

Presented By:

**Laura Hudson LAT, ATC, CSCS
Gundersen Sports Medicine**

**Use Your
Head!
Concussions &
Concussion
Management
in Sport**

What Is A Concussion???

- Brain injury
- Caused by shaking of brain inside the skull
- Shaking due to impulsive force to the head
 - Direct blow
 - Collision
 - Fall
 - Whiplash
 - Violent blow to the body

What Happens???

- Immediate brain impairment
- Usually temporary
- Impairment may not occur until hours after injury
- Some cases, impairment lasts longer

What to Look For???

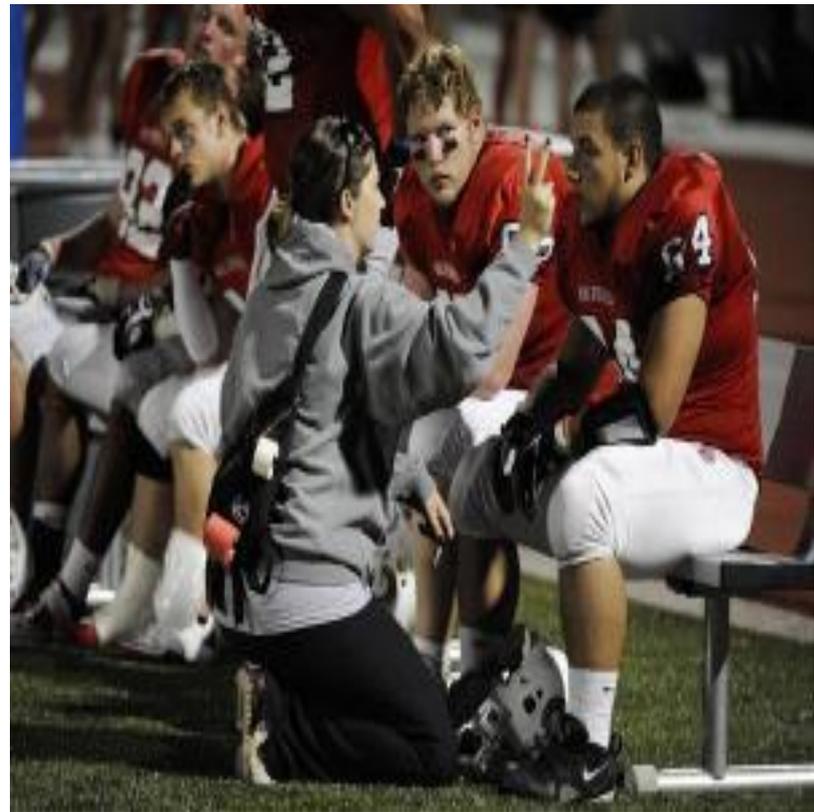
- Signs and Symptoms
 - DOES NOT HAVE TO LOSE CONSCIOUSNESS
 - Physical Symptoms
 - Headache
 - Balance problems
 - Visual problems
 - Fatigue or low energy
 - Sensitivity to light
 - Sensitivity to noise
 - Vomiting
 - Eye motion and pupils

What to Ask About???

- Cognitive Symptoms
 - Nausea
 - Dizziness
 - Drowsiness
 - Numbness or tingling
 - Feeling more emotional than usual
 - Sadness
 - Nervousness
 - Difficulty remembering
 - Difficulty concentrating
 - Feeling slowed down
 - Feeling mentally foggy

Sideline Evaluation

- Athletic Trainer Assessment
 - Suspected concussion: permanent removal from play
 - Assess
 - Signs
 - Neurological Screen
 - SAC
 - Symptom Score





BRAIN CONCUSSION ASSESSMENT FORM

Gundersen Lutheran Sports Medicine
3111 Gundersen Drive, Mailstop NC1-002
Onalaska, Wisconsin 54650
1-800-362-9567 ext. 56609

Glasgow Coma Scale

Best motor response	Best verbal response	Eyes open
Obeys commands 6	Oriented 5	Spontaneously 4
Localizes pain 5	Confused 4	To speech 3
Withdrawal to pain 4	Inappropriate words 3	To pain 2
Flexion to pain 3	Incomprehensible sounds 2	Never 1
Extension to pain 2	No verbal response 1	
No response 1		

