

# From spectator to treating physician at a sporting event

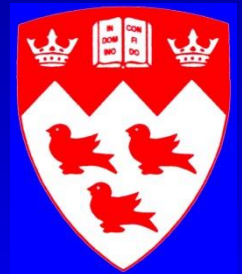


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# FACULTY DISCLOSURE

**Dr. Delaney**

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# Outline

- **Cardiac Arrest / Traumatic Asphyxia**
- **Sport Medicine Slang**
- **C-spine Immobilization and Log Roll**
- **Neck Injuries**
  - “Burners” or “stingers”
  - “Bilateral burners”
  - Catastrophic Injuries

# On Field Cardiac Arrest

- Start CPR right there ASAP
- Early AED
- Can use AED in rain + snow



# Traumatic Asphyxia



# Sad History in Sports...



# Traumatic Asphyxia

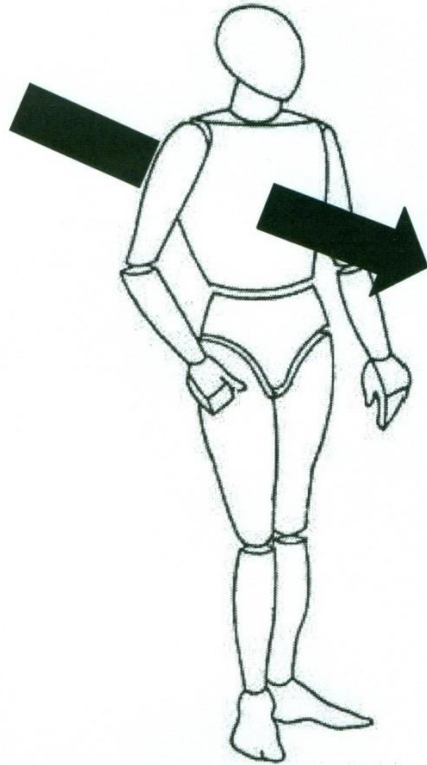


# Traumatic Asphyxia

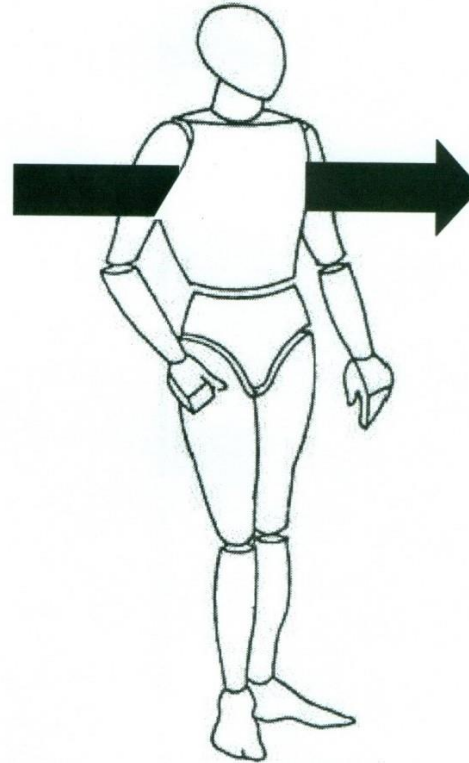




# Traumatic Asphyxia



anterior-posterior coronal  
traumatic crushing force



side-to-side sagittal traumatic force

# Sports Med “Slang”

- **Burner or stinger**
  - Transient brachial plexopathy
- **Hip Pointer**
  - Bruise to the iliac crest
- **High Ankle sprain**
  - Sprain of the syndesmotic ligament
- **Sports hernia**
  - Tear of external oblique muscle with compression of ilioinguinal nerve

# Sports Med “Slang”

- **Ding or Bell Ringer**
  - Concussion
- **Runner’s trots**
  - Cramps, flatulence, diarrhea, GI bleed
- **Shin Splints**
  - General term for pain in tibia region
- **Turf Toe**
  - Sprain of the ligaments around the big toe joint

# Immobilization of C-spine

Immobilization of C-spine- NOT traction



# Log Roll Procedure

## 1- Control the head and neck



# Procedure

2- Team gets into position and prepares patient



# Procedure

## 3- Prepare to move patient as one unit



# Procedure

## 4- Roll the patient as one unit





# Procedure

5- Place Spinal board at 45-90 degree angle



# Procedure

**6- Roll the patient back against the board to supine**



# Helmet Removal



# Helmet Removal?



# Helmet On or Off

- Want to keep the neck in proper alignment



# Helmet On or Off



# Helmet On or Off



# 1 Person Emergency Log Roll





# Non- Supine Athlete

- Work your hands backwards...



