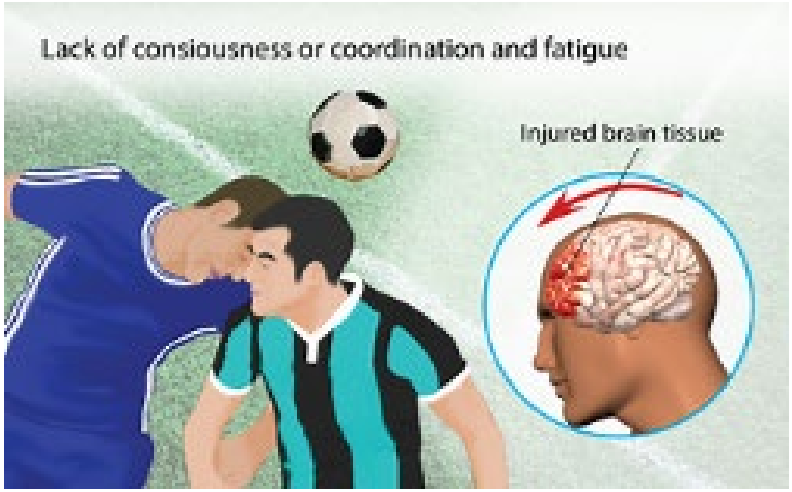
Concussion Management



Head trauma , concussion and sub concussive incidents in athletics.

history and management

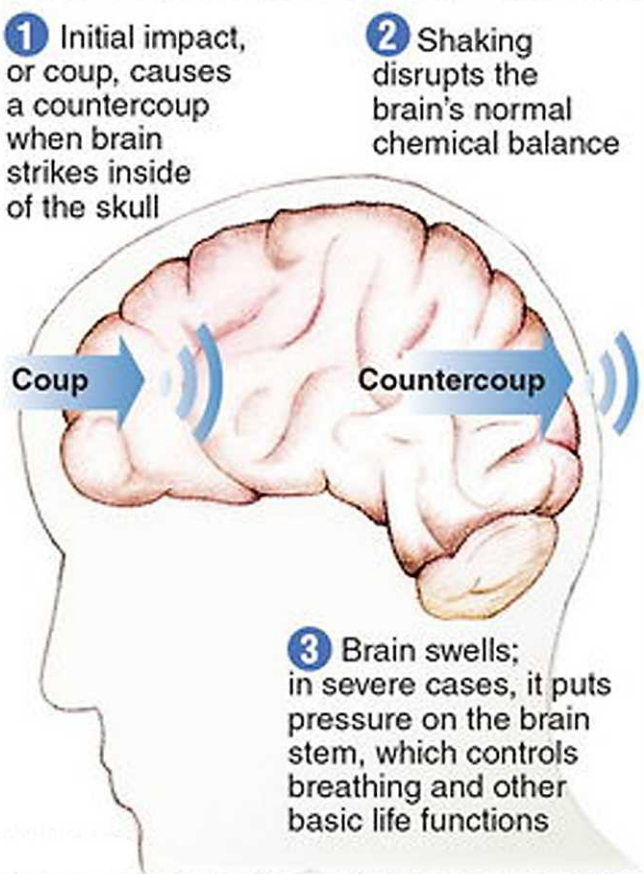
Graded Concussion Table

TABLE VII.1 Grades of Concussion

Grade 1	Grade 2	Grade 3
1. Transient confusion (inattention, inability to maintain a coherent stream of thought and to carry out goal-directed movements) 2. No loss of consciousness 3. Concussion symptoms or mental status abnormalities on examination resolve in less than 15 min	1. Transient confusion 2. No loss of consciousness 3. Concussion symptoms or mental status abnormalities (including amnesia) on examination last **more than 15 min**	1. Any loss of consciousness: a. Brief (sec) b. Prolonged (min)

Concussions

Most often caused by blows to the head, these traumatic brain injuries usually result in temporary disorientation or short-term memory loss, but more serious concussions can do permanent damage.