Initial score	time	Discharge score	time

Medical Evaluation

SIGNS

Loss of consciousness or unresponsiveness	N	Y
Seizure or convulsive activity	N	Y
Balance problems or unsteadiness	N	Y
Amnesia circle: Retrograde / Event / Anterograde	N	Y

NEUROLOGIC SCREENING

	Pass	Fail
Speech quality and appropriateness		
Eye motion and pupils		
Pronator drift		
Gait assessment		
Cranial nerves		

Any neurologic screening abnormality necessitates formal neurologic or hospital assessment

STANDARDIZED ASSESSMENT OF CONCUSSION (SAC)

Orientation		
Month	0	1
Day of the Week	0	1
Today's Date	0	1
Year	0	1
Time (within 1 hour)	0	1
Section Total	(Out of 5)	

Immediate Memory			
Sample Word Sets	Trial 1	Trial 2	Trial 3
Bottle Baby Candle	0 1	0 1	0 1
Monkey Paper Elbow	0 1	0 1	0 1
Perfume Apple Sugar	0 1	0 1	0 1
Sunroof Wagon Skuhle	0 1	0 1	0 1
Sandwich Bubble Carpet	0 1	0 1	0 1
Trial totals			
Section Total	(Out of 15)		

Concentration			
Digits backward			
5-2-8	3-9-1		0 1
6-2-9-4	4-3-7-1		0 1
8-3-2-7-9	1-4-9-3-6		0 1
7-3-9-1-4-2	5-1-7-4-8-6		0 1

Months in reverse order											
May	Apr	Mar	Feb	Jan	Dec	Nov	Oct	Sep	Aug	Jul	Jun
0	1										
Section Total (Out of 5)											

Delayed Recall		
Word 1	0	1
Word 2	0	1
Word 3	0	1
Word 4	0	1
Word 5	0	1
Section Total	(Out of 5)	

Summary of Section Totals		
Orientation		5
Immediate memory		15
Concentration		5
Delayed recall		5
GRAND TOTAL (<25 = disqualify)		30

Athlete's Demographic Information			
name		date of birth	
date	time	school/grade	
	am pm		
previous concussion		sport	ImPACT baseline?
NO	YES #	UNCLEAR	
Parent/Guardian Contact Information			
name		phone	

Post Concussion Symptom Scoring Scale						
Symptom	None	Mild	Moderate	Severe		
Headache	0	1	2	3	4	5 6
Nausea	0	1	2	3	4	5 6
Vomiting	0	1	2	3	4	5 6
Balance problems	0	1	2	3	4	5 6
Dizziness	0	1	2	3	4	5 6
Fatigue	0	1	2	3	4	5 6
Trouble falling asleep	0	1	2	3	4	5 6
Sleeping more than usual	0	1	2	3	4	5 6
Sleeping less than usual	0	1	2	3	4	5 6
Drowsiness	0	1	2	3	4	5 6
Sensitivity to light	0	1	2	3	4	5 6
Sensitivity to noise	0	1	2	3	4	5 6
Irritability	0	1	2	3	4	5 6
Sadness	0	1	2	3	4	5 6
Nervousness	0	1	2	3	4	5 6
Feeling more emotional	0	1	2	3	4	5 6
Numbness or tingling	0	1	2	3	4	5 6
Feeling slowed down	0	1	2	3	4	5 6
Feeling mentally foggy	0	1	2	3	4	5 6
Difficulty concentrating	0	1	2	3	4	5 6
Difficulty remembering	0	1	2	3	4	5 6
Visual problems	0	1	2	3	4	5 6
SUB-TOTAL						
GRAND TOTAL						

RECOMMENDED COURSE OF ACTION

- Athlete referred immediately to emergency facility
- Athlete referred to emergency facility if any new symptoms appear, present symptoms worsen or do not resolve within several hours
- Athlete referred to licensed medical provider for follow up evaluation before return to any sports or exercise participation
- No aspirin, ibuprofen, or any other anti-inflammatory medications should be taken or alcohol consumed until specifically approved by a licensed medical provider.
- Acetaminophen can be taken for headache.
- Physical and mental rest recommended until evaluated and cleared by licensed medical provider.

