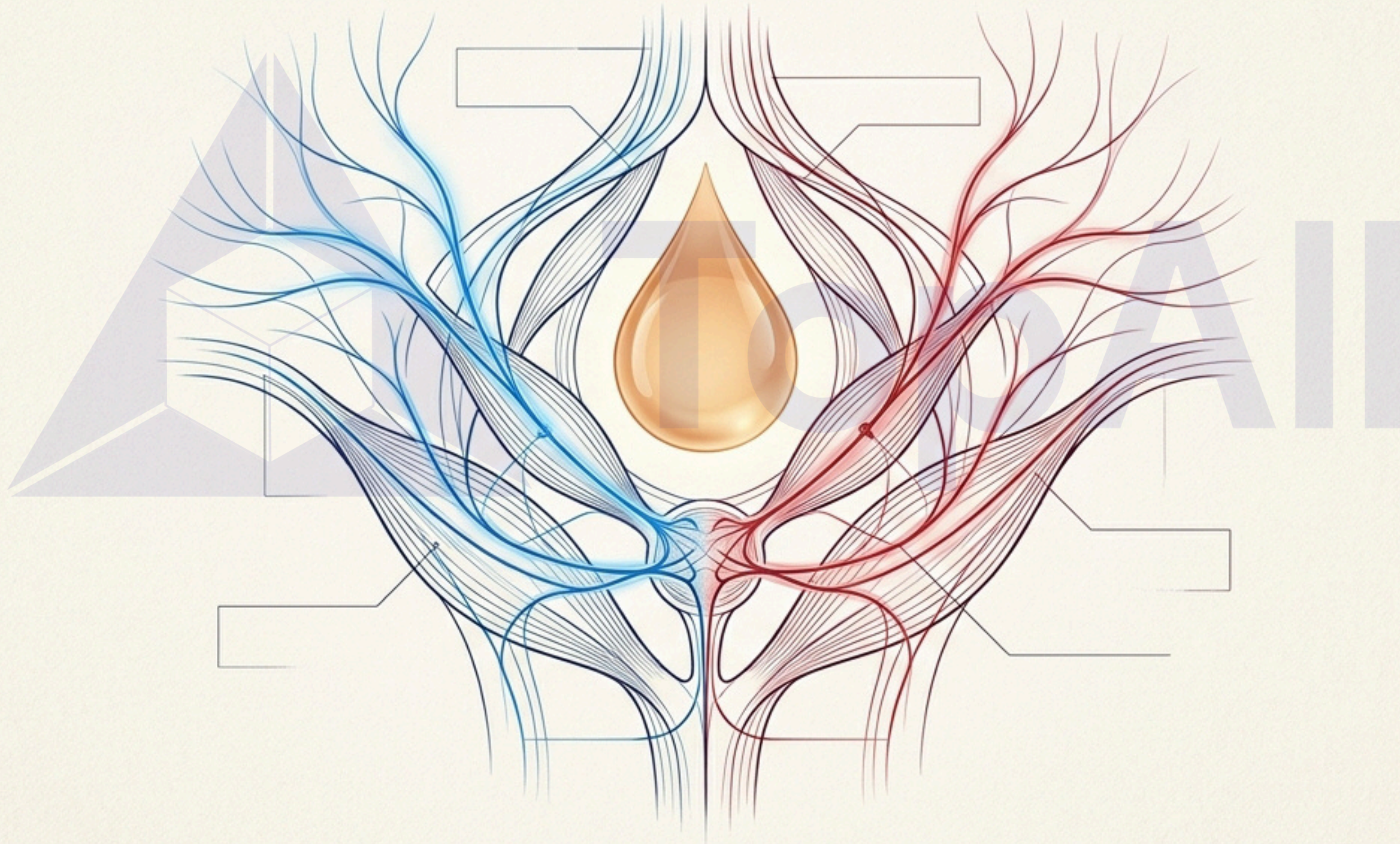
