Assessing Trauma In the School Setting

Assessing Head injury in the school setting

Assessing Head Trauma in the School Setting.

- Concussion Fact Sheets from the CDC
- http://www.cdc.gov/headsup/schools/index.html
- More attention is being paid to concussions in students.
- Even a mild blow to the head can have serious consequences.

Assessing head injury in the school setting

- Children and adolescents are at greater risk for concussion
- The potential for head injury is greatest during activities where contact can occur
  - Play ground
  - Sports activities
  - PE class

Assessing Head Injury in the School Setting

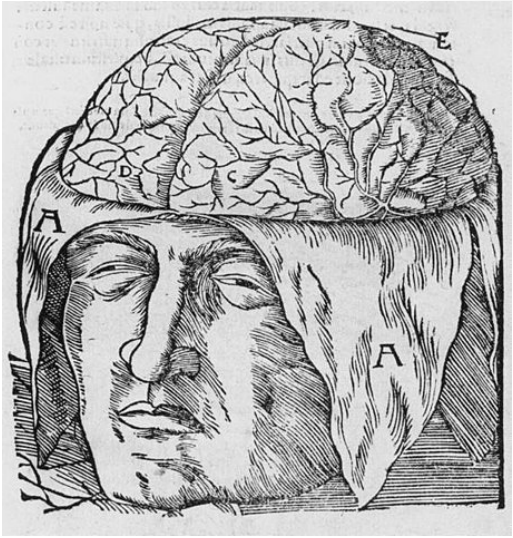
- All concussions are serious
- Most concussions occur without a loss of consciousness
- Recognition of concussions when they occur can help avoid further damage

Assessing Head Injuries

- FACTS:
  - Serious Head Injuries can occur without a loss of consciousness
  - Bleeding in the brain can be slow, taking hours to produce symptoms or it can be fast.
  - Skull fractures are not always apparent and are often not able to felt due to tissue swelling, lacerations or avulsions.

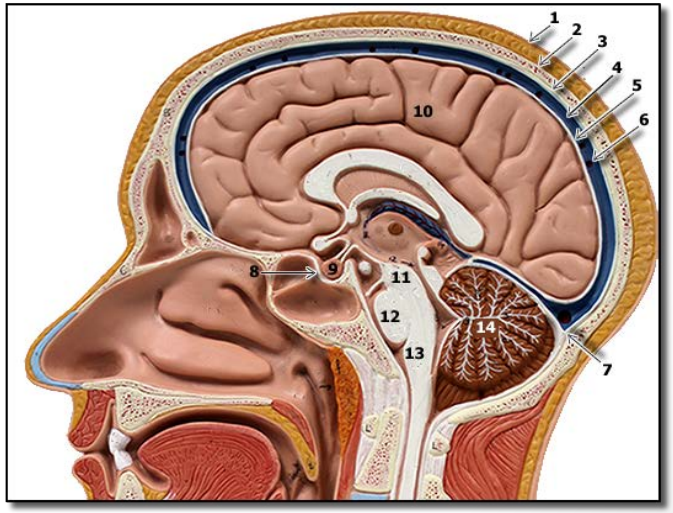
A Quickie Anatomy Review

- Meninges
  - Cover the brain
  - Provide protection
- Dura Mater
  - Outermost membrane
    - Tough Mother
- Arachnoid Membrane
  - “Spider” web
- Pia Mater
  - Closely communicates with the Brain tissue
  - Provides an anchoring tissue for Blood vessels.



