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# Concussion in Sport: A Growing Health Crisis



# A Concussion Is.....



- Traumatically induced alteration in mental status that may or MAY NOT involve a loss of consciousness (LOC)

-American Academy of Neurology



**A TRAUMATIC BRAIN  
INJURY!!!!**

# Setting The Record Straight

- The terms “ding” and “got your bell rung” should not be used to describe a concussion
- Concussions can be sustained either with a direct or indirect blow to the head- you don’t need to actually hit your head!
- Most concussions occur without a loss of consciousness.
- A concussion is a **FUNCTIONAL** injury, not a structural injury
- Will not show up on an MRI, CT Scan, or X-Ray- These will only show bleeding on the brain and fractured bones!

# Common Signs & Symptoms

- Loss of Consciousness
- Nausea/Vomiting
- Athlete is dazed/stunned
- Confusion
- Forgets plays
- Moves clumsily
- Balance problems
- Personality/Behavioral changes
- Inappropriate emotions
- Slow response to questions
- Forgets events before/after the hit
- Sensitivity to light and/or noise
- Easily distracted
- Vacant/Glossy stare
- Appears “drunk”
- Headache
- Fatigue
- Nausea/Vomiting
- Vision Disturbances
- Ringing in the ears
- Sensitivity to light and/or noise
- Feeling sluggish
- Feeling “foggy”
- Problems concentrating
- Problems remembering

# RED FLAGS

- Extensive loss of consciousness or amnesia
- Deterioration of symptoms over time instead of a resolution of symptoms
- Signs and Symptoms lasting longer than 7-10 days
- Drastic personality changes
- Neurological disorders (seizures, palsy) are present

