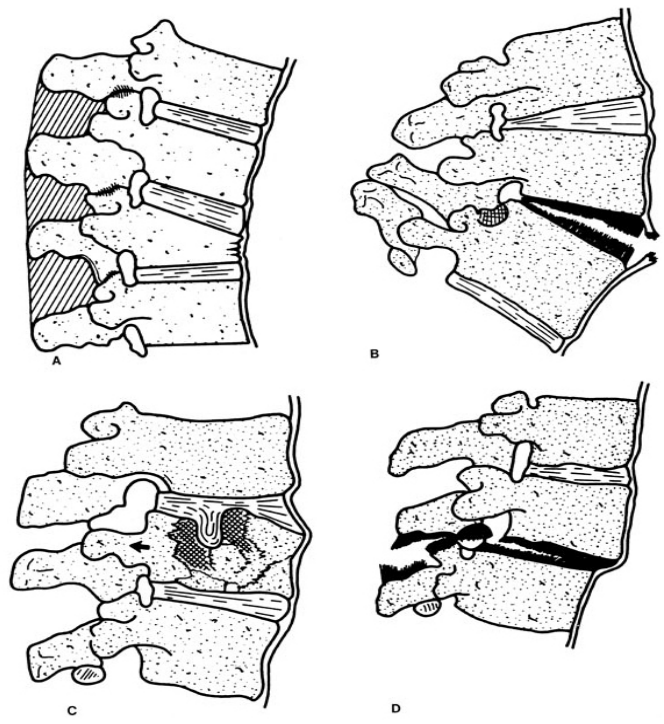


# Cervical Spinal Cord Trauma



# Cervical Spinal Cord Injuries



- History
- Current occurrence
- Spinal Cord inhibited by two MOI
- On vs. off-the-field
- 4 no-no signs and symptoms
- Risk factors

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# Cervical Fractures



## MOI:

- axial loading, possibly with flexion
- usually occurs to 4-6<sup>th</sup> cervical vertebrae
- dislocation may occur if rotation occurs with it

## S&S:

- point tenderness along neck
- decreased motion
- muscle spasm
- pain in neck and chest
- numbness in trunk and limbs
- weakness or paralysis
- sometimes no S&S

**Tx** – Hospital



# Cervical Dislocations



## **MOI:**

- violent flexion with rotation (ex-diving into a pool)
- occurs more frequently than fractures
- usually to 4-6<sup>th</sup> cervical vertebrae
- more serious than fractures

## **S&S:**

- same as fracture
- head tilted toward dislocated side

**Tx:** Hospital



# Transient Quadriplegia



Transient =

## **MOI:**

- C-spine forced into hyperextension, hyperflexion, or axial load
- Stenosis – esp. at C3-C4 level
- Neural arch abnormalities, esp. posteriorly