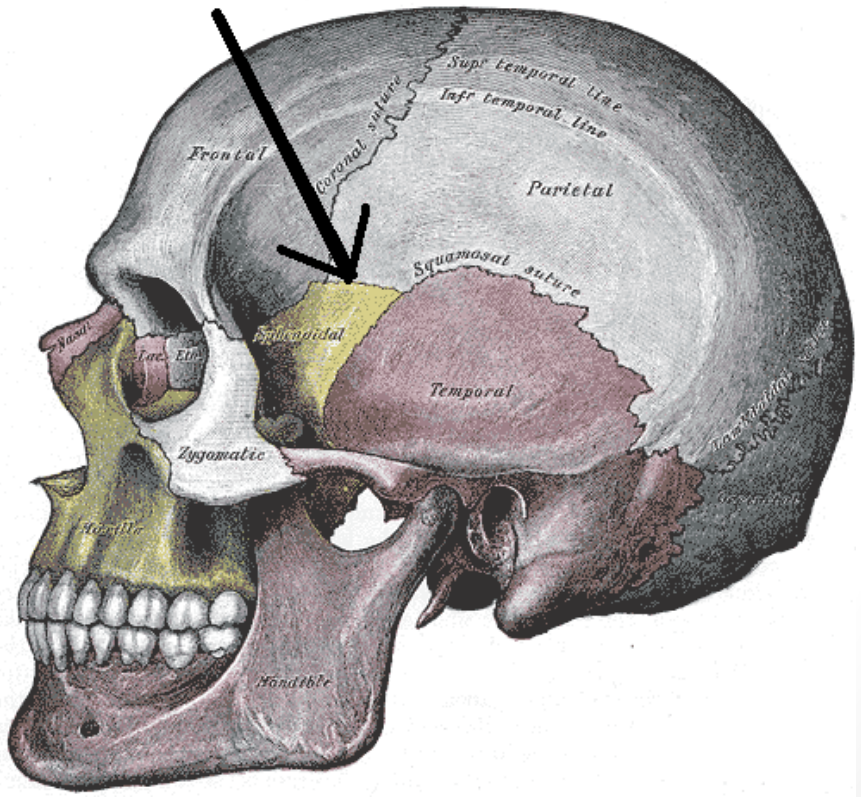
Brain - Skull View

Drag the cursor over the labels to identify the parts



A Quickie Anatomy Review

- The are where the skill is the Thinnest.



Assessing Concussion and Head Trauma at School

- Little Johnny is running on the playground and isn't watching where he is going. Little Johnny runs behind someone on the swing and is struck in the head by a corner of the hard seat of the swing. Little Johnny falls to the ground but doesn't get up right away. After about 10 seconds Johnny gets up and starts crying and runs to the playground monitor. What needs to happen to Little Johnny now?

Assessing Little Johnny

- The playground monitor doesn't see anything wrong with Little Johnny. He has no visible wound or bump. Little Johnny is comforted until he is no longer hysterical and crying and is then sent back to play. Little Johnny now walks around and doesn't feel like playing. He goes back inside to class when recess if over.

- Is Little Johnny okay?

Assessing Little Johnny

- The teacher notices Little Johnny seems to be sleepy and is not attentive to the lesson. He seems more irritable with his classmates during group time. The teacher is concerned he may be getting sick (She was not told about Little Johnny's accident on the playground)
- About 30 minutes after returning from recess, Little Johnny has an episode of vomiting. The teacher doesn't think he feels warm but is concerned he is getting sick. She sends little Johnny to the Health Aid Office to be checked out.
- The school Health Aid looks at Johnny and sees he seems tired and is dragging his feet (later he admitted he noticed one side was dragging more than the other) He takes Little Johnny's temperature and notes he does not have a fever.
- He sends Little Johnny back to class since he has not vomited again.

Assessing Little Johnny

- Little Johnny returns to class and seems very, very tired. The teacher allows Johnny to remain at his desk during a group activity since he doesn't want to participate. She lets him read a book.
- After about 20 minutes, one of the classroom aides notices Johnny has fallen asleep. She tries to wake him but after shaking his shoulders, she can get no response other than moaning out of Little Johnny. The teacher sends for the school Health Aide. The school Health Aide then calls 911.
- When the ambulance arrives, Little Johnny is not responding to pain or to voice. His breathing is slow, deep and irregular.
- In the ambulance Little Johnny has a seizure and when he arrives at the hospital he has a cardiac arrest. He is resuscitated and taken to the Operating Room.
- Little Johnny dies 2 days later due to head trauma.