Levels of severity

Grade 1 Confusion lasting less than 15 minutes

Grade 2 Confusion and amnesia lasting more than 15 minutes

Grade 3 Brief unconsciousness, more serious amnesia

Guidelines for athletes

Grade 1 May return to sport after 15 minutes if symptoms are gone

Grade 2 May return to sport after one symptom-free week

Grade 3 May return to sport after two symptom-free weeks

Source: U.S. Centers for Disease Control and Prevention. University of Pittsburgh Medical Center
Graphic: Andrea Machietto, San Jose Mercury News

American Academy of Neurology guidelines

The guidelines devised in 1997 by the American Academy of Neurology (AAN) were based on those formulated by the Colorado Medical Society

In 2013 the AAN published a revised set of guidelines that moved away from concussion grading, emphasizing more detailed neurological assessment prior to return to play.

The guideline also called into question the existence of the "second impact syndrome," proposing instead that athletes with a previous concussion may be more vulnerable to severe injury due to decreased reaction time and coordination, symptoms of the initial injury.

Head Injury Progression

- Removal from practice or contest by coach , trainer, official or Doctor upon showing concussion symptoms.
- Parent notification
- Referral to Physician-no return without physician approval
- Interviewed by school nurse- screened for symptoms
- Return to class with a note from Nurse to teachers outlining possibilities for lack of focus and the ability to concentrate.
- Upon physicians approval , the Impact Test is re-administered
- All information is sent to Dr. Marino (Chief Medical Officer) for final approval
- RTP begins with Coach and ATC

Return to Play Protocol

Phase 1- low impact, non-strenuous, light aerobic activity such as walking or riding a stationary bike. If tolerated without return of symptoms over a 24 hour period proceed to;
Phase 2- higher impact, higher exertion, and moderate aerobic activity such as running or jumping rope. No resistance training. If tolerated without return of symptoms over a 24 hour period proceed to;
Phase 3- Sport specific non-contact activity. Low resistance weight training with a spotter. If tolerated without return of symptoms over a 24 hour period proceed to;
Phase 4- Sport specific activity, non-contact drills. Higher resistance weight training with a spotter. If tolerated without return of symptoms over a 24 hour period proceed to;
Phase 5- Full contact training drills and intense aerobic activity. If tolerated without return of symptoms over a 24 hour period proceed to;
Phase 6- Return to full activities without restrictions.

Focus on proper form in collision sports has an impact on injuries

HEADS UP TACKLING KEEPS HEAD, NECK AND SPINE IN A SAFE POSITION

USA FOOTBALL HEADS UP TACKLING CERTIFICATION

1 BREAKDOWN Position

The foundation starting point for all movements and drills

2 BUZZING the Feet

Technique for coming to balance and regaining breakdown position prior to contact.

3 HIT Position

Correct body posture at moment of impact for safer tackling. Head and eyes are up, using the front of shoulder as point of contact.

4 The SHOOT

The opening of the hips to generate power and create an ascending tackle.

5 RIP

With head to the side and away from contact, throw double uppercuts and 'grab cloth' on the back of jersey to secure the tackle.

POINT OF CONTACT

IMPACT TESTING

Impact Testing

All student athletes in grades 9 and 11 take a baseline test.

It is administered prior to the start of each season in the computer room by team

Post tests compare to the baseline and are sent to the Districts Chief Medical Officer

IMPACT MEASUREMENTS

- COMPOSITE SCORES ON THE FOLLOWING;

