Concussion Assessment, Management, and Return to Play Guidelines

Document of (Entity): Beacon Medical Group Orthopaedics & Sports Specialists & Memorial Athletic Trainers

**POLICY:**

The following policy and procedures on neurocognitive baseline testing and subsequent assessment and management of concussions as well as return to play guidelines has been developed in accordance with the goal of the Beacon Medical Group Orthopaedics & Sports Specialists & Memorial athletic trainers to provide quality healthcare services and assure the well-being of each athlete treated by the athletic trainers employed by Memorial Hospital and Beacon Medical Group Orthopaedics & Sports Specialists.

**PATIENT POPULATION:**

Any patient thought to have a concussion.

**PURPOSE:**

The Beacon Medical Group Orthopaedics & Sports Specialists Clinic recognizes that sports related concussions pose a significant health risk for student-athletes. Therefore the Sports Medicine Athletic Trainers have implemented policies and procedures to deal with the assessment, management, and return to play (RTP) considerations for athletes who have sustained a concussive episode. In addition the Sports Medicine Athletic Trainers also recognize the importance of baseline testing on athletes who participate in sports which are recognized as contact or collision and/or who have a history of concussions upon entering athletic participation at their designated schools. Baseline concussion testing will consist of BrainCheck Sport Computer Cognitive Assessment Tool (CCAT) testing; this information will be extremely useful in RTP decisions. The baseline data along with physical exam, diagnostic testing, symptom scaling, follow up testing and a gradual RTP protocol will all be used in conjunction with sound clinical judgment and on an individualized basis to determine when it is safe for an athlete to return to competition.

**DEFINITION:**

**Concussion**- A complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces.

- Direct blow or impulsive forces transmitted to the head
- Typically results in rapid onset of neurological impairments
- Functional injury: Not structural injury
- May or may no include loss of consciousness (LOC)
- Not always identifiable on standard imaging (CT, MRI)

**Mild Traumatic Brain Injury (mTBI)**- All concussions are a form of mTBI, however not all mTBI’s are concussions. The term mTBI and concussion should NOT be used interchangeably.

**Post Concussion Syndrome**- A set of symptoms which may last for weeks, months, or years following a concussion.

**Second Impact Syndrome**- Rare condition when an athlete sustains a second head injury before symptoms from the first have resolved, often fatal.

**SIGNS and SYMPTOMS of CONCUSSION:**

Certified athletic trainers need to be aware of the potential signs and symptoms of concussion in order to properly assess the injury and begin formal management. Symptoms can take seconds to hours to develop following a concussive injury.
<table>
<thead>
<tr>
<th>Physical:</th>
<th>Cognitive:</th>
<th>Emotional:</th>
<th>Sleep:</th>
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<tbody>
<tr>
<td>Headache</td>
<td>Difficulty remembering</td>
<td>Behavioral changes</td>
<td>Sleep more than usual</td>
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<tr>
<td>LOC</td>
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<td>Sleep less than usual</td>
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<tr>
<td>Fatigue</td>
<td>Difficulty concentrating</td>
<td>Irritability</td>
<td>Drowsiness</td>
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<td>Dizziness</td>
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<td>Sadness</td>
<td>Trouble falling asleep</td>
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<tr>
<td>Photophobia</td>
<td>Feeling slowed down</td>
<td>Feeling emotional</td>
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<tr>
<td>Nausea</td>
<td>Feeling in a fog</td>
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<tr>
<td>Sensitivity to Noise</td>
<td>Slowed reaction times</td>
<td>Nervousness</td>
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<tr>
<td>Vision difficulty</td>
<td>Altered attention</td>
<td>Anxiety</td>
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<tr>
<td>Balance Problems</td>
<td>Amnesia</td>
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**BASELINE ASSESSMENT:**

All athletes who are participating in those sports identified as collision or contact and/or who have had previous concussions identified by their health history should have a baseline neurocognitive test performed as a part of their athletic medical screening. Currently the Beacon Medical Group Orthopaedics & Sports Specialists utilizes the BrainCheck Sport CCAT. The BrainCheck Sport CCAT is a user friendly computer based program which has 6 modules which are designed to test multiple aspects of cognitive functioning. Some Beacon Medical Group Orthopaedics & Sports Specialists & Memorial Hospital certified athletic trainers may also use the Standard Assessment of Concussion (SAC) cards along with the BrainCheck Sport CCAT program as a baseline test.

Testing all High school and Collegiate athletes is the prerogative of each individual institution, but Beacon’s minimal recommendations are listed below:

- Football
- M&W Soccer
- M&W Basketball
- Wrestling
- College Hockey
- College Lacrosse

**MANAGEMENT:**

In any circumstance where a concussion is suspected, the first priority is to remove the athlete from further participation until a thorough sideline exam can be performed. Furthermore if there is a concern of the mental state of clearing, the certified athletic trainer should err on the side of conservative assessment until the athlete can be examined by a physician. According to Senate Bill 222 any athlete suspected of a concussion is unable to return to play for 24 hours after the incident. If the athlete is suspected with a concussion they may NOT return to play until after 24 hours, and must have medical reevaluation by athletic training room staff and clearance by a physician. If physician is outside of the Beacon sports medicine staff clearance must be written. Athletic Directors and coaches will be apprised of the athlete’s condition.