Types of Head injuires

- Concussions
- Skull fractures
- Inter cranial bleeding
  - Epidural
  - Subdural
  - Sub arachnoid
  - Intracerebral
- Bruising and swelling

Inter cranial bleeding

- Epidural
  - Between the skull and the Dura Mater
  - Fast – tearing of the middle meningeal artery or other larger arteries.
  - A loss of consciousness (can be brief) followed by a lucid period with a deteriorating level of consciousness
  - Can be life threatening within minutes.

Types of Head Injuries

- Subdural Bleeding
  - Occurs under the Dura Mater
  - Occurs more slowly. Usually venous bleeding although smaller arteries can be involved.
  - Does not necessarily have a loss of consciousness.
  - Can take minutes to hours, or days.
  - Surgical Intervention is not always necessary

Types of Head Injuries

- Sub Arachnoid Bleeding
  - Bleeding between the arachnoid membrane and the Pia Mater
  - Usually accompanied by a headache—”The worst headache of my life”

Assessing head trauma in the school setting

- After a blow to the head
  - The student should never be allowed to return to the activity in the same day the injury occurred.
  - The student should always be examined by someone who is practiced in examining for concussion says they are okay
  - Any direct blow to the head, or contact with the body that cause rapid movement of the head needs to be examined.

- After such an incident, watch for:
  - Changes in the students behavior, thinking or physical function.
    - **Irritability**
    - **More emotional than usual**
    - **Nervous**
    - **Drowsy**
    - **Difficulty concentrating or remembering**
    - **Headache**
    - **Nausea and or vomiting**
    - **Trouble with balance**
    - **Vision disturbances—blurry or double vision**
    - **Numbness or tingling**
    - **Does not “feel right”**

Assessing Head injury in the School setting

- Danger signs
  - One pupil is larger than the other
  - Slurred speech
  - Extreme drowsiness or will not wake up
  - Seizures
  - Confusion, disorientation, restlessness
  - A headache which gets worse over time
  - Vomiting repeatedly
  - Loss of consciousness for any period of time

Assessing head trauma in the school setting

- If the student is found unconscious after a blow to the head, do not move them.
- Call 911
- If the student is brought to the health office after a blow to the head and they are having symptoms.
  - Keep them quiet, either sitting down or lying down.
  - Do not give anything to eat or drink
  - Monitor closely
  - Contact 911

Assessing Head Trauma In the school setting.

- If the student develops symptoms of concussion some time after the incident.
  - Keep the student quiet
  - Contact the parents or 911
  - Suspend activities such as playground or PE until the student has been evaluated.

Scenario

- A 3rd grade student has fallen on the playground and struck her head on one of the pieces of equipment. She is brought to the Health Aid Office by a teacher's aide who then leaves without relating anything to you about the incident.

- Let's do the assessment

Scenario

- The child is seated in a chair and is crying hysterically, holding her head on the side she injured. There is no wound and no bleeding.
- AVPU Assessment =
  - A = She is awake and crying.

Scenario

- C = She has a rapid and strong radial pulse
- A = She is crying and answering questions
- B= She is crying
  - = There is no bleeding
- D= She appears to be oriented to her person and knows where she is. Her speech is not slurred. She complains of seeing double. Her pupils are equal and reactive to light.
- E = She tripped and hit her head on playground equipment

Scenario

- **Decision Time**
  - **Is this student:**
    - **SICK – EMERGENT**
    - **NOT SICK –URGENT**
    - **NOT SICK– NON-URGENT**

Scenario

- SAMPLE ASSESSMENT
  - S = She is holding her head and crying hysterically saying her head hurts very badly
  - A = She has no listed medication Allergies
  - M= She does not take regular medications
  - P= She has no pertinent medical history
  - L= She ate lunch prior to the incident
  - E= " I was running on the playground and tripped and hit my head"

Scenario

- OPQRST ASSESSMENT
  - O= Playing on the playground, tripped and hit her head
  - P = Nothing makes her head better. She is having trouble seeing and keeps her eyes closed.
  - Q= She says it feels like someone in her head pounding to get out
  - R = NA
  - S= She points to 10 on the Baker-Wong face scale. She says it hurts worse than anything she has had and it gets worse by the minute.
  - T= About 10-15 minutes ago

