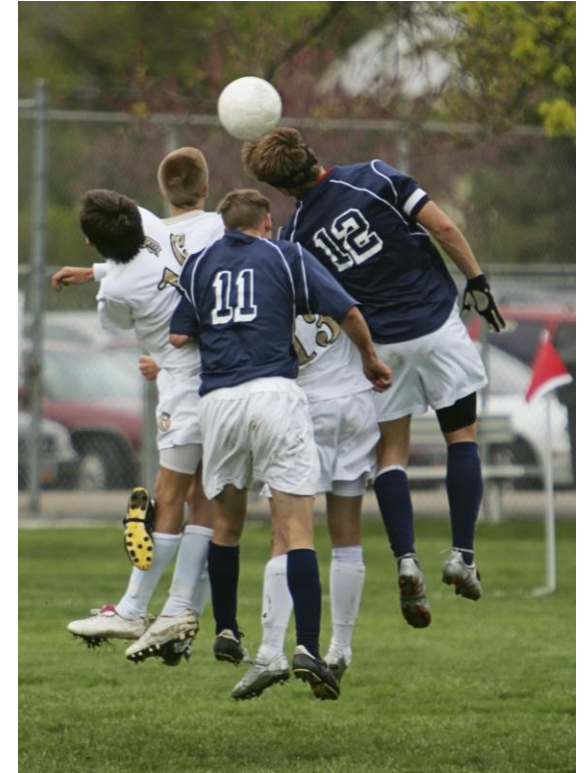


Sport Concussion

Recognition, Treatment & Prevention



*Sutter East Bay
Neuroscience Center*



*Lawrence D. Dickinson, MD
Pacific Brain & Spine Medical Group*

What is a Concussion?

A concussion is a *traumatic brain injury* (TBI)

Caused by a bump, blow, or jolt to the head.

Can disrupt the way the brain normally works.