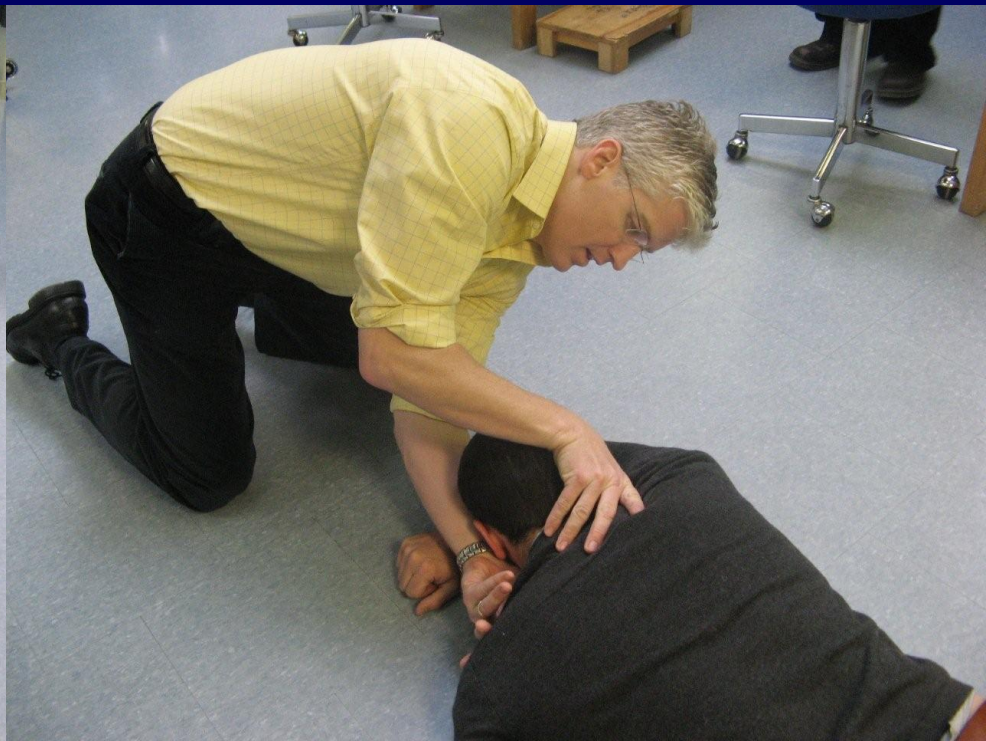
# Non- Supine Athlete

- Start with how you want your hands to finish



# Non- Supine Athlete

- Turn your hands into the patient



# Non- Supine Athlete

- Roll the patient