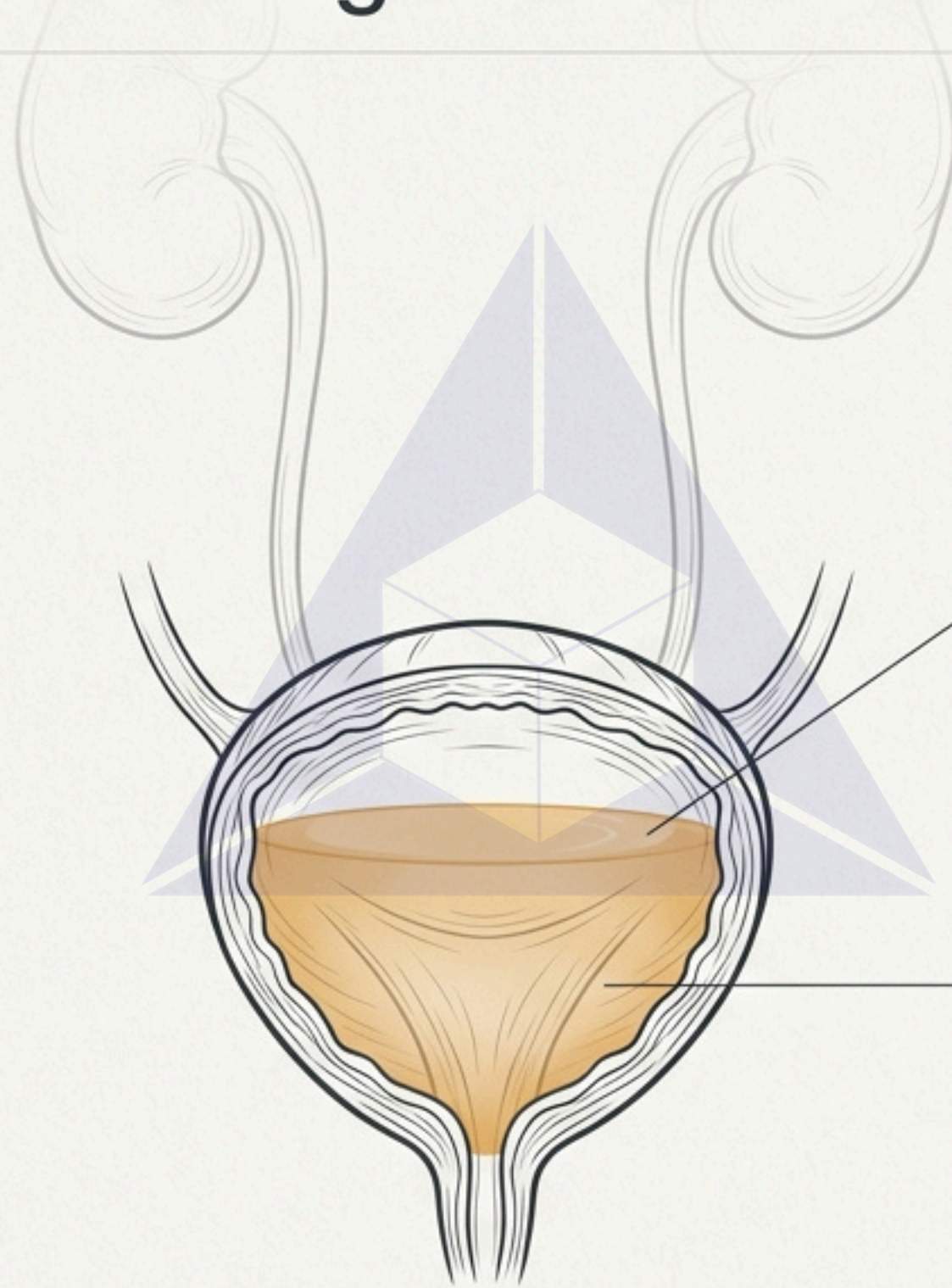