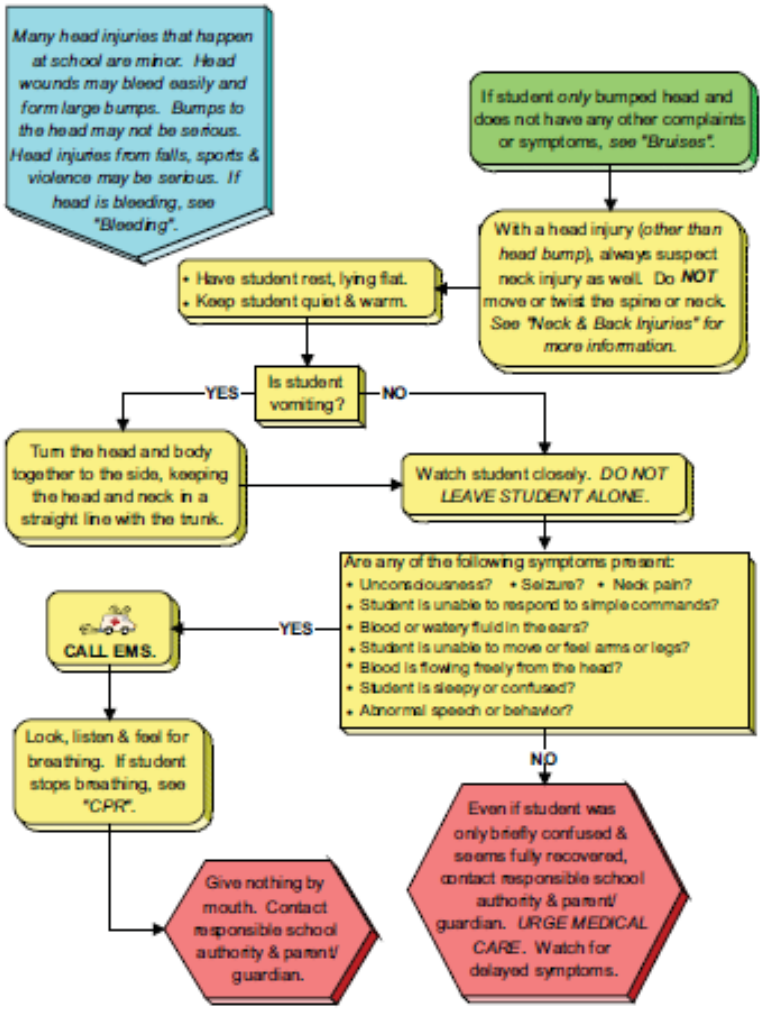
Scenario

- Vital Signs
  - Pulse is 140
  - Respiratory rate is 30
  - Blood Pressure is 90 systolic
- Physical Findings
  - She has a large swollen area on the right side of her head about the size of her fist. It is very tender to touch and she cries out.

Scenario

- Does the additional assessment findings alter your original priority decision?