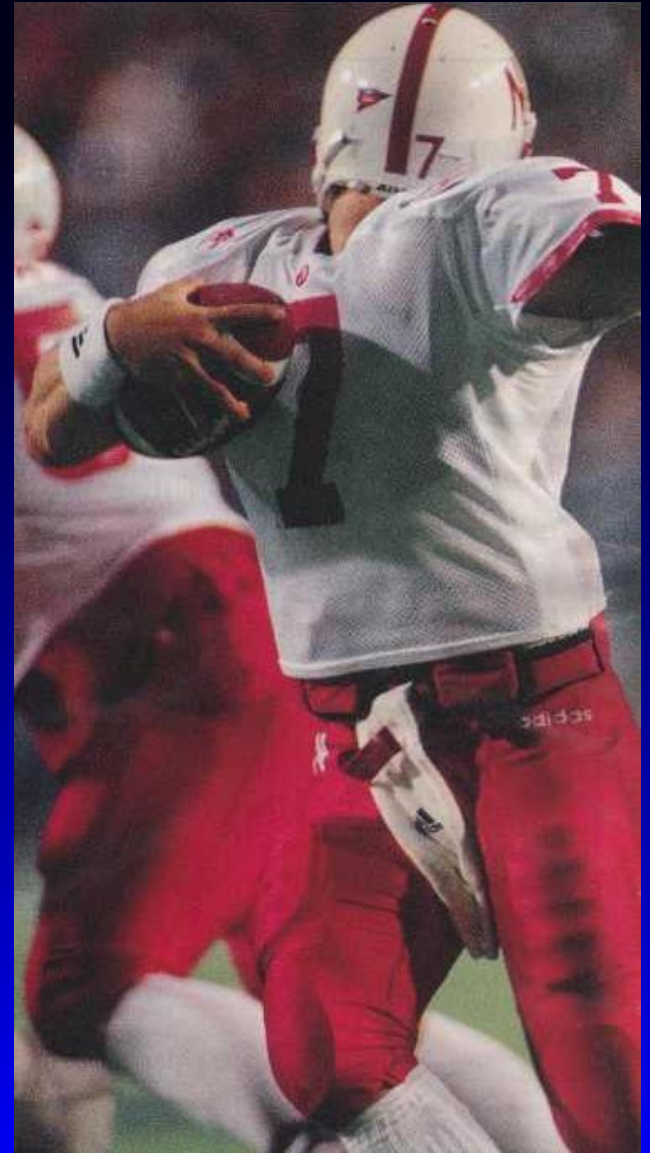
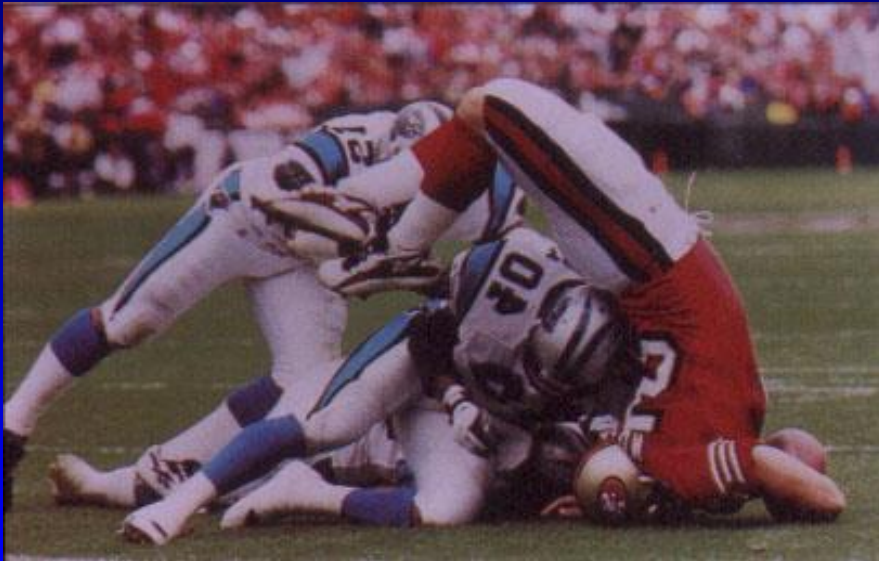
# Non- Supine Athlete

- Finished!



# Athletic Neck Injuries

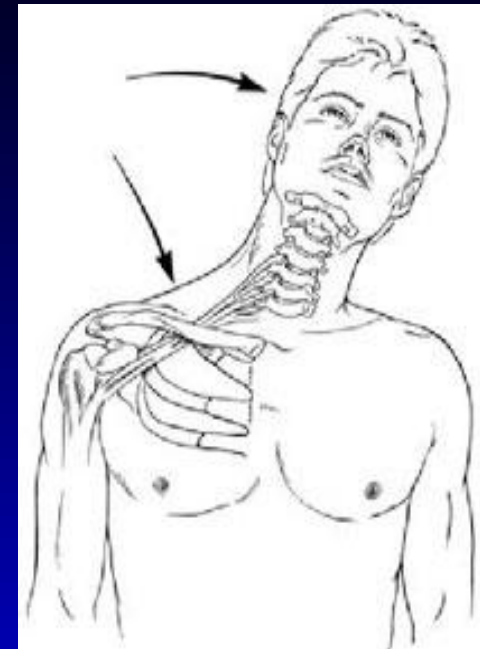
- **Burners / Stingers**
- **Spinal Cord Neuropraxia**