How Urine Is Released

Understanding the Neural and Muscular Mechanics of Micturition



The Holding Phase: Accumulation and Storage



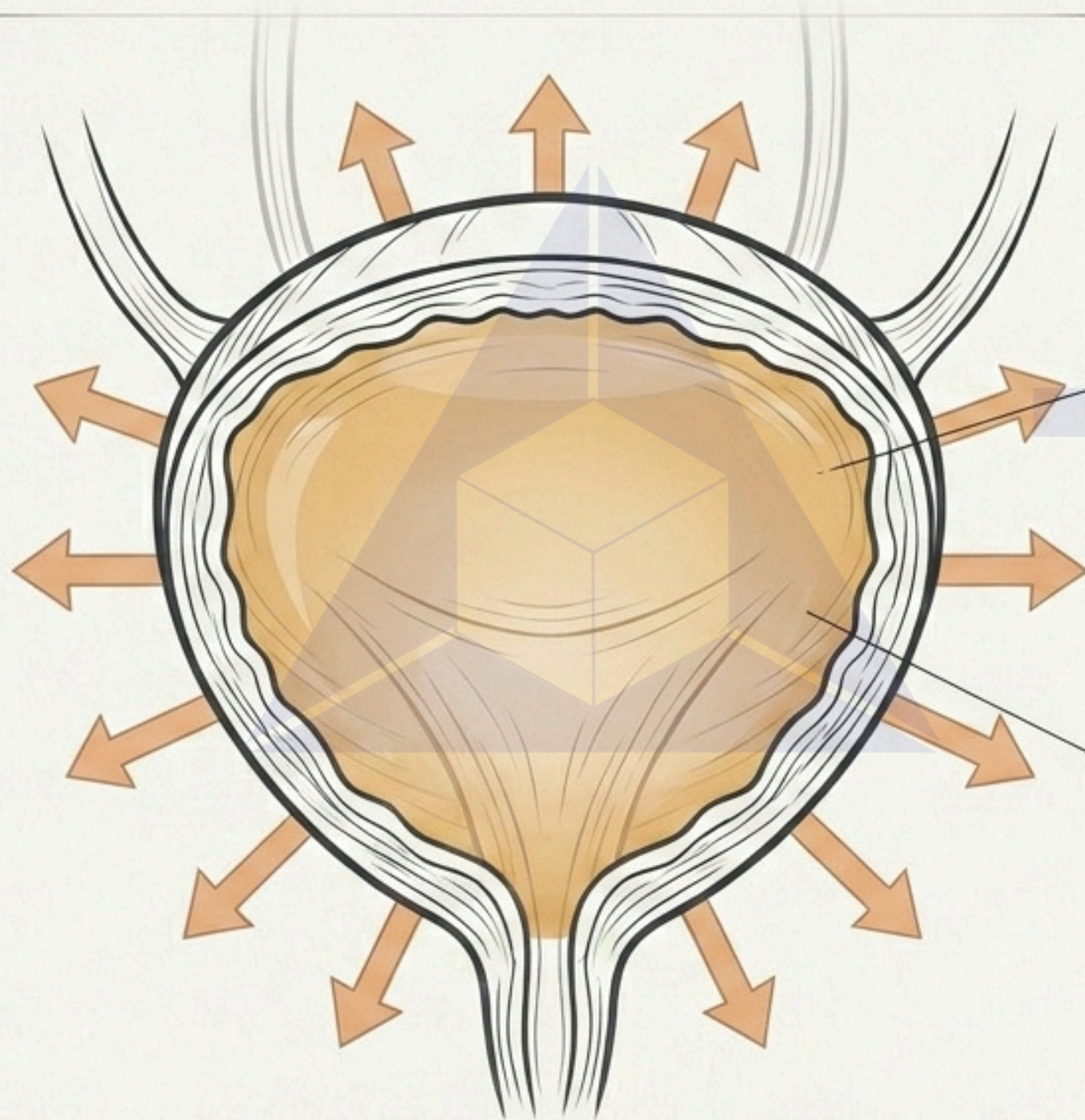
Source

Urine formed by the nephrons travels down the ureters and collects here.

Function

The urinary bladder acts as a dynamic reservoir, safely storing urine until the body gives a voluntary signal for release.

Reaching Capacity: The Mechanical Trigger



Volume Increase

As urine continues to fill the bladder, the internal volume forces the smooth muscular walls to expand.

The Catalyst

This physical stretching of the bladder walls acts as the mechanical trigger for the entire biological reflex.



