Contact Sports and Concussion

Get your head in the game – keep your head in the game!
Contact sports with concussion potential at UMW
Safety First
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• Athletes are encouraged to practice good sportsmanship at all times
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- Athletes must wear the right protective equipment for sport specific activity; protective equipment should fit properly, be well maintained and be worn consistently and correctly
Safety First

- Athletes are encouraged to practice good sportsmanship at all times
- Athletes must wear the right protective equipment for sport specific activity; protective equipment should fit properly, be well maintained and be worn consistently and correctly
- All athletes must recognize the signs and symptoms of a concussion
What is a concussion?
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- A concussion is an injury to the brain
What is a concussion?

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- Concussions are serious and characterized by a fast onset of cognitive impairment
What is a concussion?

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• You don’t need to lose consciousness
What is a concussion?

- A concussion is an injury to the brain
- Concussions are serious and characterized by a fast onset of cognitive impairment
- You don’t need to lose consciousness
- Concussions can happen in any sport
A concussion can be caused by a blow to the head or the body that causes the brain to move rapidly inside the skull, then suddenly stops.
• A concussion can be caused by a blow to the head or the body that causes the brain to move rapidly inside the skull, then suddenly stops
• Contact can occur with another player, hitting a hard surface, or a piece of equipment
• A concussion can be caused by a blow to the head or the body that causes the brain to move rapidly inside the skull, then suddenly stops
• Contact can occur with another player, hitting a hard surface, or a piece of equipment
• Concussions are sometimes referred to as “dings” or “getting your bell rung”
A concussion is a violent jarring or shaking that results in a disturbance of brain function.
Types of Concussion

• 2 basic types of concussions
  – Loss of consciousness
  – No loss of consciousness
Types of Concussion

• 2 basic types of concussions
  – Loss of consciousness
  – No loss of consciousness

• It is important to remember that you can’t see a concussion and some athletes may not experience and/or report concussion symptoms until hours or days after the injury – it is a functional injury
Types of Concussion

• Most people with a concussion will improve quickly and fully. But for some people, signs and symptoms of concussion can last for days, weeks, or longer!
Common signs and symptoms
Common signs and symptoms

- Loss of consciousness
Common signs and symptoms

- Loss of consciousness
- Confusion
Common signs and symptoms

- Loss of consciousness
- Confusion
- Amnesia
Common signs and symptoms

- Loss of consciousness
- Confusion
- Amnesia
- Balance problems
Common signs and symptoms

- Loss of consciousness
- Confusion
- Amnesia
- Balance problems
- Headache
Common signs and symptoms

- Loss of consciousness
- Confusion
- Amnesia
- Balance problems
- Headache
- Visual disturbance
Recognizing a possible concussion
Recognizing a possible concussion

- Watch for the following 2 things
Recognizing a possible concussion

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  1. A forceful bump, blow, or jolt to the head or body that results in rapid movement of the head
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  2. Any change in the athlete’s behavior, thinking, or physical functioning
Recognizing a possible concussion

• Watch for the following 2 things
  1. A forceful bump, blow, or jolt to the head or body that results in rapid movement of the head
  2. Any change in the athlete’s behavior, thinking, or physical functioning
Signs observed by coach/teammate
Signs observed by coach/teammate

• Appears dazed or stunned
Signs observed by coach/teammate

- Appears dazed or stunned
- Is confused about assignment or position
Signs observed by coach/teammate

- Appears dazed or stunned
- Is confused about assignment or position
- Forgets instruction
Signs observed by coach/teammate

- Appears dazed or stunned
- Is confused about assignment or position
- Forgets instruction
- Is unsure of game, score, or opponent
Signs observed by coach/teammate

- Appears dazed or stunned
- Is confused about assignment or position
- Forgets instruction
- Is unsure of game, score, or opponent
- Moves clumsily
Signs observed by coach/teammate

- Answers questions slowly
Signs observed by coach/teammate

- Answers questions slowly
- Loses consciousness (no matter how brief)
Signs observed by coach/teammate

- Answers questions slowly
- Loses consciousness (no matter how brief)
- Shows change in mood, behavior, or personality
Signs observed by coach/teammate

- Answers questions slowly
- Loses consciousness (no matter how brief)
- Shows change in mood, behavior, or personality
- Can’t recall events prior to hit or fall
Signs observed by coach/teammate

- Answers questions slowly
- Loses consciousness (no matter how brief)
- Shows change in mood, behavior, or personality
- Can’t recall events prior to hit or fall
- Can’t recall events after hit or fall
Signs reported by athlete
Signs reported by athlete

• These signs will fall into one of four areas:
Signs reported by athlete

• These signs will fall into one of four areas:
  • Physical
Signs reported by athlete

