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**ASSIGNMENT QUESTION**

Write a short note on micturition.

**MICTURITION**

Micturition in simple terms means the action of urination, the process of urine excretion from the urinary bladder. Micturition is also known as the voiding phase of bladder control and it is typically a short-lasting event. Urinary flow rate in a full bladder is:

* 20-25ml/s in men
* 25-30ml/s in women

Whilst the capacity of the bladder varies from roughly 300-550ml, afferent nerves in the bladder wall signal the need to void the bladder at around 400ml of filling.

Most of the time, the bladder (detrusor muscle) is used to store urine. As it fills, the rugae distend and a constant pressure in the bladder (intra-vesicular pressure) is maintained. This is known as the stress-relaxation phenomenon. The ability to voluntarily control micturition develops from 2 years as the CNS develops.

CONTROL OF MICTURITION

Children and adults have considerable control over when and where they pass urine. They can also increase or decrease the rate of flow and even stop and start again, so micturition is clearly more than just a simple reflex. This control is learnt in infancy and involves other sensory fibres in the bladder wall. These fibres convey information on the degree of bladder fullness via the spine to the higher centers of the brain, the thalamus and cerebral cortex. This causes us to become aware that we need to pass urine and of the urgency of the situation.

These links between the spine and cerebral cortex are not established until about two years of age and it is suggested that toilet-training is therefore not physiologically possible until that time.

The brain is able to override the micturition reflex by inhibiting the parasympathetic motor nerve fibres to the bladder and reinforcing contraction of the external sphincter (Martini, 2002). The internal sphincter will not open until the external sphincter does.

The increase in bladder volume increases stretch receptor and nerve activity, making the sensation of pressure more acute. When it is convenient, the brain centers remove the inhibition and permit micturition under our conscious control. When the bladder contains about 500ml, pressure may force open the internal sphincter; this in turn forces open the external sphincter and urination occurs whether it is convenient or not.

We can increase the rate of urine flow by contraction of the abdominal muscles and by the performance of Valsalva’s maneuvers (forced expiration against a closed glottis). Contraction of the strong pelvic floor muscles can stop urine in mid-flow. The sound of running water also encourages micturition but some people cannot urinate in the presence of others, no matter how great their need. After micturition, less than 10ml of urine remains in the bladder) and the cycle begins again.

Micturition requires the coordinated activity of sympathetic, parasympathetic and somatic nerves. It also requires normal muscle tone and freedom from physical obstruction and psychological inhibition. Control from our higher brain centers allow us to determine the right time and place to allow this important physiological function to occur.