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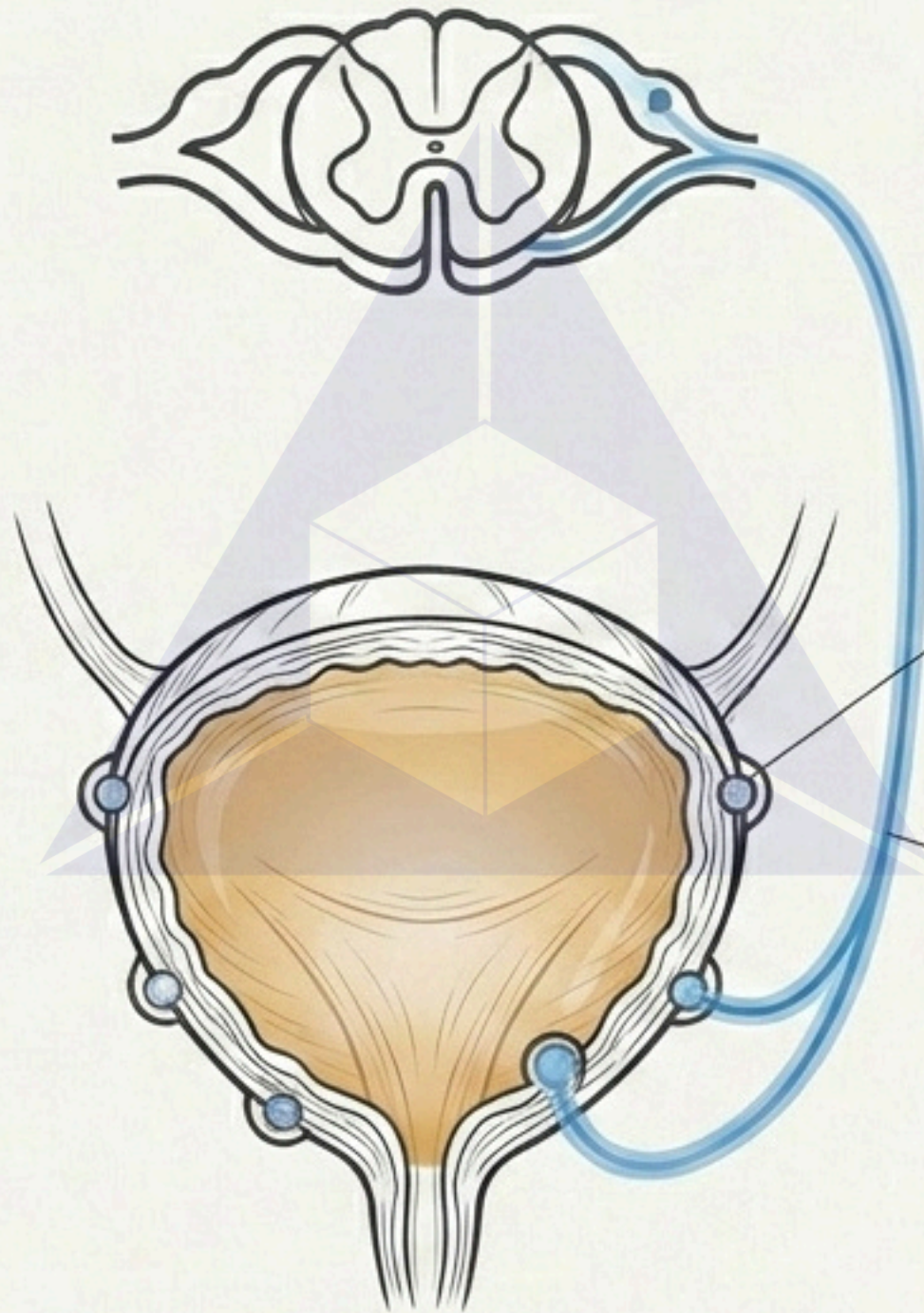
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- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
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The Sensory Alarm: Sending the Message