- These signs will fall into one of four areas:
  - Physical
  - Emotional
Signs reported by athlete

- These signs will fall into one of four areas:
  - Physical
  - Emotional
  - Cognitive (Thinking)
Signs reported by athlete

- These signs will fall into one of four areas:
  - Physical
  - Emotional
  - Cognitive (Thinking)
  - Sleep
Signs reported by athlete

- The signs may include one or more of the following:
Signs reported by athlete

- Headache or “pressure” in the head
Signs reported by athlete

- Headache or “pressure” in the head
- Nausea or vomiting
Signs reported by athlete

• Headache or “pressure” in the head
• Nausea or vomiting
• Balance problems or dizziness
Signs reported by athlete

- Headache or "pressure" in the head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
Signs reported by athlete

• Headache or “pressure” in the head
• Nausea or vomiting
• Balance problems or dizziness
• Double or blurry vision
• Sensitivity to light
Signs reported by athlete

- Sensitivity to noise
Signs reported by athlete

- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
Signs reported by athlete

- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
- Problems with concentration or memory
Signs reported by athlete

- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
- Problems with concentration or memory
- Confusion
Signs reported by athlete

- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
- Problems with concentration or memory
- Confusion
- Doesn’t “feel right’ or is “feeling down”
How bad are concussions?

- Each year an estimated 1.7 million people sustain a concussion
How bad are concussions?

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• 52,000 die
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- 275,000 are hospitalized
How bad are concussions?

- Each year an estimated 1.7 million people sustain a concussion
- 52,000 die
- 275,000 are hospitalized
- 1.365 million are treated and released from a hospital emergency room
Assessment
Assessment

- Preseason baseline testing program (ImPACT)
Assessment

• Preseason baseline testing program (ImPACT)
  – A concussion history taken while the athlete is healthy provides important information in the event of a concussion.
Assessment

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  – A concussion history taken while the athlete is healthy provides important information in the event of a concussion.
  – ImPACT is our sport concussion assessment tool
Assessment

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  - Signed Policy and Procedure/Medical Release form by each athlete prior to the start of the season/school year
Assessment

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  – A concussion history taken while the athlete is healthy provides important information in the event of a concussion.
  – ImPACT is our sport concussion assessment tool
  – Signed Policy and Procedure/Medical Release form by each athlete prior to the start of the season/school year
  – A neurological exam as needed
Assessment

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  – A concussion history taken while the athlete is healthy provides important information in the event of a concussion.
  – ImPACT is our sport concussion assessment tool
  – Signed Policy and Procedure/Medical Release form by each athlete prior to the start of the season/school year
  – A neurological exam as needed
  – Diagnostic testing as needed
Assessment Plan

• Preseason ImPACT
Assessment Plan

• Preseason ImPACT
• SCAT2 on field quick assessment
Assessment Plan

- Preseason ImPACT
- SCAT2 on field quick assessment
- Neurological evaluation at MWH
Assessment Plan

- Preseason ImPACT
- SCAT2 on field quick assessment
- Neurological evaluation at MWH
- ImPACT incident follow-up testing
Assessment Plan

• Preseason ImPACT
• SCAT2 on field quick assessment
• Neurological evaluation at MWH
• ImPACT incident follow-up testing
• Further ImPACT as needed
Assessment Plan

- Preseason ImPACT
- SCAT2 on field quick assessment
- Neurological evaluation at MWH
- ImPACT incident follow-up testing
- Further ImPACT as needed
- Rehabilitation
Assessment Plan

- Preseason ImPACT
- SCAT2 on field quick assessment
- Neurological evaluation at MWH
- ImPACT incident follow-up testing
- Further ImPACT as needed
- Rehabilitation
- Return to play evaluation
ImPACT

- ImPACT provides computerized neurocognitive assessment tools and services that are used by medical doctors, psychologists, athletic trainers, and other licensed healthcare professionals to assist them in determining an athlete's ability to return to play after suffering a concussion.
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• The test battery consists of a near infinite number of alternate forms by randomly varying the stimulus array for each administration.
ImPACT

- ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:
ImPACT

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  - Attention span
ImPACT

- ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:
  - Attention span
  - Working memory
ImPACT

- ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:
  - Attention span
  - Working memory
  - Sustained and selective attention time
ImPACT

- ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:
  - Attention span
  - Working memory
  - Sustained and selective attention time
  - Response variability
ImPACT

- ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:
  - Attention span
  - Working memory
  - Sustained and selective attention time
  - Response variability
  - Non-verbal problem solving
ImPACT

ImPACT takes approximately 30 minutes to complete. The program measures multiple aspects of cognitive functioning in athletes, including:

- Attention span
- Working memory
- Sustained and selective attention time
- Response variability
- Non-verbal problem solving
- Reaction time
ImPACT

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  – Attention span
  – Working memory
  – Sustained and selective attention time
  – Response variability
  – Non-verbal problem solving
  – Reaction time

• ImPACT results are non-medical and are not impacted by current HIPPA/FERPA regulations
Pocket SCAT2

Concussion should be suspected in the presence of any one or more of the following symptoms (such as headache), or physical signs (such as unsteadiness), or impaired brain function (e.g., confusion) or abnormal behavior.