HEAD INJURIES



FRACTURES SPRAINS AND STRAINS

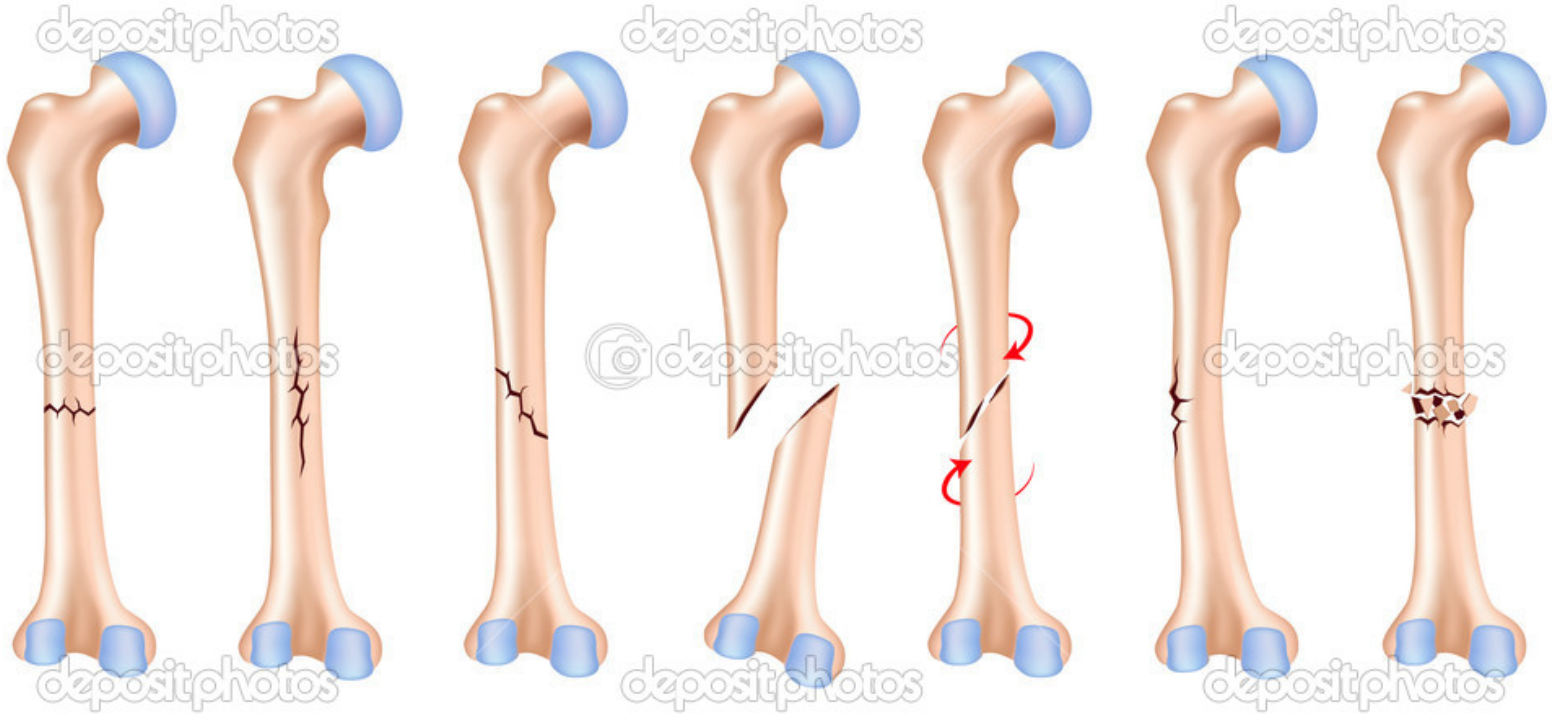
Fractures Sprains and Strains

- It can be difficult to detect a fracture in younger children
  - Bones are more supple and immature
  - It takes more force for a fracture to occur.
- Fractures can be more serious in children
  - Because more force is required, underlying structures or organs can be damaged.
  - Fractures occurring on the “growth plate” of the bone can affect the development of that bone in later years.

Fractures, Sprains and Strains

- Sprains, Strains and Dislocations can occur and also have an accompanying fracture.
- Sprains and strains can be debilitating and take longer to heal than fractures themselves.
- Dislocations should always carry the suspicion of a fracture.