Grades of Concussion

Grade 1 – Mild

- **No loss of consciousness (LOC), briefly dazed**

Grade 2 – Moderate

- **No LOC, brief confusion, may not recall the event**

Grade 3 – Severe

- **LOC for a brief period of time with no memory of the event**

Complaints reported by athletes



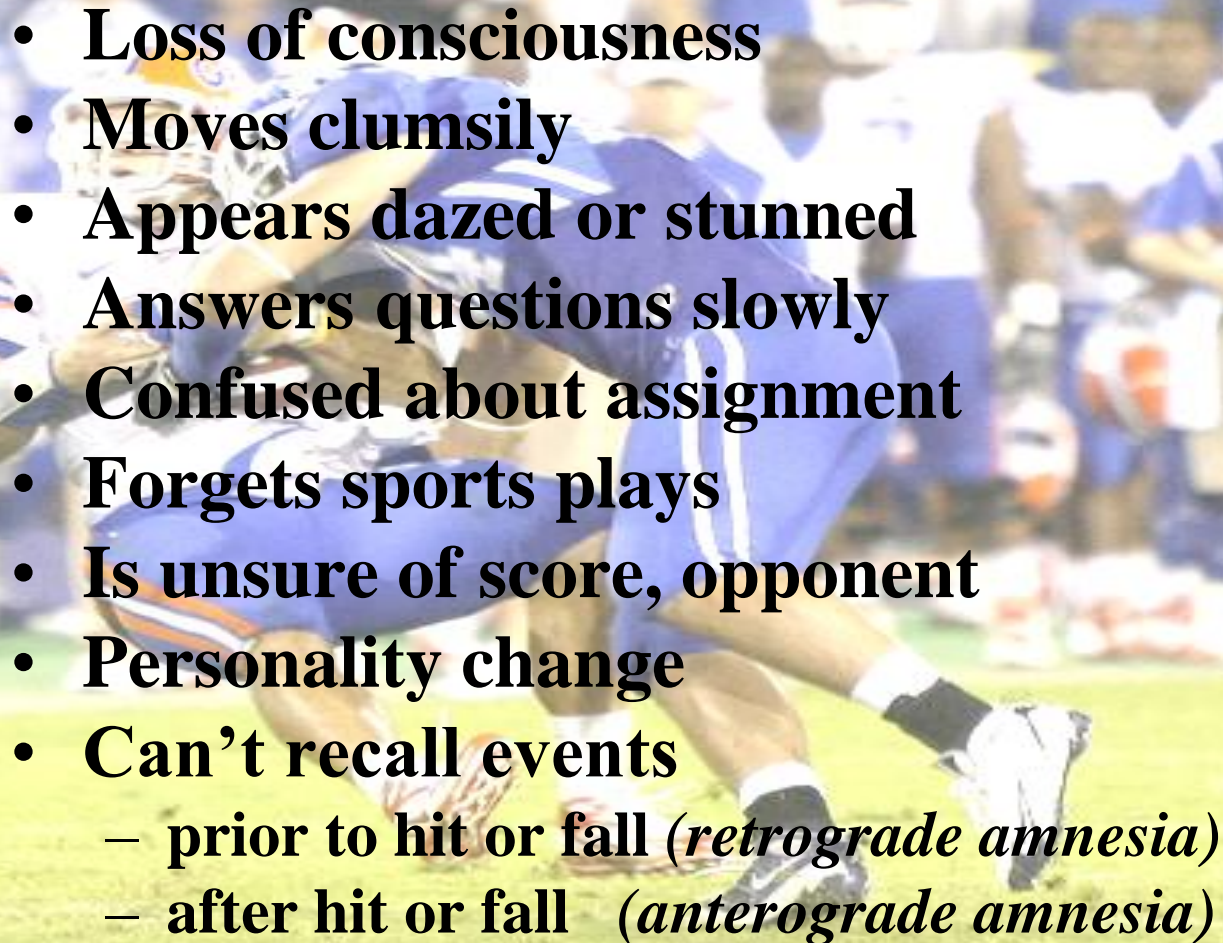
Complaints reported by athletes

- **Headache or “pressure” in head**
- **Nausea, emesis**
- **Balance problems or dizziness**
- **Double or fuzzy vision**
- **Sensitivity to light or noise**
- **Feeling sluggish or slowed down**
- **Feeling foggy or groggy**
- **Does not “feel right”**

Signs Observed by Staff



Signs Observed by Staff

- 
- **Loss of consciousness**
 - **Moves clumsily**
 - **Appears dazed or stunned**
 - **Answers questions slowly**
 - **Confused about assignment**
 - **Forgets sports plays**
 - **Is unsure of score, opponent**
 - **Personality change**
 - **Can't recall events**
 - prior to hit or fall (*retrograde amnesia*)
 - after hit or fall (*anterograde amnesia*)

No Return to Play

- Any athlete who exhibits the signs or describes the complaints listed on the previous slides should **ALWAYS BE REMOVED FROM PLAY**
- Concussed athletes should not participate in games or practices until they have been evaluated by a health care provider.
- Athletes should **NOT** continue their training until symptoms resolve
 - No running
 - No lifting weights

No Return to Play

WHY?

- High school athletes with on-field symptoms exhibit deficits on formal neuropsychological testing lasting up to one week post-injury.
- Athletes are more prone to injury, including repeat concussions when they are not functioning at peak performance

No Return to Play

Is there a problem?

- 41% of concussed athletes in 100 high schools across the U.S. returned to play before resolution of all symptoms
- 1,308 concussion incidents reported in girls' volleyball and boys' basketball and baseball, more than half returned to play with persistent symptoms

No Return to Play

Is there a problem?

- Athlete's Desire
 - Players ALWAYS want to compete
 - “I want to get the next lick in”
 - “We can win if I'm in there”
- Coaching Education/Training
 - Under appreciation of signs of concussion

When to Return?

- No exertion until symptoms resolved.
- Re-emergence of symptoms with exertion indicates incomplete recovery.
- Getting the athlete back on the field
 - Institute exertion (e.g. 5 push-ups, 5 sit ups, 5 knee bends, 40 yard sprint).
 - Return to play gradually.
 - Health care provider to monitor cognitive function.

Immediate Post-concussion Assessment and Cognitive Testing



- sophisticated research-based software tool developed to help sports-medicine clinicians evaluate recovery following concussion
- evaluates and documents memory, brain processing speed and reaction time
- user-friendly injury documentation system that facilitates the tracking of the injury from the field through the recovery process.



brain processing speed and reaction time

Color-Word Match

This is a test of SPEED or REACTION TIME.

On the next screen, you will see the words RED, GREEN and BLUE presented one at a time. Click the word inside the box when it shown in the same color in which it is written. Do not click the word when it is shown in a different color.

For example:

Click as fast as you can when you see: RED or GREEN or BLUE

Do not click when you see: RED or GREEN or BLUE

Click this button when you are ready to begin:

Continue >>



tracking of the injury

ImPACT[®] Clinical Report

ImPACT Applications

Exam Type:	Baseline	Post-concussion	Post-concussion	Post-concussion
Date Tested:	09/04/02	01/28/03	02/03/03	02/05/03
Last Concussion:		01/27/03	01/27/03	01/27/03

Composite Scores

Memory composite (Verbal)	96 %	66 %	84 %	90 %
Memory composite (Visual)*	78 %	65 %	61 %	84 %
Visual motor speed composite	32.85	16.05	15.25	32.55
Reaction time composite	0.50	0.63	0.53	0.53
Impulse control composite	7	120	15	9



Utilized Throughout
Professional and Amateur
Sports

- **NFL**
- **NHL**
- **Professional Baseball**
- **USA Women's Olympic Hockey**
- **300 + Universities**
- **CASTRO VALLEY HIGH SCHOOL !**

Preventing Concussion in... Sports

- Use the right protective equipment
 - Helmets
 - Mouth Guards
- Follow the rules of the sport
- Practice good sportsmanship
- Do not return to play with suspected concussion
 - professional evaluation
 - permission to return



More Information?

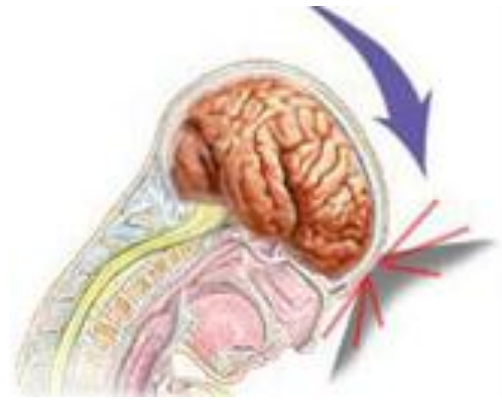
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