On Field/ Sideline Evaluation

1. In all cases in which a concussion is suspected the athlete should be removed from the athletic participation and a formal evaluation should take place.
   a) Athlete removed from field utilizing c-spine precautions and transported to emergency department (911 and Ambulance) if presents with:
      i) Prolonged LOC and/or
      ii) Focal neurologic defect and/or
      iii) Significant alteration or deterioration in mental status.
   b) Athlete conscious and alert will be removed to the sideline for evaluation.

2. Sideline Evaluation
   a) Injury History (Hx), Date/time, previous concussion Hx recorded, etc.
   b) Verbal Symptom checklist
   c) Neurologic exam
      i) Cranial Nerve Assessment
      ii) Upper and lower quarter screen
   d) Neurocognitive test- (possibly the SCAT)
   e) Coordination examination
      i) Finger to nose task
   f) Gait Coordination
      i) Tandem walk

3. Following the sideline evaluation, continue serial monitoring until released to responsible adult or further medical care. (Hold football helmet if needed to keep athlete from participation)

4. During the repeat examination.
   a) If the athlete is thought to have a concussion, has any symptoms and/or does not pass any portion of the sideline evaluation, the athlete is to remain out from participation.
   b) If athlete reports an increase and/or prolonged altered mental status and/or focal neurological deficit emergency care and neuroimaging may be warranted.

Athletic Training Room (ATR) Clinic Evaluation

1. Any athlete who is suspected to have sustained a concussion will be required to report to the school’s sports medicine staff before leaving event, for a more formal evaluation.

2. Clinic evaluation will consist of:
   a) Graded symptoms check list
   b) Neurologic exam
   c) Coordination test
   d) SCAT Test (on a regular basis until asymptomatic)

3. A physician evaluation will also be scheduled (varies by institution) or the athlete will need to schedule a physician evaluation.

4. Prior to leaving the event site the athlete or athlete’s parents will be given a home instructions sheet, and given instruction on what to do should their condition deteriorate.
Treatment/Rehabilitation

1. Athletes who sustain a concussion will be instructed to rest, meaning total rest:
   a) Physical rest (suggested 48-72 hrs)
      i) no athletic participation
      ii) no recreational exercise
   b) Cognitive rest (Suggested 48-72 hrs)
      i) Limit electronic use (ex, phone, computer, TV)
      ii) Possible academic accommodations (per physician recommendation)

Follow up Evaluation(s)

1. Athletes who have sustained a concussion will be recommended to follow up with their athletic trainer daily until cleared by a physician.

2. Follow up evaluation will consist of:
   a) Graded symptoms check list
   b) Neurologic exam
   c) Coordination test
   d) SCAT test (on a regular basis until asymptomatic)

3. Once the athlete is asymptomatic they could be tested on the BrainCheck Sport CCAT test. Suggested Neurocom VSR balance assessment with SET test (for high risk athletes).

4. Once the athlete is symptom free, and has been evaluated and cleared by a physician trained in concussion management they may begin a supervised graduated RTP. (A team physician has final say in when the athlete may RTP)

Special Considerations

Medications – Are usually not needed but in some cases may be needed when considering sleep and headaches. If the athletic trainer or physician allows the athlete to take medication.
*note that the athlete should not be using medication when assessing symptoms and RTP.

Physician– Will be required to evaluate all athletes who have sustained a concussion prior to RTP:

RETURN to PLAY CONSIDERATIONS:

RTP protocol following a concussion follows a stepwise progression. The athlete should be symptom free and have returned to baseline values before beginning this progression. The athlete should complete each level and progress to the next if they remain asymptomatic both at rest and with provocative exercise. Generally, each step should take about 24 hours. Should the athlete become symptomatic during the progression, they should drop back to the previous asymptomatic level and try to progress after a 24 hour period of rest.

Level 1 – Light aerobic exercise = increase heart rate (walking, stationary bike, sit ups, etc.)

Level 2 – Sport specific exercises (ex: skating, running, cutting, jumping)
Level 3 – Non-contact drills (complex training drills, passing, catching, resistance training)

Level 4 – Full contact practice (full medical clearance)

Level 5 – Return to play (game)

Continued post-concussive symptoms, prior concussion history and any diagnostic testing results along with neurocognitive testing and physical exam, will be utilized by the physician and athletic trainer in establishing a timeline for an athlete's return to activity. It is important to note that this timeline could last over a period of days to weeks or months, or potential medical disqualification from athletics. All cases will be handled on an individualized basis. The decision by the Beacon team physician for all cases of an athlete’s return to activity is final.

SUMMARY:

The Beacon Medical Group Orthopaedics & Sports Specialists & Memorial athletic trainers are proactive in the prevention, reorganization, and management of concussion in order to limit the risks of concussions associated with athletics. As well as to limit the potential catastrophic and long term risks associated with sustaining a concussion. Therefore the management and return to play decisions will remain in the realm of clinical judgment on the individualized bases by both the certified athletic trainer and the team physician.

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<tr>
<th>Date</th>
<th>Author</th>
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<th>Approval Date</th>
<th>Approval Person or Group</th>
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<tr>
<td>08/19/2010</td>
<td>Kara Werner-Sanders</td>
<td>Revised 05/23/2019</td>
<td>04/10/2019</td>
<td>Dr. Linda Mansfield</td>
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