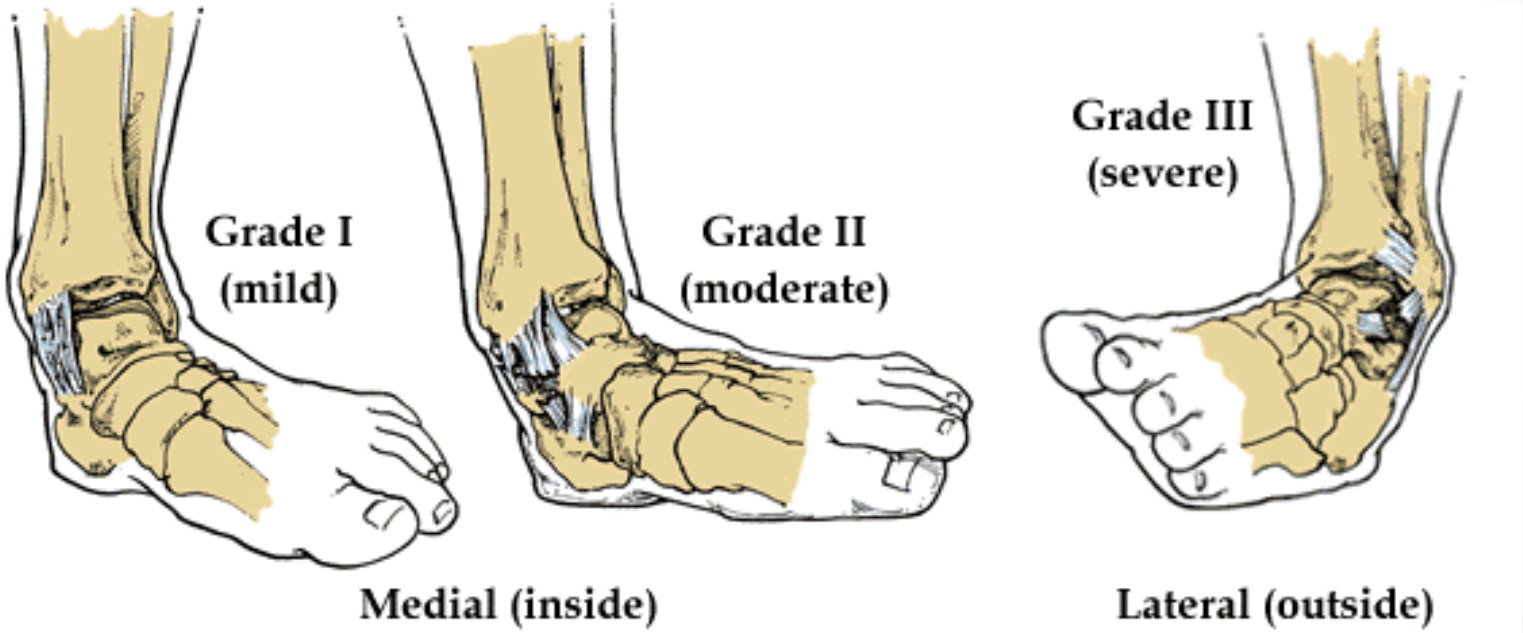
Types of Bone Fractures



Fractures, Sprains and Strains

- Most fractures that occur in children and young adults are either greenstick or closed.
- Open fractures are orthopedic emergencies and require transport by EMS.

Sprains


Grade I
(mild)
Grade II
(moderate)
Grade III
(severe)
Medial (inside)
Lateral (outside)

Fractures, Sprains and Strains

- Most common cause of extremity injuries in school aged children are sports related.

Signs of Fractures Sprains and Strains

- Pain
- Swelling
- Loss of function
- Numbness or tingling

Assessment of Fractures Sprains and Strains

- Look for the 4 P's
  - Paralysis (loss of function)
  - Pain
  - Paresthesia (Numbness)
  - Pallor (Pale skin at or

  Below the injury site)

Assessment of Fractures Sprains and Strains

- If signs of circulatory compromise are present, this is an orthopedic emergency and EMS may need to be called for transport.
- Signs of circulatory compromise
  - Pallor (Pale skin below or near the injury site)
  - Cyanosis (At or below the injury site)
  - Cool skin
  - Loss of sensation

Management of Fractures Sprains or Strains

- Do not allow the student to move or use the injured body part.
- Do not move the injured part until it has been splinted or adequately supported.
- Evaluate pulses below or near the injury site
- If bone ends are protruding, call EMS.
  - Do not attempt to push bone ends back under the skin.
  - Do not attempt to clean or debride the wound prior to EMS arrival .

Management of Fractures Sprains and Strains

- Use rigid materials to form a splint
- Be sure the splinting material does not cut off the circulation below the injury site.
- Splint the area adequately
  - Fractures : Splint the joint above and below the injury site
  - Sprains and Strains: Splint the bone above and below the injury site.