- Verbal Memory
- Visual Memory
- Visual Motor Speed
- Reaction Time
- Impulse Control

red

Green

blue

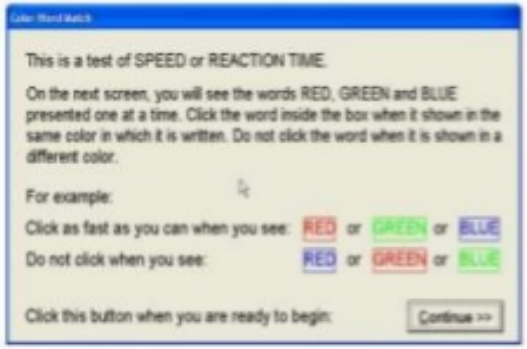
banana

apple

Fruit

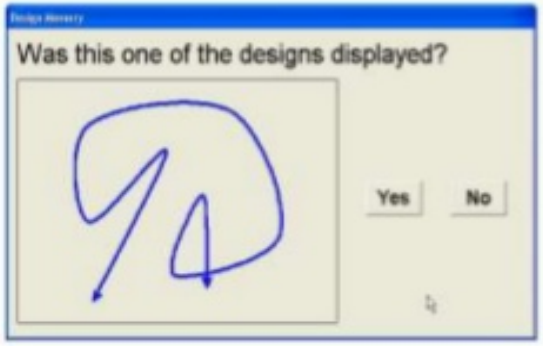
Impact test examples

Computer-Based Neurocognitive Testing

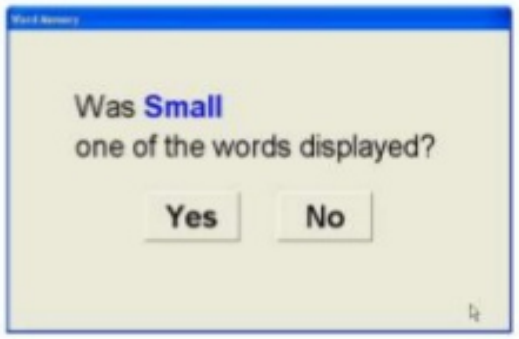


Reaction Time

Processing Speed



Visual Memory



Verbal Memory

IMPACT CLINICAL REPORT

ImPACT® Clinical Report

Exam Type	Baseline	Post-Injury 1	Post-Injury 2	Post-Injury 4	
Date Tested	09/12/2013	09/27/2013	09/30/2013	11/20/2013	
Last Concussion	06/14/2008	09/25/2013	09/25/2013	09/18/2013	
Exam Language	English	English	English	English	
Test Version	2.1	2.1	2.1	2.1	