1. Symptoms
   Presence of any of the following signs & symptoms may suggest a concussion.
   - Loss of consciousness
   - Seizure or convulsion
   - Amnesia
   - Headache
   - "Pressure in head"
   - Neck Pain
   - Nausea or vomiting
   - Dizziness
   - Blurred vision
   - Balance problems
   - Sensitivity to light
   - Sensitivity to noise
   - Feeling slowed down
   - Feeling like "in a fog"
   - "Don't feel right"
   - Difficulty concentrating
   - Difficulty remembering
   - Fatigue or low energy
   - Confusion
   - Drowsiness
   - More emotional
   - Irritability
   - Sadness
   - Nervous or anxious

2. Memory function
   Failure to answer all questions correctly may suggest a concussion.
   - "At what venue are we at today?"
   - "Which half is it now?"
   - "Who scored last in this game?"
   - "What team did you play last week/game?"
   - "Did your team win the last game?"

3. Balance testing
   Instructions for tandem stance
   "Now stand heel-to-toe with your non-dominant foot in back. Your weight should be evenly distributed across both feet. You should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."

   Observe the athlete for 20 seconds. If they make more than 5 errors (such as lift their hands off their hips; open their eyes; lift their forefoot or heel; step, stumble, or fall; or remain out of the start position for more than 5 seconds) then this may suggest a concussion.

   Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, urgently assessed medically, should not be left alone and should not drive a motor vehicle.
SCAT2

• Pocket SCAT2 app is now available for the iPhone
Assessment – SCAT2

• Memory function questions that can be used on the field to assist in the determination of a head injury (Failure to answer all questions correctly may suggest a concussion.)
Assessment – SCAT2

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  – At what venue are we at today?
Assessment – SCAT2

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  – At what venue are we at today?
  – Which half is it now?
Assessment – SCAT2

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Assessment – SCAT2

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  - Which half is it now?
  - Who scored last in this game?
  - What team do you play last week/last game?
  - Did your team win the last game?
Assessment Plan

• Athlete’s condition will determine the next level of treatment
Assessment Plan

- Athlete’s condition will determine the next level of treatment
  - Release from ER with Medical Release Form for Campus Recreation Staff
Assessment Plan

• Athlete’s condition will determine the next level of treatment
  – Release from ER with Medical Release Form for Campus Recreation Staff
  – OR Hospitalization/further testing required
ER visit required
Neurological Assessment at MWH

• Hospital admission for further observation or treatment is indicated when an athlete has persistent confusion, lethargy, and/or other neurological signs.
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• Tests available for assessment of mTBI include:
  – X-ray
  – CT Scan
  – MRI
  – Angiogram
  – ICP Monitor
  – EEG
Neurological Assessment at MWH

- EEG from day 1 post injury
Neurological Assessment at MWH

• EEG from day 18 post injury
Assessment Plan

• The vast majority of concussions recover over 1 to 2 weeks with some patients taking longer to recover
Assessment Plan

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• 3 basic steps in the return-to-play decision making process:
Assessment Plan

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• 3 basic steps in the return-to-play decision making process:
  1. Is the athlete symptom-free? (may involve ImPACT testing)
Assessment Plan

- The vast majority of concussions recover over 1 to 2 weeks with some patients taking longer to recover.
- 3 basic steps in the return-to-play decision making process:
  1. Is the athlete symptom-free? (may involve ImPACT testing)
  2. Has cognition recovered? (will involve ImPACT testing)
Assessment Plan

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- 3 basic steps in the return-to-play decision making process:
  1. Is the athlete symptom-free? (may involve ImPACT testing)
  2. Has cognition recovered? (will involve ImPACT testing)
  3. Rehabilitation – guided and graded return to activity program
Assessment Plan

• The vast majority of concussions recover over 1 to 2 weeks with some patients taking longer to recover
• 3 basic steps in the return-to-play decision making process:
  1. Is the athlete symptom-free? (may involve ImPACT testing)
  2. Has cognition recovered? (will involve ImPACT testing)
  3. Rehabilitation – guided and graded return to play activity program
• It is important to understand and acknowledge that a qualified physician must supervise the management of a concussion, and determine and coordinate the timing of the athlete’s return to play
Rehabilitation