# “Burners” or “Stingers”

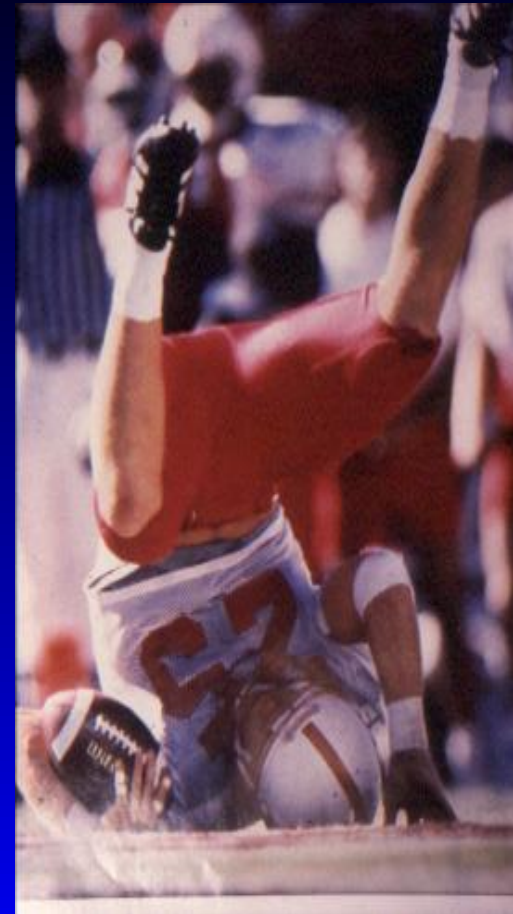
## Transient Brachial Plexopathy

- Two types:
  1. Lateral flexion to the **asymptomatic** side
    - depression of the shoulder that stretches the nerves of the brachial plexus
  2. Lateral flexion to the **symptomatic** side
    - compression of the nerve roots in the neural foramina



# “Burners” or “Stingers”

- **C5 and C6 are most common**
  - thumb and index finger numbness/burning
  - deltoid and biceps weakness
- **Usually transient**
- **May return:**
  - » no symptoms
  - » full range of motion
  - » no shoulder or arm weakness





# Spinal Cord Neuropraxia “Bilateral Burner”

- **Extension of C-spine:**
  - decreases size of spinal canal and foramina
- **Hyperextension of C-spine:**
  - decrease sagittal diameter of spinal canal up to 30%
- **Central spinal cord:**
  - contains more UE than LE fibers from the corticospinal (motor) and spinothalamic (pain and temp) tracts

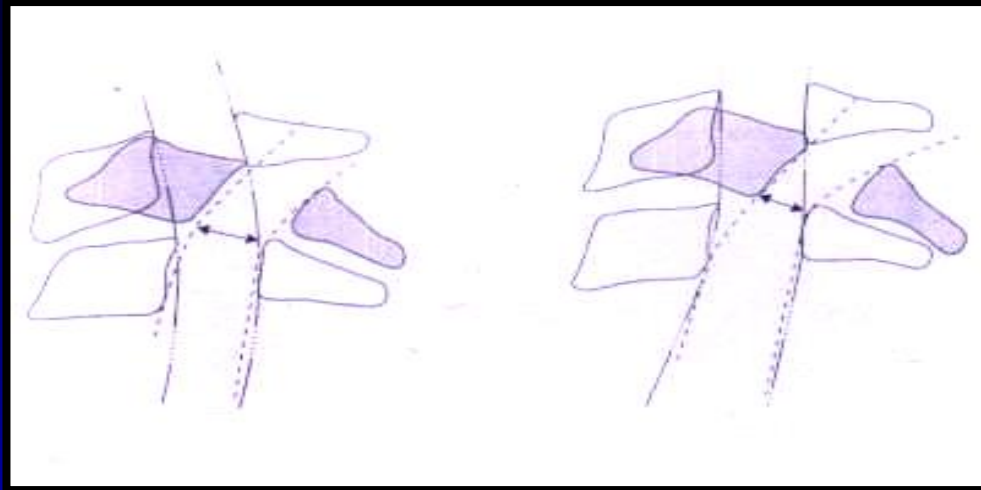
# Spinal Cord Neuropraxia

- **Spinal Stenosis**

- narrowing of spinal canal diameter
- less “buffer space” between cord and surrounding supporting structures (*functional space*)
- greater risk for cord injury at level of stenosis

# Spinal Cord Neuropraxia

- Athlete with spinal stenosis extends C-spine:



= central cord syndrome

- **bilateral UE neuro findings**
- no ligamentous or bony disruption:
  - = normal C-spine film (SCIWORA?)
- MRI shows spinal stenosis, +/- swelling of cord

