

MICTURITION

The urine produced by the nephrons undergoes its final transport to the urinary bladder, where it remains stored until a voluntary signal is relayed by the central nervous system (CNS). This signal is triggered by the expansion of the urinary bladder as it accumulates urine. In response to this expansion, stretch receptors on the bladder walls transmit signals to the CNS. The CNS, in turn, dispatches motor messages to initiate the contraction of the smooth muscles within the bladder, coupled with the simultaneous relaxation of the urethral sphincter, leading to the release of urine. This expulsion of urine is termed micturition, and the neural mechanisms orchestrating it are identified as the micturition reflex.

An average adult human eliminates approximately 1 to 1.5 liters of urine daily. The resulting urine is a light yellow-colored, aqueous fluid with a slightly acidic nature (pH-6.0) and a distinctive odor. Typically, around 25-30 grams of urea are excreted daily. The characteristics of urine can be influenced by various conditions. Urine analysis serves as a valuable tool in clinically diagnosing metabolic disorders and kidney malfunctions. For instance, the presence of glucose (glycosuria) and ketone bodies (ketonuria) in urine may indicate diabetes mellitus.