

# Spinal cord syndromes

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# Damage to corticospinal tract

Lower motor neuron paralysis	Upper motor neuron paralysis
loss of voluntary movement	loss of voluntary movement
flaccid paralysis	spasticity
loss of muscle tone	increased deep tendon reflexes
atrophy of muscles	loss of superficial reflexes
loss of all reflexes	Babinski sign

Normal toe flexion

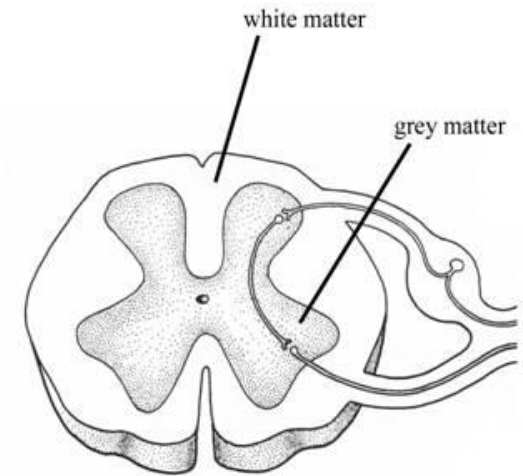


Positive Babinski's reflex



# Spinal cord transection - spinal shock

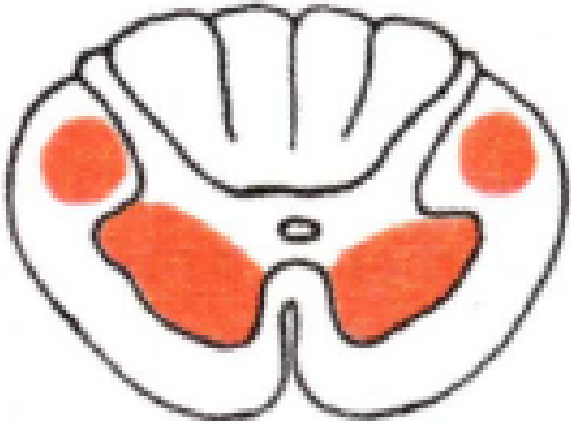
- Loss in muscle tone, motor function, reflex activity, visceral and somatic sensation
- Spinal shock (1-6 weeks):
  - Attenuated or absent all spinal reflexes
  - Impaired bowel and bladder function
- Recovery:
  1. Minimal reflexes and Babinski sign
  2. Flexor spasms
  3. Alternate flexor and extensor spasms
  4. Extensor spasms





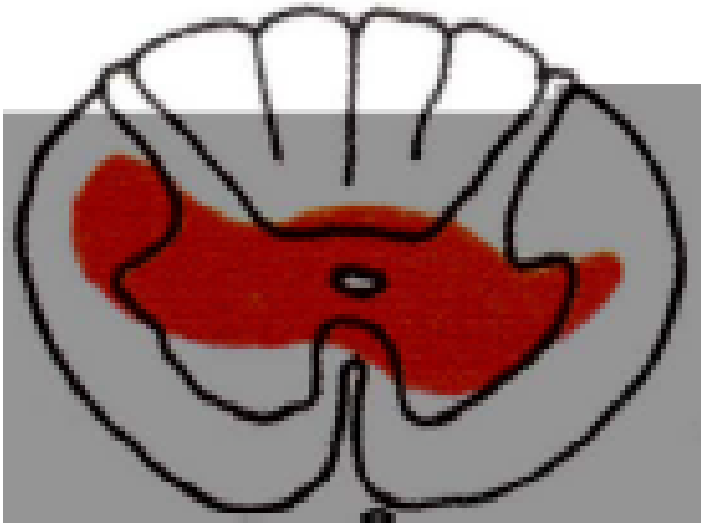
## Brown-Sequard syndrome

Characteristics	Reason
<i>Contralateral</i>	
Loss of pain and temperature sensations	Spinothalamic pathway breakdown
Upper motor neuron paralysis	Corticospinal pathway breakdown
<i>Ipsilateral</i>	
Loss of conscious proprioception and two-point discriminaton	Dorsal columns breakdown
Upper motor neuron paralysis	Corticospinal pathway breakdown
Segmental lower motor neuron paralysis	Ventral roots (and horns) breakdown
Segmental loss of all sensations	Dorsal roots (and horns) breakdown



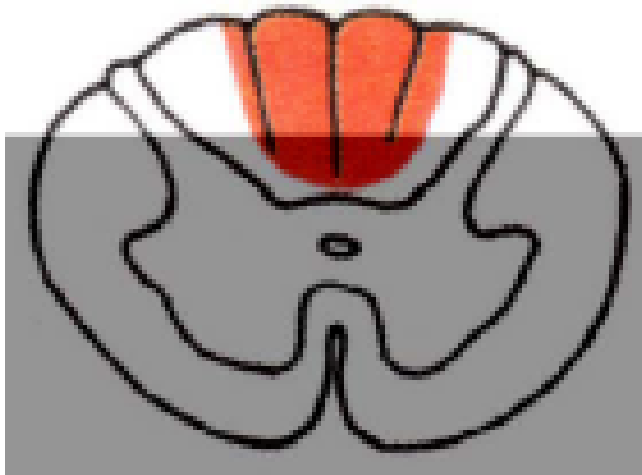
## Amyotrophic lateral sclerosis (Lou Gehrig's disease)

- Upper and lower motor neuron
- Involuntary twitching of muscle fascicles (fasciculations)
- Impaired bladder and bowel functions (autonomic system)
  
- Progressive degenerative disease
- Cause not known!



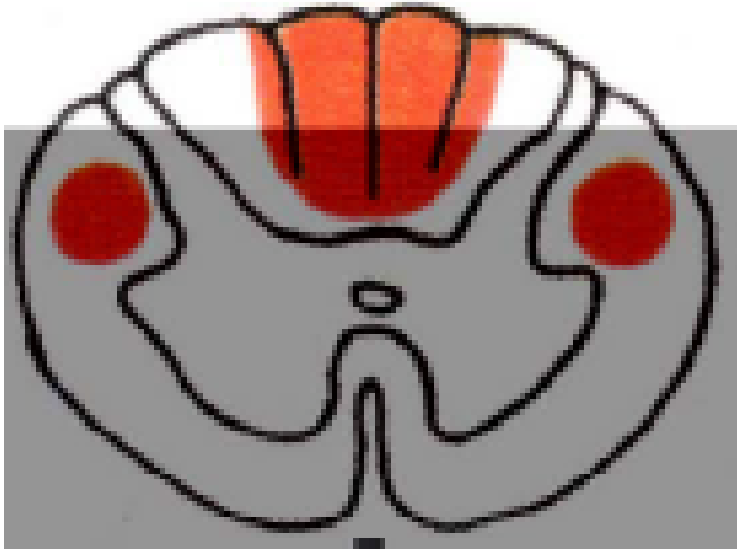
## Syringomyelia

- Expansion of the central canal and glial proliferation
- Lower cervical and upper thoracic cord
- Segmental loss of pain and temperature sensation
- Tactile sensation is largely preserved – dissociated sensory loss



## Tabes dorsalis

- Tertiary syphilis (neurosyphilis)
- Dorsal root ganglion and dorsal columns degeneration
- Lower thoracic and lumbosacral segments
- Loss of vibration sense, two-point discrimination and conscious proprioception (ataxia)



## Combined system disease

- Vitamin B<sub>12</sub> deficiency – pernicious anemia
- Degeneration of dorsal and lateral funiculi
- Defects in motor (upper motor neuron dysfunction) and sensory functions (tingling, loss of vibration and position senses)