# Spinal Cord Neuropraxia

- **“Bilateral Burners”**
  - Stop contact sports
  - Refer
  - C-spine X-ray and MRI

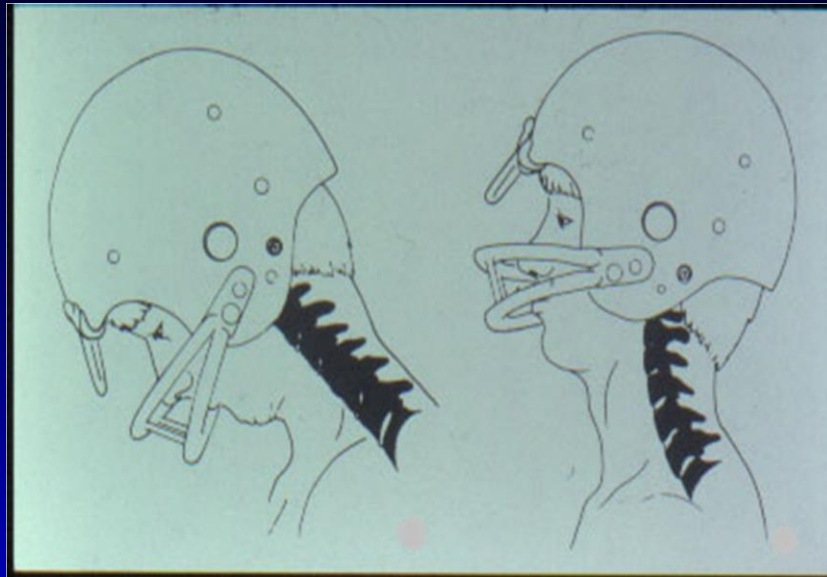
**Note: If MRI shows spinal stenosis- NO contact sports EVER**

# C-spine Fractures

- **Normal C-spine has a lordosis of 30°**
  - applied forces absorbed via:
    - lateral bending, flexion and extension
  - most force absorbed: posterior musculature
- **Catastrophic injuries** → the top of a player's head strikes opponent or object

# Biomechanics of Injury

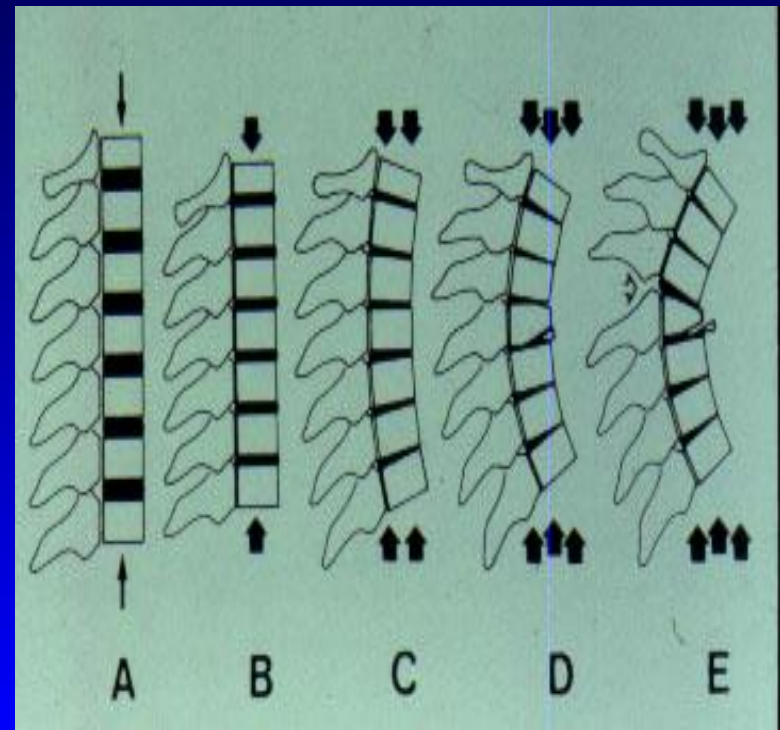
- Head flexed forward 30°
  - C-spine loses lordosis- now straight