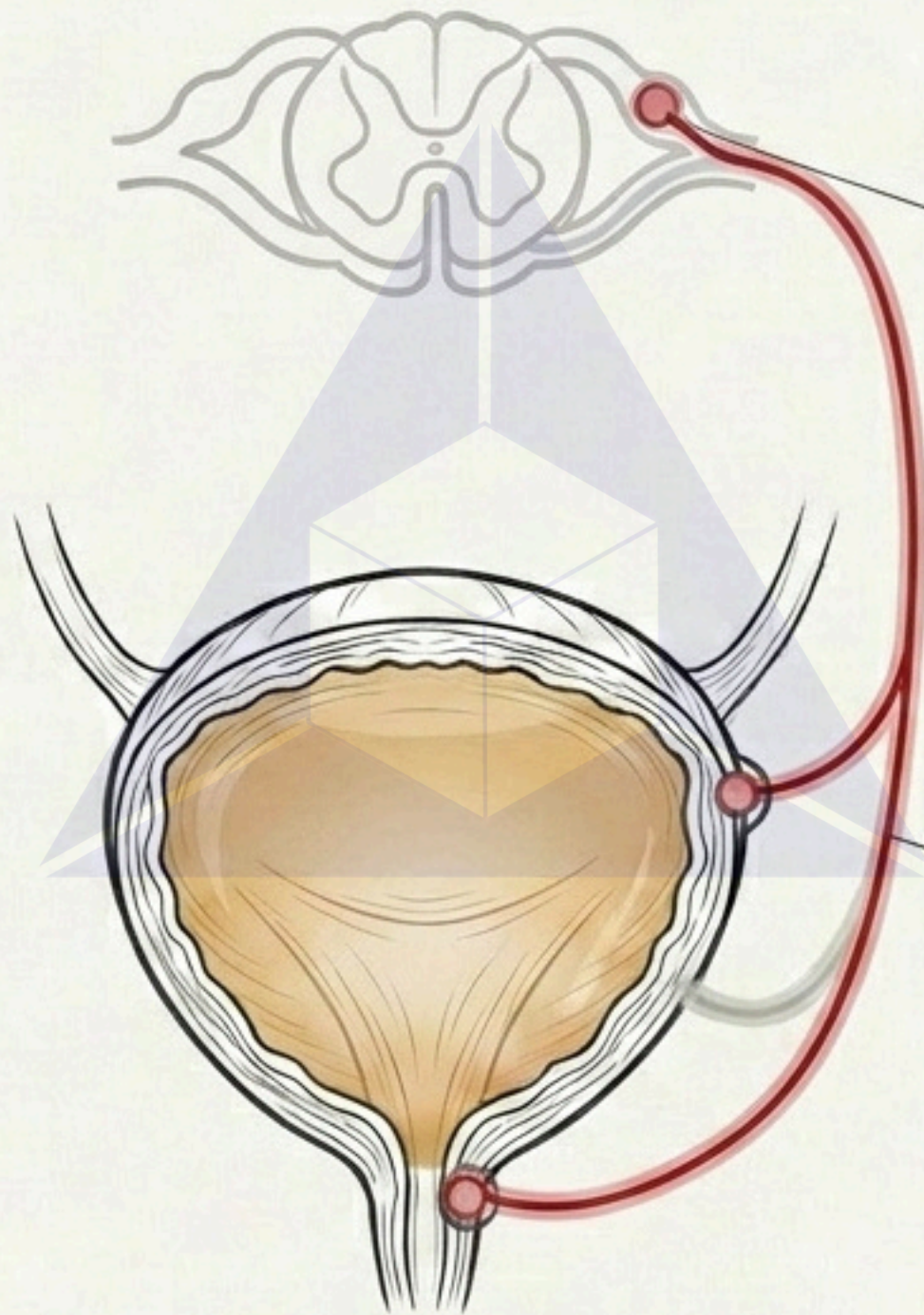
Detection

Specialized stretch receptors embedded in the bladder walls detect the physical tension.

Transmission

These receptors immediately fire off sensory signals up the spinal cord to the CNS, announcing that maximum capacity is being reached.