Evaluator's Name/Title _____ Date _____ Phone _____

RETURN TO SPORTS PARTICIPATION REQUIRES THE ATHLETE TO BE COMPLETELY SYMPTOM FREE FOR SEVERAL DAYS. SEE OTHER SIDE FOR IMPORTANT INFORMATION.

FORM REVIEWED WITH () PARENT () COACH ()

MEDICAL EVALUATION BY MD-DO-NP-PA

- No participation advised until follow up evaluation on _____
- Cleared to attempt Gradual Return to Play Protocol (Sample provided on other side)

Evaluator's Name/Title _____ Date _____ Facility _____

Sideline Evaluation Form

New Component to Evaluation

- Day 3 Assessment
- Looks to assess for
 - Vestibular issues
 - Ocular involvement
- Refer to specialist for care and exercises

GUNDERSEN HEALTH SYSTEM®
 Gundersen Sports Medicine
 Gundersen Lutheran Medical Center, Inc.
 Gundersen Clinic, Ltd.
 3111 Gundersen Drive, Mailstop NC1402
 Onalaska, Wisconsin 54601
 1-800-362-9367 ext. 58600

HEAD TRAUMA FOLLOW-UP ASSESSMENT FORM

Post-Concussion Symptom Scoring Scale							
Symptom	None	Mild	Moderate	Severe			
Headache***	0	1	2	3	4	5	6
Nausea***	0	1	2	3	4	5	6
Vomiting***	0	1	2	3	4	5	6
Balance problems***	0	1	2	3	4	5	6
Dizziness**	0	1	2	3	4	5	6
Fatigue***	0	1	2	3	4	5	6
Visual problems***	0	1	2	3	4	5	6
Sensitivity to light***	0	1	2	3	4	5	6
Sensitivity to noise	0	1	2	3	4	5	6
Drowsiness	0	1	2	3	4	5	6
Numbness or tingling	0	1	2	3	4	5	6
Feeling more emotional	0	1	2	3	4	5	6
Irritability	0	1	2	3	4	5	6
Sadness	0	1	2	3	4	5	6
Nervousness	0	1	2	3	4	5	6
Difficulty remembering	0	1	2	3	4	5	6
Difficulty concentrating	0	1	2	3	4	5	6
Feeling slowed down	0	1	2	3	4	5	6
Feeling mentally foggy	0	1	2	3	4	5	6
Trouble falling asleep	0	1	2	3	4	5	6
Sleeping more than usual	0	1	2	3	4	5	6
Sleeping less than usual	0	1	2	3	4	5	6
SUB-TOTAL							
GRAND TOTAL							

***MAY indicate Vestibular or Ocular Involvement

Differential Medical Screening		
GAIT		
Gait Evaluation (Heel-Toe)	Pass	Fail
BALANCE SCREENING		
	Pass	Fail
Romberg Eyes Open (>30sec)		
Romberg Eyes Closed (>30sec)		
Single Leg Eyes Open (>30sec)		
Single Leg Eyes Closed (>10sec)		
VESTIBULAR SCREENING		
	Pass	Fail
Head Thrust		
Vision Nystagmus		
VISION SCREENING		
	Pass	Fail
H Pattern		
-Accommodation		
-Convergence		
Midline Shift Test		

Any neurologic screening abnormality necessitates formal neurologic or hospital assessment

Athlete's Demographic Information			
name		date of birth	
date	time	school/grade	
	am		
	pm	sport	IMPACT baseline?
previous concussion	NO	YES #	UNCLEAR
Parent/Guardian Contact Information			
name		phone	

Vestibular Specific Questions

Do busy environments cause you to feel dizzy, off balance, or nauseated?	Yes	No
Do you become dizzy when looking up/down, turning your head, lying down in bed, rolling over in bed, or getting out of bed?	Yes	No
Are you experiencing motion sickness?	Yes	No
Does moving quickly make you dizzy?	Yes	No

Ocular-Motor Specific Questions

Do you feel a frontal pressure in your head/behind your eyes when reading, doing computer work, or taking notes in class?	Yes	No
Are you having more difficulty in mathematics and science?	Yes	No

NOTES

- No aspirin, ibuprofen, or any other anti-inflammatory medications should be taken or alcohol consumed until specifically approved by a licensed medical provider.
- If pain medication is necessary, acetaminophen (Tylenol®) may be advisable. If pain cannot be effectively managed with acetaminophen, the athlete should seek care from a licensed medical provider. Cold packs may also offer some pain relief.
- Physical and mental rest recommended until evaluated and cleared by licensed medical provider.
- Operation of motor vehicles is not recommended until evaluated and cleared by licensed medical provider.

