



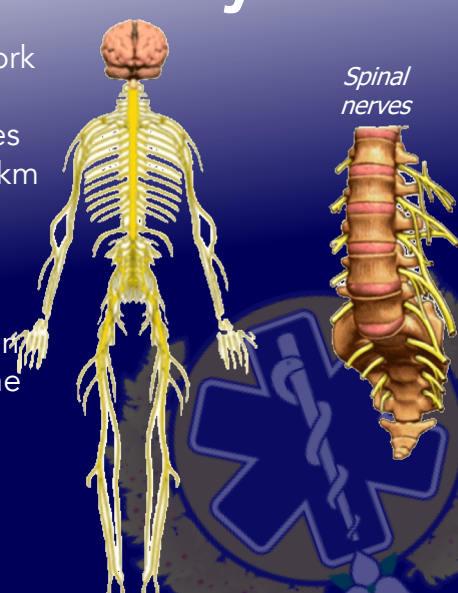
Emergency Medical Responder

# INJURIES TO THE SPINE




## The nervous system

- A complex network system carries electrical impulses at speeds of 200km per hour
- Linking signals between the brain and the rest of the nervous system



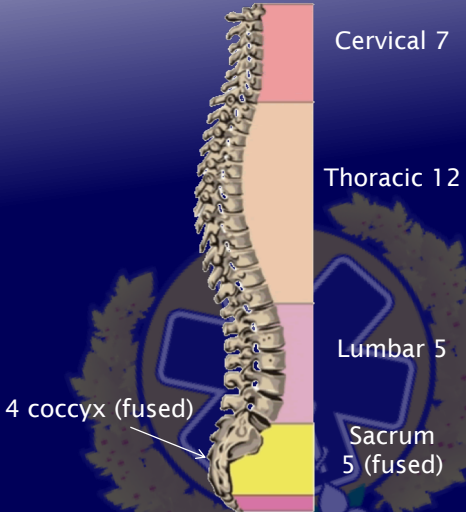
*Spinal nerves*

41



## The human spine

- Spinal cord
  - Composed of nerve fibres
- Intervertebral discs
  - Padding or cushioning
  - gristle



Cervical 7

Thoracic 12

Lumbar 5

Sacrum 5 (fused)

4 coccyx (fused)

42



## Causes of Spinal Injuries

Spinal injury can result from

- MVAs
- Motorcycle crashes
- Pedestrian/car crashes
- Falls
- Diving accidents
- Hangings
- Blunt trauma
- Penetrating trauma – head, neck, torso
- Gunshot wounds
- Speed sports





## Signs and Symptoms

### Signs of spinal injury can include:

- Respiratory distress
- Tenderness at injury site
- Pain along spinal column with movement
- Constant or intermittent pain
- Obvious deformity of the spine
- Soft tissue injuries to the head, neck, shoulders, back, abdomen, or legs
- Numbness, weakness, tingling in the arms or legs
- Loss of sensation or paralysis in upper or lower extremities or below injury site
- Incontinence
- Priapism



## Management

### Emergency Care for a Suspected Spinal Injury

- Take BSI precautions
- Stabilize patient's head and neck
- Do primary assessment and provide treatment
- Provide high flow oxygen via non-rebreather mask
- Perform secondary assessment and provide treatment
- Maintain manual stabilization until patient is completely immobilized



**Figure 25-5** Manual stabilization means holding the patient's head firmly and steadily in a neutral, in-line position.



## Spinal Boarding



**Figure 25-8a** Maintain the patient's head and neck in a neutral, in-line position.



**Figure 25-8b** Roll the patient onto the side.



**Figure 25-8c** A bystander or one of the three rescuers should move the long backboard into place.



**Figure 25-8d** Lower the patient onto the long backboard.

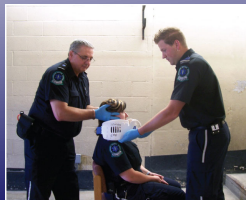


## Long Backboard Immobilization

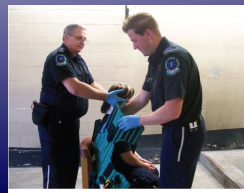
- Immobilize chest, then head, and finally the legs in case you need to turn patient
- early during technique due to vomiting.



## KED



**Figure 25-11a** Manually stabilize the head and neck. Then, apply a rigid cervical collar.



**Figure 25-11b** Position the extraction vest behind the patient.



**Figure 25-11c** Secure the torso and leg straps.




**Figure 25-11d** Pad behind the head if necessary and secure the head straps.




**SUPERIOR EMS**


### Rapid Extrication




**Figure 25-12a** Bring the patient's head into a neutral, in-line position.



**Figure 25-12b** Apply a rigid cervical immobilization device.



**Figure 25-12c** Rotate the patient into position.



**Figure 25-12d** Bring the long backboard in line with the patient.



**Figure 25-12e** Lower the patient onto the long backboard.



**Figure 25-12f** Slide the patient into position in small steps and secure the patient to the backboard.