

The Spinal Cord, Spinal Nerves, and Spinal Reflexes

Introduction

The nervous system has input pathways that rout sensations, and processing centers that prioritize and distribute information. There are also several levels that issue motor responses.

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The brain and spinal cord make up the central nervous system (CNS), and the cranial nerves and spinal nerves make up the peripheral nervous system (PNS).

Reflexes) are quick, automatic responses triggered by specific stimuli.

Cranial reflexes) localized reflex responses comparable in organization and complexity to those of the spinal cord.

Somatic nervous system= conscious and subconscious control of skeletal muscles

Autonomic nervous system= control of visceral functions

The ANS has processing centers in the:

- Brain
- Spinal cord
- Peripheral nervous system

Related Clinical Terms

areflexia: absence of reflexes

Brown-Sequard syndrome: loss of sensation and motor function that results from unilateral spinal cord lesions.

Equinovarus: the foot is planter flexed, inverted, and adducted

Erb's palsy: Obstetric condition characterized by paralysis or weakness of a newborn's upper arm muscles caused by a stretch injury to the brachial plexus

hemiparesis: paralysis on 1 side of the body

Kernig's sign: symptom of meningitis where patient cannot extend the leg at the knee due to stiffness in the hamstring muscles

myelography: a diagnostic procedure in which a radiopaque dye is introduced into the CSF to obtain an x-ray image of the spinal cord and cauda equina

nerve conducting study: test often performed along with electromyography (EMG); the test stimulates certain nerves and records their ability to send an impulse to the muscle

nerve growth factor: a peptide that promotes the growth and maintenance of neurons.

Paraplegia: paralysis of the lower limbs

quadriplegia: paralysis involving loss of sensation and motor control of the upper and lower limbs

spinal shock: term applied to all phenomena surrounding physiological or anatomical transection of the spinal cord that results in temporary loss or depression of all or most spinal reflex activity inferior to the level of injury

tabes dorsalis: slow progressive degeneration of the myelin layer of the sensory neurons of the spinal cord that occurs in the tertiary (3rd) phase of syphilis. Common signs and symptoms are pain, weakness, diminished reflexes, unsteady gait, and loss of coordination