arginine Vasopressin Deficiency (AVP-D)**, also known as **central diabetes insipidus**.

Key signs:

- Polyuria (often >250 mL/h)
- Low urine SG or osmolality
- Rising serum sodium (>145 mmol/L)

□ Monitoring Tools

* **Urine dipsticks** (e.g., Combur-10) allow bedside estimation of SG * **Refractometers** provide more accurate SG measurement * **Plasma osmolality** and **serum sodium** should be monitored in parallel

□ Practical Tip

A **urine specific gravity < 1.005** in the presence of **elevated plasma osmolality** or **hyponatremia** strongly supports a diagnosis of **AVP-D**.



In patients self-monitoring with test strips, using a **cut-off of 1.015 g/mL** can improve sensitivity and safely rule out hypotonic urine.

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