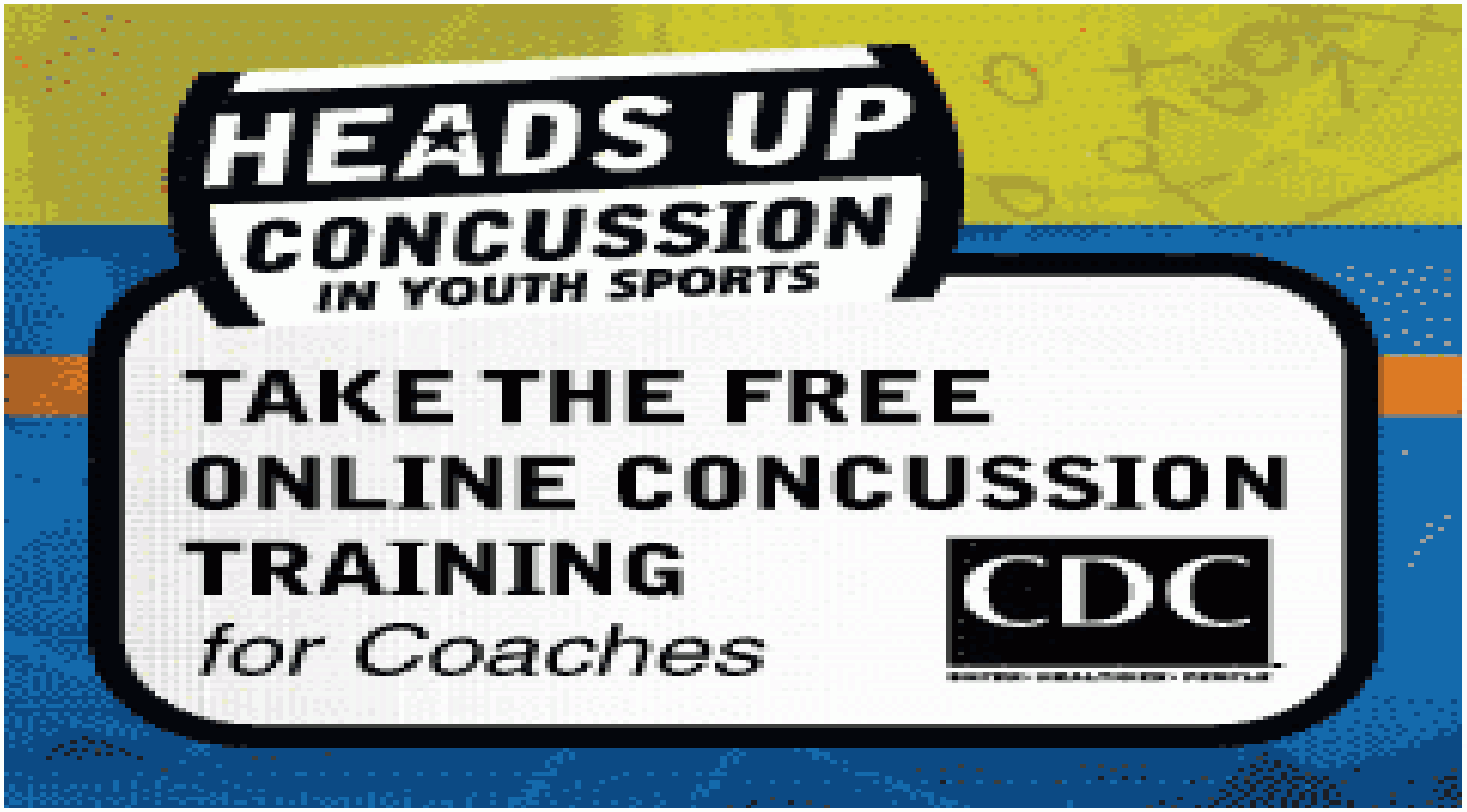
Composite Scores	Percentile scores if available are listed in small type.								
Memory composite (verbal)	78	22%	**55**	<1%	**68**	4%	81	32%	
Memory composite (visual)	91	93%	**47**	4%	**53**	12%	**63**	21%	
Visual motor speed composite	36.23	31%	**29.73**	2%	**30.88**	7%	41.13	55%	
Reaction time composite	0.48	92%	**0.72**	5%	**0.65**	12%	0.51	80%	
Impulse control composite	13		23		13		13		
Total Symptom Score	1		**49**		**52**		0		
Cognitive Efficiency Index:	**0.43**		**0.26**		**0.32**		**0.3**		

The **Cognitive efficiency Index** measures the interaction between accuracy (percentage correct) and speed (reaction time) in seconds on the Symbol Match test. This score was not developed to make return to play decisions but can be helpful in determining the extent to which the athlete tried to work very fast on symbol match (decreasing accuracy) or attempted to improve their accuracy by taking a more deliberate and slow approach (jeopardizing speed). The range of scores is from approximately zero to approximately .70 with a mean of .34. A higher score indicates that the athlete did well in both the speed and memory domains on the symbol match test. A low score (below .20) means that they performed poorly on both the speed and accuracy component. If this score

Scores in **bold RED** type exceed the Reliable Change Index (RCI) when compared to the baseline score. However, scores that do not exceed to RCI index may still be clinically significant. Percentile scores if available are listed in small type.

Heightened awareness through concussion forums led by legends like Harry Carson and Joe Namath

Additional Coaching Certifications



Shadowman

Riddell Speed and Speed-flex Helmets

Intangibles

- Concussion protocols and pre and post testing raise AWARENESS
- Protocols test student athletes-some report and some hide
- Deciphering symptoms takes a team approach.

Impact test

- Did you see the word “Juice” ?
- Did you see the word “Yellow” ?
- Did you see the word “Apple”