

## Classification and Treatment of Spinal Cord Injury

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### DESCRIPTION

An injury to the spinal cord causes harm to the cord itself as well as adjacent organs and bones. People could lose mobility or function in various bodily areas depending on the degree of the injury. The potential causes of spinal cord injury may include falls, bullet wounds, motor vehicle accidents, a sports injury and surgery-related issues.

The following signs and symptoms might result from a spinal cord injury: loss of mobility; loss or alteration of sensation, including the perception of touch, heat, and cold; a lack of bladder or bowel control; hyperactive reflex actions or spasms; changes in fertility, sexual sensitivity, and sexual function; damage to the nerve fibers in your spinal cord may result in severe stinging or pain; breathing, coughing, or cleaning lungs' secretions with difficulty; pressure in the neck, head, or back, or severe acute injuries.

### Classification of spinal cord injury

These are classified into different types include:

1. Complete or incomplete injuries
2. Central cord syndrome
3. Brown-séquard syndrome
4. Anterior and posterior cord syndromes

**Complete or incomplete injuries:** Complete SCI happens when there is a complete loss of motor and sensory function below the damage level. For example, a thoracic injury can begin at the level of the chest and arms, but it will also have an impact on the low back, pelvis, groin, tailbone, legs, and toes. Complete SCI has an equal impact on both sides of the body. Some function and feeling persist below the damage level in incomplete SCI. Usually, one side of the body is more functional or more sensitive than the other.

**Central cord syndrome:** The most prevalent incomplete SCI condition, affecting 15%–25% of traumatic SCIs, is central cord syndrome. Elderly individuals who sustain a SCI from a violent fall and have a history of cervical spondylosis and spinal stenosis

frequently develop central cord syndrome. This condition affects the central portion of the spinal cord. Large nerve fibers in the central spinal cord transfer information from the spinal cord to the cerebral cortex. Personality, the interpretation of sensation (feeling), and motor function are all influenced by the cerebral cortex. Although the lower body may also be impacted, the central spinal cord is crucial for hand and arm function, including fine motor control (for example, writing) (example: loss of bladder control).

**Brown-séquard syndrome:** Patients who have experienced a penetrating traumatic SCI, such as a gunshot or knife wound, are more likely to develop Brown-Séquard syndrome. Although the left or right side of the spinal cord is affected by this illness, both sides of the body may experience symptoms. A vibrating feeling on the same side as the damage, a partial loss of function or decreased function, and a loss of pain and temperature on the opposite side of the lesion are its defining features.

**Anterior and posterior cord syndromes:** The anterior spinal cord is the structure's front half, while the posterior spinal cord is its back. These symptoms are more frequent in patients who have non-traumatic SCI rather than traumatic SCI. Anterior cord syndrome results in full paralysis, as well as pain and temperature loss, but it keeps faint touch perceptions. Posterior cord syndrome has the reverse effect: it reduces light touch feeling while preserving mobility, pain, and temperature sensitivity.

### Treatment

Doctors may give the treatment as per the stages of treatment in emergency keeping the capacity to breathe, shock avoidance, neck immobilization to avoid additional spinal cord injury, avoiding issues such as stool or urine retention, respiratory or cardiovascular problems, and the creation of deep vein blood clots in the extremities. The treatment of spinal cord injury may include:

**Medications:** In the past, methylprednisolone (Solu-Medrol) injected through an arm vein (IV) was utilized as a therapeutic option for an acute spinal cord injury. However, new study has

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revealed that the risks of using this medicine, such as blood clots and pneumonia, exceed the benefits. As a result, methylprednisolone is no longer indicated for regular treatment following a spinal cord injury.

**Immobilization:** Traction may be required to maintain or correct the spine. Soft neck collars and different braces are available as options.

**Surgery:** Surgery is frequently required to remove bone fragments, foreign objects, herniated disks, or a broken vertebra

that seems to be crushing the spine. Surgery may also be required to stabilize the spine and avoid future discomfort or deformity.

**Treatments under investigation:** Scientists are working on techniques to prevent cell death, reduce inflammation, and enhance neuron regeneration.