

# KORT

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Business Card:



## **KORT's Concussion Management Protocol Parent Information**

# Concussion Home Care Instructions

# KORT SPORTS MEDICINE

Dear Parent or Guardian:

\_\_\_\_\_ has sustained a concussion during \_\_\_\_\_ today. To make sure he/she recovers in a safe manner as quickly and safely as possible, please review the following important recommendations:

1. Read the items outlined in this packet.
  - a. KORT Sports Medicine Concussion Letter to Physicians
    - i. It is required that all athletes receive clearance to return to activity following a concussion. Per KHSAA guidelines, this may come from a medical doctor (MD or DO), Physicians' Assistant (PA-C), or Nurse Practitioner (ARNP).
    - ii. The back of this form contains the symptoms your child was reporting as of their last contact with the Athletic Trainer.
    - iii. If any of these symptoms increase or new symptoms arise, please call your family physician or go to the nearest emergency room.
    - iv. Be sure to take this form with you when you see your doctor. Your athlete will not be permitted to start the return to play protocol without it.
  - b. Centers for Disease Control Heads-Up Concussion Fact Sheet
  - c. "Second Impact Syndrome: A Rare But Usually Fatal Condition" and "Parents Critical Participants in Child's Treatment and Recovery from Concussion" by Lindsay Barton
2. Things that are OK to do:
  - a. Take acetaminophen (Tylenol)
  - b. Use ice packs on head or neck as needed for comfort
  - c. Eat a light diet
  - d. Go to sleep (rest is very important)
  - e. No strenuous activity or sports
  - f. Return to school

*Ten-point checklist for parents*

1. **Regularly monitor athlete closely for first 24 to 48 hours.** Most sport-related concussions are mild, but the potential always exists for a more serious, life-threatening head injury, such as an epidural hematoma (bleeding between the skull and the brain) or second-impact syndrome. Because delayed onset of symptoms during the first 24 to 48 hours is possible (and more likely in children), parents - or another responsible adult - should closely monitor the athlete during this time. The *traditional rule* has been to wake up a concussed athlete every 3 to 4 hours during the night to evaluate changes in symptoms and rule out the possibility of an intracranial bleed, such as a subdural hematoma. A good rule of thumb is to wake up your child during the night to check for signs of deteriorating mental status *only* if they experienced a loss of consciousness or prolonged amnesia after the injury, or were still experiencing other significant post-concussion signs or symptoms when he or she went to bed. *There is no need to check their eyes with a flashlight or test his or her reflexes.*
2. **Immediate hospitalization if condition deteriorates.** If your child experiences any of the following signs of deteriorating mental status, go to the hospital immediately:
  - Has a headache that gets worse
  - Is very drowsy or can't be awakened (woken up)
  - Can't recognize people or places
  - Is vomiting repeatedly
  - Behaves unusually, seems confused or very irritable
  - Experiences seizures (arms and legs jerk uncontrollably)
  - Has weak or numb arms or legs
  - Is unsteady on his feet or has slurred speech
3. **Use acetaminophen (e.g. Tylenol®) for headache.** Do not give aspirin or anti-inflammatory medicine (e.g. Ibuprofen/Advil®). An ice pack on the head and neck is okay as needed for comfort.
4. **No drugs, alcohol:** Warn your child about the dangers of ingesting alcohol, illicit drugs, or other substances that might interfere with cognitive function and neurologic recovery. Do not give sleeping tablets.
5. **Physical and "cognitive" rest:** The "cornerstone" of concussion management is physical and cognitive rest until symptoms clear and then a graded program of exertion prior to medical clearance and return to play. This means your child should rest and avoid strenuous activity for at least the first 24 hours. Because activities that require concentration and attention may make post-concussion symptoms worse and delay recovery, youth athletes who have sustained concussions should also limit their day-to-day and school-related activities until they are symptom free. This means no homework, videogames, text messaging, and staying home from school while still experiencing concussion symptoms. Apart from limiting physical and cognitive activities (and other risk-taking opportunities for re-injury) while concussion symptoms are still present, no further treatment is required during the recovery period and the athlete typically resumes sport without further problem.
6. **No same day return to play; graduated return-to-play.** The Zurich Consensus Statement on Concussion in Sport recommends that athletes should NOT be allowed to return to play on the day of injury and that, when returning athletes to play, they should follow a step-wise, symptom limited program with each stage taking 24 hours or longer to complete, and the athlete returning to the previous step if symptoms recur with exercise or at rest.
7. **No driving until medical cleared.**
8. **Normal diet:** Limited information is available regarding the recommended diet for the management of concussion. A normal well-balanced diet that is nutritious in both quality and quantity should be maintained to provide the needed nutrients to aid in the recovery process. Avoid spicy foods.
9. **Further testing/management.** The Zurich consensus statement abandons the simple versus complex classification in favor of a list of "modifying factors," the presence of which may suggest the need for more sophisticated concussion management strategies, such as examination by a specialist and more testing. These factors include:
  - His/her post-concussion signs or symptoms last more than 10 days or recur with exercise;
  - He/She experienced convulsive convulsions or prolonged loss of consciousness (LOC) (one minute or more) at the time of injury;
  - He/She has suffered one or more concussive events in the past, especially where they appear to be recurring with progressively less impact force (e.g. a minor blow) or takes longer to recover after each successive concussion; or
  - He/She has learning disorders and/or attention deficit hyperactivity (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 is feeling, or take him to his pediatrician or a specialist if you suspect something is wrong.

