

# Traumatic Spinal Cord Injury: Epidemiology

## Definition

Traumatic spinal cord injury (TSCI) is damage to the spinal cord caused by external physical impact, leading to partial or complete loss of motor, sensory, and/or autonomic function below the level of injury.

## Global Incidence

- **Worldwide incidence:** 10–80 cases per million population per year.
- **Estimated annual cases:** 250,000–500,000 globally (WHO).
- **Data limitations:** Underreporting is frequent, especially in low- and middle-income countries.

## Age and Gender Distribution

- **Bimodal age peak:**
  1. Young adults (15–29 years)
  2. Older adults (65+), often related to falls
- **Gender:** Predominantly affects males (~80% of cases)

## Causes

- **Road traffic accidents (RTAs):** 35–50%
- **Falls:** 20–30%, increasing in elderly populations
- **Violence (gunshot, stab wounds):** 10–15%
- **Sports and recreation:** 5–10% (e.g., diving, rugby, skiing)

## Level and Severity of Injury

- **Cervical injuries:** Most frequent; especially C5–C7
- **Thoracic injuries:** Higher likelihood of complete injury
- **Lumbar injuries:** Often involve cauda equina syndrome
- **Severity:**
  1. Complete (ASIA A): ~30–40%
  2. Incomplete (ASIA B–D): ~60–70%

## Mortality and Disability

- **High early mortality** in cervical and high thoracic injuries
- **Leading cause of permanent disability** in young adults
- **Life expectancy:**
  1. Reduced compared to the general population
  2. Improving with advances in acute and rehabilitative care

## Epidemiological Trends

- **Aging population:** Rise in fall-related TSCI among the elderly
- **Prevention efforts:** Decline in RTA-related TSCI in high-income countries
- **Technological advances:** Better prehospital care and surgical management

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