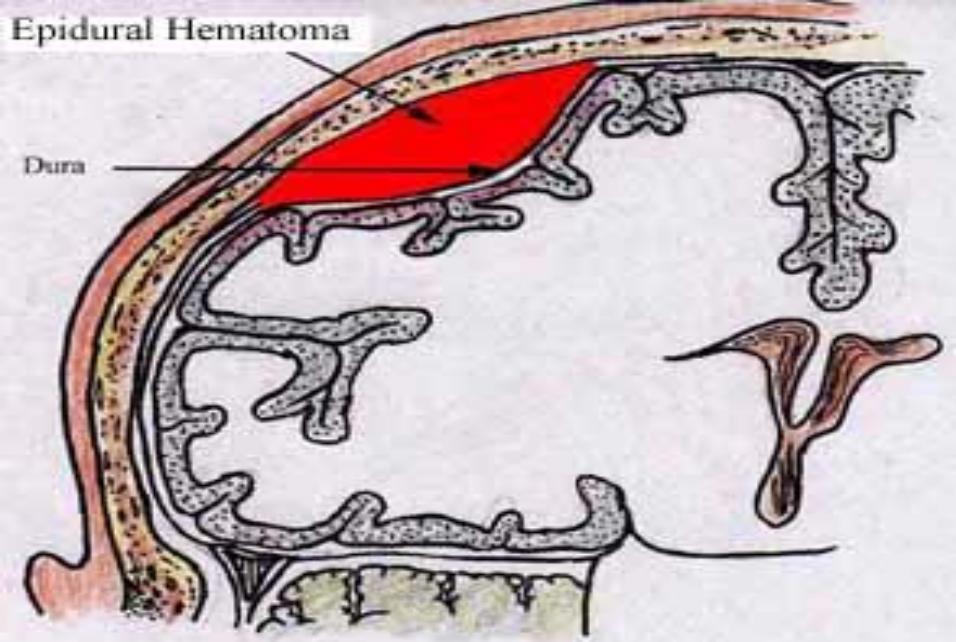
# **CONCUSSION RELATED SYNDROMES**

## **POST CONCUSSION SYNDROME**

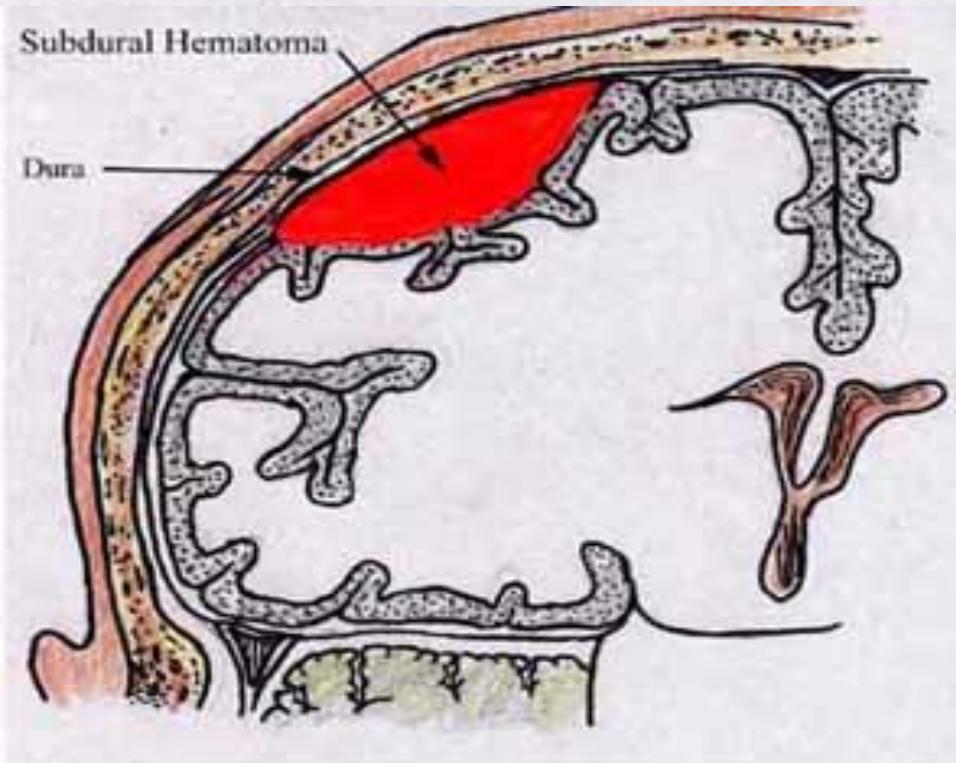
Different concussion related symptoms that may last for days, weeks, months, or years!

## **SECOND IMPACT SYNDROME**

A **serious and possibly fatal** condition that occurs when an athlete returns to play before they have fully recovered from the first concussion and receives another concussion-usually occurs in the first 7-10 days.



**Epidural Hematoma-**  
Arterial bleed and fast



**Subdural Hematoma-**  
Usually venous bleed and  
slower

# Risks of Mismanaging a Concussion

## Short Term Risks of Mismanaging a Concussion

- Persistence or worsening of symptoms
- Repeat concussion
- Post concussion syndrome
- Second Impact Syndrome

## Long Term Risks of Mismanaging a Concussion

- Prolonged post concussion syndrome
- Depression, cognitive impairment, dementia, CTE
- Death

# NFHS/ NYSPHSAA Guidelines

New National Federation of High School Guidelines  
effective for the 2010-2011 school year:

“Any athlete who exhibits signs, symptoms, or behaviors consistent with a concussion (such as loss of consciousness, headaches, dizziness, confusion or balance problems) shall be immediately removed from the contest and shall not return to play until cleared by an appropriate health-care professional.”

“A student athlete that has been diagnosed with a concussion MUST be cleared by the Chief School Medical Officer”

# Return to Play

## Problems Resulting in Same Day Return to Play

- Significant memory deficits 36 hours post-injury in athletes that appeared symptom-free within 15 minutes (Lovell, et al., AJSM 2004)
- 33% of players with a concussion that returned the same day experienced delayed onset of symptoms at 3 hours, compared with only 12.6% of those who didn't return to play the same day (Guskiewicz, et al., JAMA 2003)

# 1937

“During the past 7 years the practice has been too prevalent of allowing players to continue playing after a concussion. Again this year this is true. Sports demanding personal contact should be eliminated after an individual has suffered a concussion.”

Proceedings of the 17<sup>th</sup> Annual Meeting of the American Football Coaches Association

**WE ARE RETURNING  
ATHLETES BACK TO  
PLAY TOO EARLY!!!!**

**It takes on AVERAGE 7-10 days  
for symptoms to clear**

# Return to Play Guidelines

After being cleared by a primary care physician an athlete should follow the following return to play guidelines:

Day 1: No exertional activity until medically cleared and asymptomatic for 24 hours

Day 2: Begin low impact activity (walking, stationary bike)

Day 3: Aerobic activity that is sport specific

Day 4: Non contact sport specific drills (Dribbling, ground balls, kicking, etc)

Day 5: Full contact in a practice setting

If the athlete remains without symptoms, they may return to play.

# PLAY IT SAFE.....

When in doubt, sit them  
out.

It's better to miss one  
game, than the whole  
season.

# References

- Guskieicz, Kevin. "Preventing Sudden Death in Sport: Head Injury Considerations." PowerPoint Presentation. Philadelphia Convention Center, Philadelphia, PA. 24 June 2010
- NYSPHSAA. (2010, August 19). [Letter to NYSPHAA Member Schools & Sport Official Organizations]. NFHS Concussion Rule, Latham, NY.