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Concussion Management Protocol

Lakeland Athletic Training Services Patient Information



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Concussion Home Care Instructions

Dear Parent or Guardian:

_____ has possibly sustained a
concussion during _____ today.

To make sure he/she recovers as quickly and safely as possible, please review the following recommendations:

Things that are OK to do:

- Take acetaminophen (Tylenol) ONLY
- Use ice packs on head or neck as needed for comfort
- Eat a light diet
- Go to sleep (rest is very important)
- Return to school (if cleared by athletic trainer or physician)

Things to avoid:

- Other "headache" medications such as aspirin, Advil®, Motrin®, Aleve®, ibuprofen, naproxen
- Spicy foods
- Technology (i.e. TV, computer, video games, phone/texting, iPod)
- Reading
- Bright lights, loud noises
- Physical activities

There is no need to:

- Check eyes with a flashlight
- Wake up every hour (unless instructed otherwise)
- Test reflexes



Call your family doctor or athletic trainer with any questions or concerns. **Call 9-1-1 if your child shows any worsening symptoms listed under number two of the Ten-Point Care Checklist for Parents on page 5.**

Instructions provided to: _____

Signature: _____

Instructions provided by: _____

Signature: _____

Date: ____/____/____ Time: ____:____ a.m. / p.m.

What Is a Concussion?

A concussion or mild traumatic brain injury (MTBI) is the common result of a blow to the head or body which causes the brain to move rapidly within the skull. This injury causes brain function to change, which results in an altered mental state (either temporary or prolonged). Physiologic and/or anatomic disruptions of connections between some nerve cells in the brain may occur. Concussions can have serious and long-term health effects, even from a mild bump on the head.

Symptoms may be temporary or long-lasting. Concussion symptoms include, but are not limited to:

- Brief loss of consciousness
- Headache
- Amnesia
- Nausea
- Dizziness
- Confusion
- Blurred vision
- Ringing in the ears
- Loss of balance
- Moodiness
- Poor concentration or mental slowness
- Lethargy or drowsiness
- Sensitivity to light
- Sensitivity to noise
- Change in sleeping patterns

Ten-Point Care Checklist for Parents

1. Monitor your child closely and regularly for the first 24 to 48 hours.

Most sport-related concussions are mild. However, there is always potential for a more serious, life-threatening head injury. These could include bleeding between the skull and the brain (epidural hematoma) or Second Impact Syndrome. See page 9 for important information about Second Impact Syndrome. Symptoms of a more serious injury to a child (see number two below) may not appear during the first 24 to 48 hours following a concussion. Parents or another responsible adult should closely monitor the athlete during this time. There is no need, however, to check the eyes with a flashlight, test reflexes, or wake your child during the night.



In general, only wake up your child during the night to check for signs of worsening mental status if:

- The child lost consciousness after the injury
- The child had prolonged memory loss (amnesia) after the injury
- The child experienced other significant post-concussion signs or symptoms when he or she went to bed

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2. Call 9-1-1 immediately if your child's condition gets worse.

If your child shows any of the following symptoms, call 9-1-1 immediately:

- A headache that gets worse
- Feels very drowsy or can't be awakened
- Can't recognize people or places
- Throws up repeatedly
- Behaves unusually, seems confused, or acts irritably
- Experiences seizures (arms and legs jerk uncontrollably)
- Has weak or numb arms or legs
- Has difficulty standing or walking
- Has slurred speech

3. Use acetaminophen (Tylenol®) for headache. Do not give aspirin or anti-inflammatory medicine (Advil®, Motrin®, Aleve®, ibuprofen or naproxen). An ice pack on the head and neck may be used as needed for comfort.

4. Warn your child about the dangers of using alcohol, illicit drugs, or other substances. These may interfere with brain function and recovery. Do not give sleeping tablets.

5. Make sure your child rests physically and mentally. Your child should rest and avoid strenuous activity after a concussion. Athletes should limit their day-to-day and school-related activities until they are symptom free. No homework, computer, video games, or texting. The child should stay home from school while still having concussion symptoms. This will help avoid making symptoms worse and delaying recovery. No further treatment is needed during the recovery period and athletes can typically resume their sport without further problems after being cleared by the athletic trainer or doctor.

6. Do not allow same-day return to play after a concussion. Follow a graduated return-to-play program. Lakeland HealthCare follows the Zurich Consensus Statement on Concussion in Sport, an internationally recognized set of guidelines for treating concussions. Under these guidelines, athletes should NOT be allowed to return to play on the day of injury. Also, when athletes return to play, they should follow a step-wise, symptom-based program with each stage taking 24 hours or longer to complete. The athlete must return to the previous step if symptoms recur with exercise or at rest.

7. No driving until the athlete is medically cleared.



8. Follow a normal, well-balanced diet. Other than avoiding spicy foods, there isn't a specific diet recommended for those recovering from a concussion. However, following a well-balanced, nutritious diet should help in the recovery process.

9. Guidance on further testing or care management. The Zurich Consensus Statement follows a list of “modifying factors” to help determine if an athlete may need more sophisticated concussion care, such as examination by a specialist and more testing. These factors include:

- The athlete's post-concussion signs or symptoms last more than 10 days or recur with exercise
- The athlete experienced convulsions or prolonged loss of consciousness (LOC) of one minute or more at the time of injury
- The athlete has suffered one or more concussions in the past, especially when they appear to be recurring with less impact force (a minor blow to the head, for example) or takes longer to recover after each concussion
- The athlete has learning disorders and/or attention deficit hyperactivity disorder (ADHD)

10. Trust your instincts. Be as involved in the management of your child's concussion as your instincts tell you to be. Don't be afraid to ask your child how he/she is feeling, or take him/her to the pediatrician or a specialist if you suspect something is wrong.