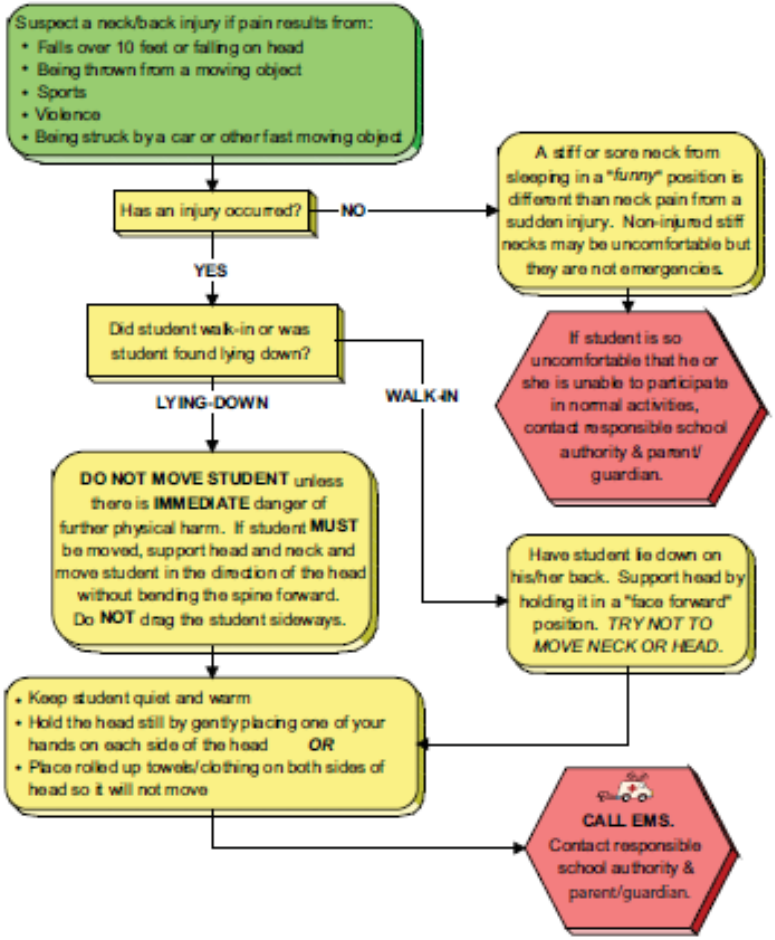
Management of Fractures Sprains and Strains

- If there is a suspected fracture or dislocation of the spine:
  - Do not move the student
    - Only move if there is airway compromise, to control bleeding, perform CPR, or if there is a danger.
  - If the student must be moved, utilize as many people as possible (3-6) to move the body as a unit and maintain spinal alignment.
  - Spinal injury should always be considered with any head injury

Management of Fractures Sprains and Strains

- Younger children's heads are disproportionally larger.
  - They are top heavy and lead with their head.
  - Cervical strains and sprains are possible.
- Strains and Sprains of supporting spinal structures can cause neurological damage

NECK & BACK INJURIES



Scenario

- A 2nd grade student is escorted to the Health Aid Office by a teacher who explains he was trying to do cartwheels on the playground and is complaining of pain in his arm. The student is cradling his right lower arm and crying.

Assessment Time

- What is his AVPU Assessment?
- C = radial pulse present. Which radial pulse are you checking?
- Airway= ?
- Breathing = ?
- Disability = No report of head trauma
- Exposure = Hurt his arm doing Cartwheels

Scenario

- SAMPLE Assessment
  - Signs and Symptoms—Right forearm pain. He is cradling his arm and not using his right hand
  - A – He is allergic to peanuts
  - M- He takes an antihistamine for environmental allergies and ADHD medication
  - P = ADHD , Environmental Allergies, Peanut allergy
  - L = he had breakfast at school
  - E = “I was doing cartwheels and landed on my wrist wrong”

Scenario

- His right forearm Is angulated just above he wrist area. There is no radial pulse on that side. His wrist and hand are swollen, pale and cool to touch. He cannot make a fist, and has decreased sensation in his thumb and forefinger of the right hand.

Decision Time

- Is this student:
  - SICK—EMERGENT
  - NOT SICK – URGENT
  - NOT SICK—NON URGENT