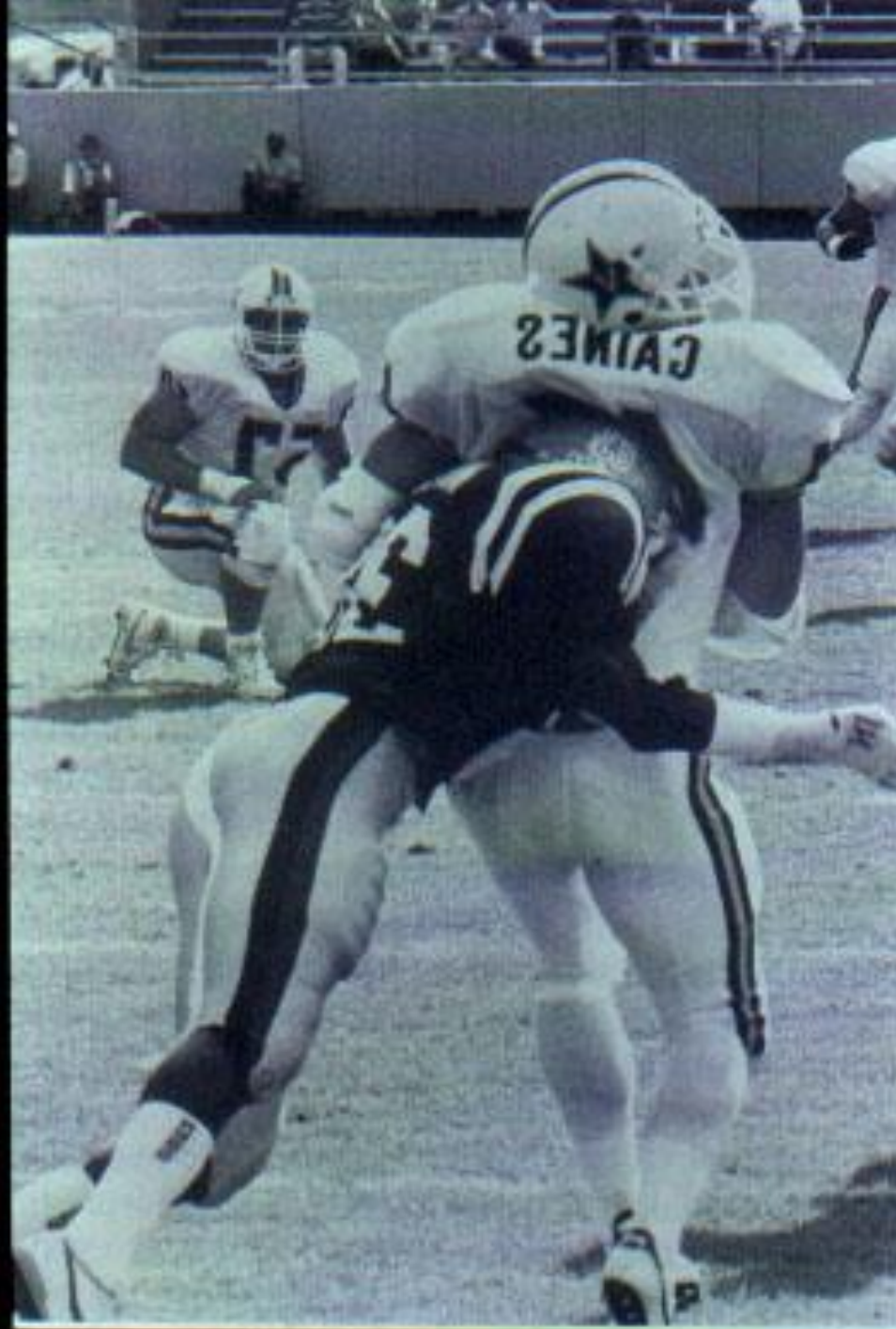


- VB + IVD now segmental column
- no capacity for cervical musculature to absorb energy

# Biomechanics of Injury

- **Axial load on head flexed forward 30°**
  - IVD compressed to limit
  - C-spine begins to collapse in flexion
  - VB fracture
  - ligamentous disruption
  - subluxation/dislocation







# Prevention

- Football- no spearing
- Hockey- no hitting from behind
- Swimming- no diving into shallow/unknown water



# Summary

- **CPR and AED at site of collapse**
- **Turn sideways in crush situation**
- **Know how to:**
  - **Immobilize the C-spine + Log roll**
- **Bilateral burner is a spinal cord injury**
- **Advocacy**
  - **No spearing in football / rugby**
  - **No hitting from behind in hockey**
  - **No diving into shallow / unknown water**

**Thank You**