Evaluator's Name/Title _____ Date _____ Phone _____

RETURN TO SPORTS PARTICIPATION REQUIRES THE ATHLETE TO BE COMPLETELY SYMPTOM FREE FOR SEVERAL DAYS. SEE OTHER SIDE FOR IMPORTANT INFORMATION

FORM REVIEWED WITH
 () PARENT () COACH () _____

RECOMMENDED COURSE OF ACTION

- ___ Referral to Physician for Neurocognitive Testing/IMPACT
- ___ Referral to Vestibular Therapy
- ___ Referral to Optometry

GUNDERSEN HEALTH SYSTEM®

Returning to Play

- Safe process to return to sport!
- In order to return to play:
 - Symptom free
 - Physician clearance
 - Gone through the steps to return to play without return of symptoms
 - Supervised by coaches and athletic trainer

Return to Play Steps

Post-Concussion Return to Activity Protocol

All steps are supervised by a Certified Athletic Trainer or coach working in conjunction with athletic trainer.
Note: This is a minimum timetable. Only one step may be completed within 24 hours.

Baseline: Athlete must be symptom free for at least 48 hours before initiating this program. Athlete must also be symptom free while tolerating a full academic schedule. (*Symptom free means **NO** headache, nausea, vomiting, dizziness, sensitivity to light or noise, fatigue, drowsiness, sleep disorders, nervousness, difficulty concentrating and or remembering, numbness/tingling in extremities, blurred vision, irritability, depression, feeling slowed down or mentally foggy.*)

Athlete should refrain from P. E. activities until cleared for all sports activity (Step 7).

Step 1: - symptom free – Heart Rate Test- Light cardiovascular work: walking, elliptical, or stationary bike (20 minutes)

Date: _____ Athletic Trainer Signature: _____

Step 2: - symptom free – Light cardiovascular work: jogging, elliptical, or stationary bike (30 minutes)

Date: _____ Signature: _____

Step 3: - symptom free – Interval cardiovascular training with sprinting and recovery periods (15-30 minutes) plus body weight and core exercises: sit-ups, push-ups, and squats (25 repetitions)

Date: _____ Signature: _____

Step 4: - symptom free – Plyometric activities and sports specific conditioning and NON-CONTACT drills in a practice setting (45-60 minutes)

Date: _____ Signature: _____

Step 5: - symptom free – Complete a full practice session that includes NON-CONTACT sports specific drills and conditioning (90-120 min)

Date: _____ Athletic Trainer Signature: _____

Step 6: - symptom free – Complete a normal full length, full contact practice session.

Date: _____ Signature: _____

Step 7: - symptom free - Full return to sport, activity, and physical education class without restrictions.

Date: _____ Athletic Trainer Signature: _____

If at any time symptoms return, stop scheduled activity. Rest until athlete is symptom free for 48 hours. Initiate the Atypical Return to Activity protocol. If symptoms persist, consult physician.

Concussions are injuries to the brain caused by physical trauma to the head or body. Concussions are characterized by immediate post-traumatic impairment of neural function. This alteration of brain function can present as any number of signs and/or symptoms, such as those listed above. A person does NOT have to lose consciousness to have a concussion.

Revised: 06/2015

Gundersen Lutheran Medical Center, Inc. | Gundersen Clinic, Ltd.

GUNDERSEN
HEALTH SYSTEM®

ImPACT & Concussion Management

- What is the ImPACT??
- How does the ImPACT assist in management?
 - Baseline vs. Post Concussion ImPACT
- Does the ImPACT ultimately clear to return to sport??
 - MANY parts go into the clearance for sport

Safety First!

- What is being done?
 - Heads Up Tackling
 - Hawk Tackling
 - Coach Concussion Training
 - Changes to the Game
 - Athlete-Athletic Trainer-Coach-Physician-Parent Collaboration



They Have Been There

Multi Sport Athlete Testimonials...

Bottom Line...

- Football is being made more safe for athletes
- Concussion management and treatment is expanding and improving
- Research continues on concussion treatment
- Making all sports safe for the athletes that play them!