Concussion Management Protocol

Following a concussion, your child will be monitored before returning to activity, practice, or competition. This may include:

Neurocognitive testing (if provided by your school)

- The athletic trainer may administer computerized neurocognitive testing to an athlete with a suspected concussion to determine severity of injury
- Testing may be repeated to determine progression through the protocol

School modifications

- The athletic trainer or school nurse will assist in monitoring the student during the day as well as with appropriate school modifications
- The athletic trainer or school nurse will notify teachers and counselors of post-concussion symptoms
- Until symptoms subside, it may be necessary to limit the child's computer work, reading activities, and testing. The student may need assistance to class. Also, the student may only be able to attend school for half-days or may need daily rest periods until symptoms subside

Return to participation guidelines

The athletic trainer will grant clearance for return to activity based on consultation with the athlete, athlete's parents, and physician as needed and appropriate.

Activity progression

Day 1 – Athlete must be symptom-free for 24 hours.

Day 2 – Athlete performs two light aerobic training sessions with no head impact activities over two days for 20 to 30 minutes without return of symptoms (activities to be determined by athletic trainer).

Light aerobic training sessions may include:

- Exercise bike workouts
- Jogging on the track or field
- Pool workouts if monitored by a coach or lifeguard

Day 3 – Athlete performs two interval training sessions over two days without return of symptoms. These sessions may include body-weight exercises mixed with sprints.

A typical interval training session would be:

- | | | |
|------------------------|---|---------------------------|
| • 30 sit-ups | • Jog two laps | • 30 mountain climbers |
| • Jog one lap | • 30 sit-ups | • Run one lap, |
| • 30 push-ups | • Run two laps | sprint one lap |
| • Run one lap | • 20 push-ups, 20 sit-ups | • 20 push-ups, 20 sit-ups |
| • 20 mountain climbers | • One lap (sprint $\frac{1}{2}$, jog $\frac{1}{2}$) | • Jog three laps |

Day 4 – Athlete may start to practice without risk of contact.

- Football: non-defended pass routes, pass defense without a receiver, sideline passing drills, or any similar activity
- Soccer: ball drills, passing drills, shooting drills (unless keeper), or any similar activity. NO HEADING during day/level four
- Field hockey: passing drills/lines; shooting drills, or any similar activity
- Basketball: dribbling drills, defensive drills without partner, shooting drills, or any similar activity
- Boys' lacrosse: passing drills, shooting drills, or any similar non-contact activity
- All other sports: activity to be based on consultation among the licensed athletic trainer, coach, and athlete

Day 5 – Athlete returns to full practice without restriction.

Day 6 – Athlete is cleared for game participation.

- Athlete must not have symptoms during or after activity for progression to continue



Physician clearance

Physician clearance will be based on successful completion of the above steps and neurocognitive testing returned to normal/baseline (if offered) unless otherwise noted.

- Michigan High School Athletic Association (MSHAA) guidelines require clearance from a physician using the MHSAA form before an athlete can return to competition.
- Continued return of symptoms during the activity progression will result in a return visit to the physician for re-evaluation or referral to a neurologist.

“Approximately 300,000 cases of mild traumatic brain injury (MTBI) or concussions happen annually in the United States.”

Multiple concussions

Special care should be taken when an athlete suffers more than one concussion.

- Following a second concussion, an athlete must be symptom-free for one week in order to begin the activity progression
- A third concussion in the same year (365 days) will require clearance from a neurologist



Second Impact Syndrome: A Rare But Usually Fatal Condition

Second blow to head before brain has healed from initial concussion

By Lindsay Barton, reviewed by Robert Cantu, MD

Second Impact Syndrome (SIS) occurs when an athlete who sustains a head injury — often a concussion or worse injury, such as a cerebral contusion (bruised brain) — sustains a second head injury before symptoms associated with the first have cleared.

Typically, the athlete suffers post-concussion signs and symptoms after the first head injury, such as headache, visual, motor or sensory changes or mental difficulty, especially with the thought and memory process. Before these symptoms have cleared, which may take minutes, hours, days or weeks, the athlete returns to competition and receives a second blow to the head.

The second blow may be unremarkable, perhaps only involving a blow to the chest that jerks the athlete's head and indirectly sends accelerating forces to the brain. Affected athletes may appear stunned, but do not suffer loss of consciousness (LOC) and often complete the play. They usually remain alert on their feet for 15 seconds to one minute or so but seem dazed. Often, affected athletes remain on the playing field or walk off under their own power. Usually within seconds to minutes of the second impact, the athlete — conscious but stunned — suddenly collapses to the ground, semi-conscious with rapidly dilating (widening) pupils, loss of eye movement, and stops breathing.

The second impact can cause brain swelling with other widespread damage to the brain. This can be fatal. Most often SIS occurs when an athlete returns to activity without being symptom-free from the previous concussion.

Concussion experts agree that, in general, the younger the athlete, the longer it takes for the symptoms of a concussive event to clear. The brains of young athletes are still developing, making them particularly susceptible to catastrophic injury if the brain has not healed before a second blow to the head. Indeed, the vast majority of the victims of Second Impact Syndrome (95% by some estimates) are under the age of 18.

Call _____ with additional questions.



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