## **S&S:**

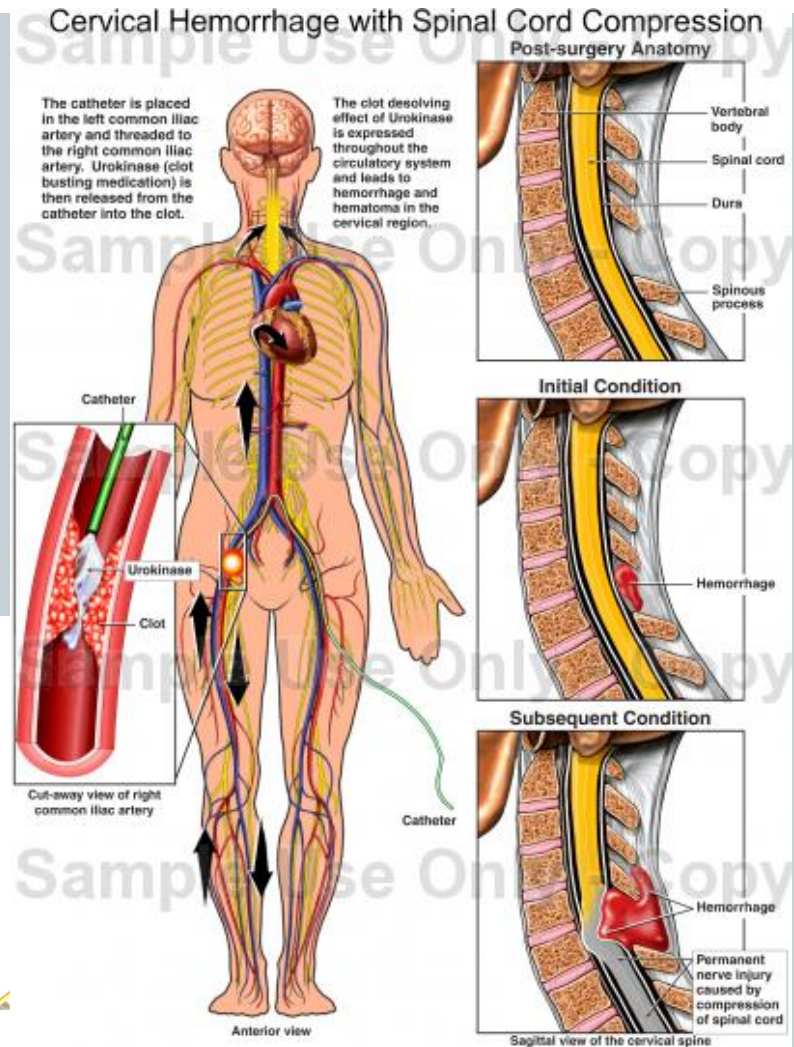
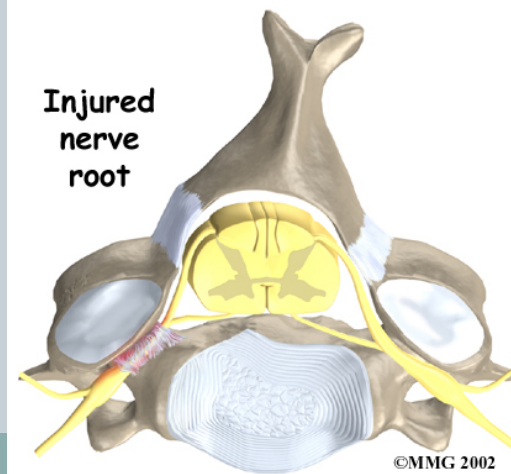
- Initially – resemble catastrophic injury
- Clear within 15 min. to 48 hours

# Spinal Cord Injuries

4 basic MOI:

- Laceration by bony fragments
- Hemorrhage
- Contusion
- Shock

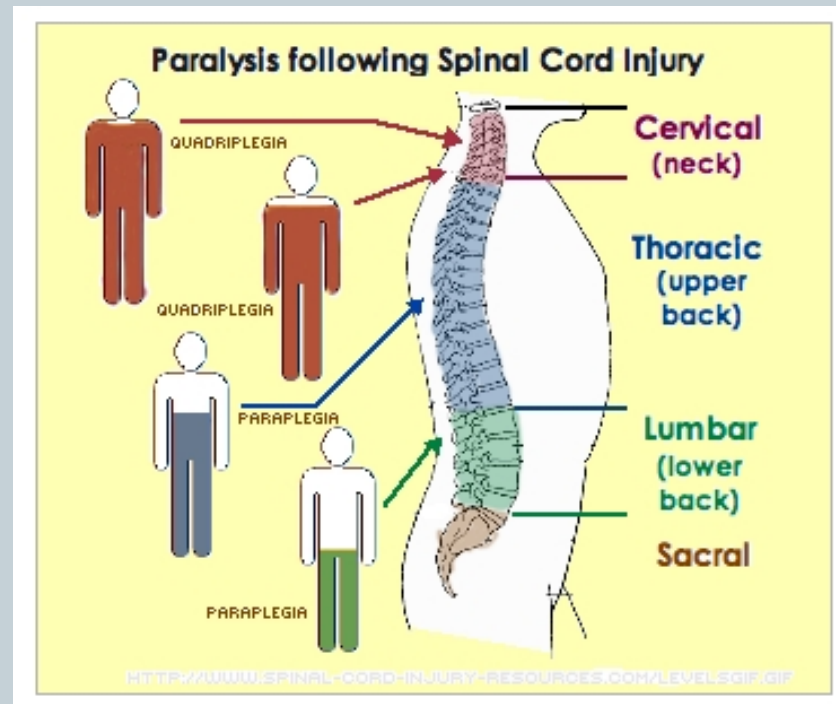
Can act together or separately



# Spinal Cord Injuries

## Laceration

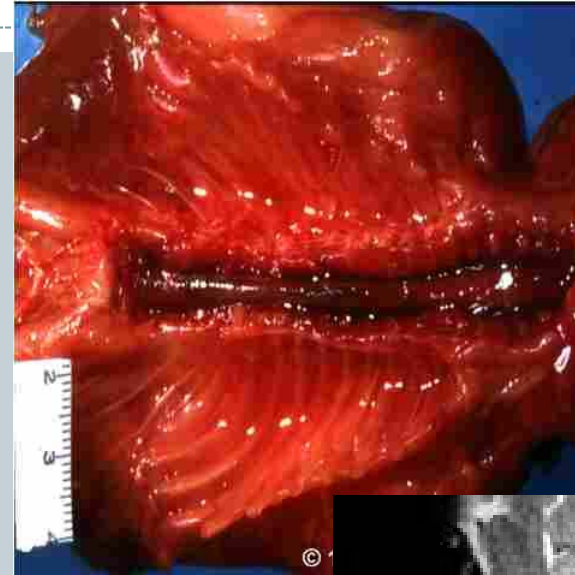
- Caused by combination of dislocation and fracture of cervical vertebra
- Edges cut and tear nerve roots or spinal cord and cause varying degrees of paralysis below injury



# Spinal Cord Injuries

## Hemorrhage

- Develops from vertebral fractures and most dislocations
- Sprains and strains can also cause this
- Seldom causes harmful effects outside of spinal cord but within it causes irreparable damage





# Spinal Cord Injuries

## Contusion

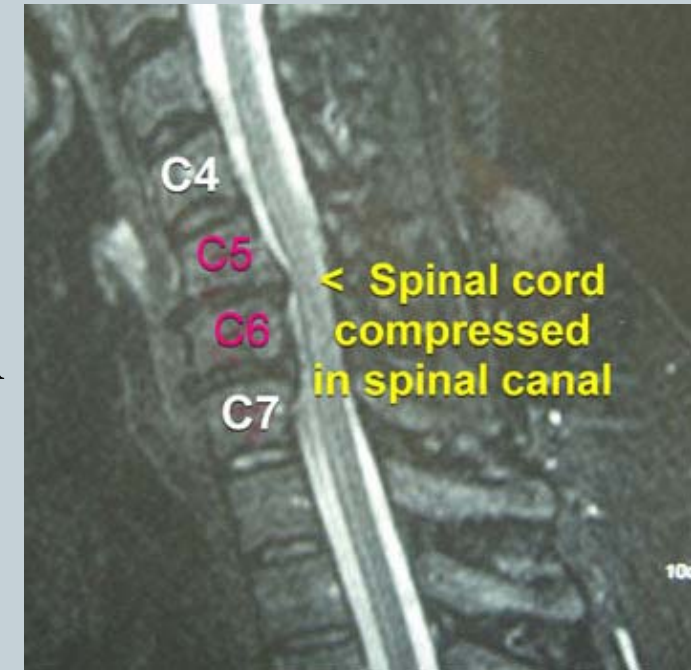
- Can arise from violent force applied to the neck but without causing a dislocation or fracture
- May result from sudden temporary displacement of a vertebrae (subluxation)
- Results in varying degrees of temporary or permanent damage



# Spinal Cord Injuries

## Shock

- Arises from severe neck twist or snap
- Signs/symptoms of a spinal cord injury
- Unable to move or has weakness in parts of the body
- Numbness and tingling in arms and/or legs
- Able to move limbs freely and has no other S&S than a stiff neck in a short period of time
- Considered a mild contusion



# Nerve Root Injuries



## **MOI:**

- same as to brachial plexus

## **S&S:**

- Burning, “electrical shock”, numbness and tingling
- Varying levels of decreased motor function and sensation below level of injury
- Traction MOI allows S&S to resolve more quickly
- Extension and side bending associated with chronic MOI – more likely to have degenerative changes
- CT scan, MRI and EMG used to identify traumatized nerve

# Nerve Root Injuries (cont.)



- Neck pain NOT associated with this
- Will subside within minutes with initial injury – S&S diminish more slowly with repeated trauma
- Must rule out fractures and dislocations
- Diminished grip strength
  - C3 – impaired respiration, impaired neck movement
  - C4/C5 – return of shoulder function
  - C5/C6 – return of elbow flexion and wrist extension
  - C6/C7 – return of elbow extension and wrist flexion
  - C8/T1- return of grip function

\*Handle with extreme caution to minimize damage