The Command: Central Nervous System Responds



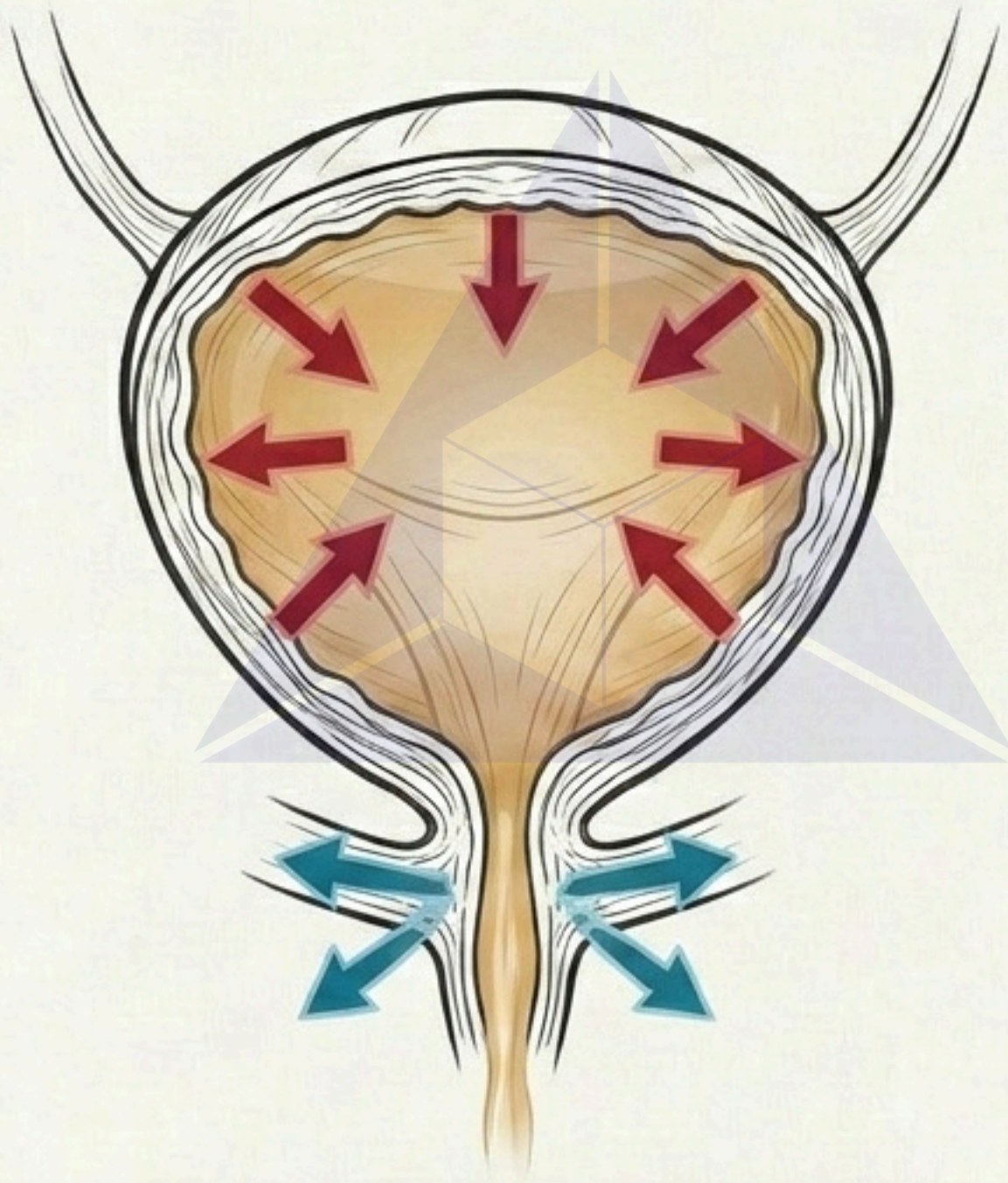
Processing

The CNS receives and processes the sensory input.

Motor Output

Once a voluntary signal is cleared, the CNS dispatches motor messages back to the lower urinary tract to initiate the voiding sequence.

Simultaneous Action: The Micturition Reflex



Action 1: Contraction

CNS motor messages initiate the forceful contraction of the smooth muscles in the bladder wall to push fluid out.

Action 2: Relaxation

At the exact same time, motor messages cause the simultaneous relaxation of the urethral sphincter, opening the pathway.

Result

This synchronized neural mechanism—the micturition reflex—results in the successful release of urine (micturition).

Micturition at a Glance: Output & Diagnostics



Normal Daily Profile

- Volume: 1 to 1.5 Liters
- pH Level: ~6.0 (Slightly acidic)
- Urea Excreted: 25-30 grams
- Appearance: Light yellow watery fluid with a characteristic odour.

Clinical Diagnostics Matrix

Glycosuria

Presence of Glucose in urine.

Ketonuria

Presence of Ketone bodies in urine.

Critical Indicator

The presence of either Glycosuria or Ketonuria during urine analysis is a primary clinical indicator of diabetes mellitus.



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