

Bladder

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- The urinary bladder is a hollow muscular organ that consists of three principal layers: lamina propria, smooth muscle and urothelium. The lamina propria contains a rich plexus of vessels, nerves and lymphatics. The detrusor is made up of a complex haphazard arrangement of smooth muscle, which acts as functional syncytium, and elastic connective tissue, which gives the bladder its viscoelastic properties. The urothelium is an active layer that not only acts as a barrier to protect underlying stroma from irritant urinary toxins and bacteria but also has a role in afferent signalling within the bladder; defects in the urothelial lining are thought to lead to several chronic benign bladder conditions. The bladder is made up of the bladder body (the area above the level of the ureteric orifices), the bladder base/trigone (the area below the level of the ureteric orifices) and the bladder neck smooth muscle.

Nervous system Origin Course Neurotransmitter Receptor Action on bladder Action on bladder
Hypogastric Noradrenaline Sympathetic T10-L2 nerve (norepinephrine) (thoracolumbar cord) Pelvic
nerve Acetylcholine M3 (smooth Parasympathetic S2-4 (sacral cord 'spinal micturition centre')
Somatic S2-4 (sacral cord Pudendal Acetylcholine Nicotinic 'Onuf's nucleus') nerve

BLADDER

The LUT consists of the bladder and urethra, and its two functions are urinary storage and urinary emptying. These functions depend on coordinated activity between the smooth and striated muscles of the bladder and the outlet (consisting of the bladder neck, urethral smooth muscle, external urethral sphincter and pelvic floor muscles), which is mediated by a complex of neural circuits in the central and peripheral nervous systems.

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