• The athlete must be completely symptom free and have normal neurological and cognitive results before starting the rehabilitation program.
Rehabilitation

• The athlete must be completely symptom free and have normal neurological and cognitive results before starting the rehabilitation program
• This program includes a guided return to exercise program, with gradual increases in exercise duration and intensity
Rehabilitation

• The athlete must be completely symptom free and have normal neurological and cognitive results before starting the rehabilitation program
• This program includes a guided return to exercise program, with gradual increases in exercise duration and intensity
• The program is described in the Return to Play Protocol
Return to Play
Return to Play

- Cognitive and Physical Rest are the Cornerstones of successful concussion treatment.
Return to Play

- What is Cognitive Rest?
Return to Play

- What is Cognitive Rest?
- Limiting activities that require concentration
Return to Play

• What is Cognitive Rest?
• Limiting activities that require concentration
  – homework, school work, or job-related work
Return to Play

• What is Cognitive Rest?
• Limiting activities that require concentration
  – homework, school work, or job-related work
  – phone use, texting, television use, computer use, video games
Return to Play

• What is Cognitive Rest?
• Limiting activities that require concentration
  – homework, school work, or job-related work
  – phone use, texting, television use, computer use, video games.
• May require changes to the “normal” day
Return to Play

- What is Physical Rest?
Return to Play

- What is Physical Rest?
- Avoiding activities that elevate heart rate or may cause physical contact with another person or equipment
Return to Play Protocol

1. No activity, complete rest
Return to Play Protocol

1. No activity, complete rest
2. Once all symptoms are gone and cognitive recovery is demonstrated, athlete proceeds to the next level and continues as long as symptoms do not return:
Return to Play Protocol

1. No activity, complete rest
2. Once all symptoms are gone and cognitive recovery is demonstrated, athlete proceeds to the next level and continues as long as symptoms do not return:
   ✓ Light aerobic exercise such as walking or stationary cycling
Return to Play Protocol

1. No activity, complete rest
2. Once all symptoms are gone and cognitive recovery is demonstrated, athlete proceeds to the next level and continues as long as symptoms do not return:
   ✓ Light aerobic exercise such as walking or stationary cycling
   ✓ Sport specific training (e.g. running drills, ball handling skills)
Return to Play Protocol

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   ✓ Light aerobic exercise such as walking or stationary cycling
   ✓ Sport specific training (e.g. running drills, ball handling skills)
   ✓ Non-contact training drills
Return to Play Protocol

1. No activity, complete rest
2. Once all symptoms are gone and cognitive recovery is demonstrated, athlete proceeds to the next level and continues as long as symptoms do not return:
   - Light aerobic exercise such as walking or stationary cycling
   - Sport specific training (e.g. running drills, ball handling skills)
   - Non-contact training drills
   - Full contact training after medical clearance has been provided to Campus Recreation Director/Staff
Return to Play Protocol

1. No activity, complete rest
2. Once all symptoms are gone and cognitive recovery is demonstrated, athlete proceeds to the next level and continues as long as symptoms do not return:
   ✓ Light aerobic exercise such as walking or stationary cycling
   ✓ Sport specific training (e.g. running drills, ball handling skills)
   ✓ Non-contact training drills
   ✓ Full contact training after medical clearance has been provided to Campus Recreation Director/Staff
   ✓ Full practice/game play
Considerations during recovery
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• Second Impact Syndrome (SIS)
Considerations during recovery

• Second Impact Syndrome (SIS)
  – Second concussion occurs before the brain has recovered from the first concussion
Considerations during recovery

• Second Impact Syndrome (SIS)
  – Second concussion occurs before the brain has recovered from the first concussion
  – Even if the first concussion is mild, SIS can prove to be catastrophic or fatal
Considerations during recovery

- Post Concussion Syndrome
Considerations during recovery

• Post Concussion Syndrome
  – Long-term symptoms following severe or multiple mTBI
Considerations during recovery

• Post Concussion Syndrome
  – Long-term symptoms following severe or multiple mTBI
  – Complaints of mood and attention deficits are common
Considerations during recovery

- Post Concussion Syndrome
  - Long-term symptoms following severe or multiple mTBI
  - Complaints of mood and attention deficits are common
  - Intellectual dullness
Considerations during recovery

- Post Concussion Syndrome
  - Long-term symptoms following severe or multiple mTBI
  - Complaints of mood and attention deficits are common
  - Intellectual dullness
  - Changes in personality
Considerations during recovery

• Post Concussion Syndrome
  – Long-term symptoms following severe or multiple mTBI
  – Complaints of mood and attention deficits are common
  – Intellectual dullness
  – Changes in personality
  – Fatigue and headaches
Get your head in the game
keep your head in the game!
Don’t be BATMAN!