## 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, M.D.

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.

### Sudden onset

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 1 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 and loss of eye movement, and stops breathing.

Vast majority of victims under age 18

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 eighteen.

## Parents Critical Participants in Child's Treatment and Recovery from Concussion

By Lindsay Barton

Along with teachers and other school personnel such as coaches, parents are critical participants in a child's treatment and recovery from a suspected concussion, including decisions about return to school, return to sports/recreation and return to everyday social and home activity:

- Active involvement of the parent is standard practice in pediatrics;
- The student athlete's everyday environments at home and at school serve as important venues for observing post-concussion symptoms; and
- Parents and teachers are in the best position to observe the child's behavior and ability to function, which are important factors in the treatment of and recovery from concussion.

### 3. Things that should not be allowed:

- Other "Headache" medications (i.e. Advil, Motrin, Aleve, Ibuprofen, Naproxen, Aspirin)
- Eat spicy foods
- Watch TV
- Listen to iPod, text, or talk on telephone
- Read
- Use a computer
- Bright lights
- Loud Noise

### 4. Things there is no need to do:

- Check eyes with a flashlight
- Wake up every hour
- Test reflexes

### 5. Do not hesitate to contact your family physician or a KORT Athletic Trainer with any questions or concerns.

Instructions provided to: \_\_\_\_\_

Signature: \_\_\_\_\_

Instructions provided by: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ Time: \_\_\_\_:\_\_\_\_ AM PM

# Letter To Physician

# KORT SPORTS MEDICINE

Dear Physician,

\_\_\_\_\_ is an athlete.

They sustained a head injury on \_\_\_\_\_ due to \_\_\_\_\_.

Based on the symptoms observed, I believe the athlete has sustained a concussion from this event. On the back of this form are the symptoms observed immediately following the incident.

Per KORT Concussion Management Protocol, they are being referred to you for further evaluation and clearance to return to activity.

Additionally, please find the KORT Concussion Return to Activity Plan. This plan is established based on the latest Consensus Statement on Concussion in Sport from the 3<sup>rd</sup> International Conference on Concussion in Sport held in Zurich in November 2008. Please feel free to make any changes you would like.

If you would like to refer the athlete for further evaluation, Dr. Tad Seifert at Norton Neurology Services has completed a fellowship in Headaches and Concussions. He has kindly offered to see athletes who have sustained concussions. Dr. Seifert's office is located at the Norton Suburban Medical Plaza II and his office number for referrals is (502) 899-6782.

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KORT SPORTS MEDICINE  
CONCUSSION DISPOSITION FORM

\_\_\_\_\_ I do not believe this athlete has sustained a concussion. They may return to activity immediately.

\_\_\_\_\_ The athlete may return to activity following the Concussion Return to Activity Protocol found on the reverse of this page.

\_\_\_\_\_ The athlete should be out of ALL activity until re-evaluation on \_\_\_/\_\_\_/\_\_\_.

COMMENTS:

\_\_\_\_\_

\_\_\_\_\_  
PHYSICIAN SIGNATURE

\_\_\_\_\_  
DATE

- a. 20 mountain climbers
  - b. Jog 2 laps
  - c. 30 situps
  - d. Run 2 laps
  - e. 20 pushups, 20 situps
  - f. 1 lap (sprint ½, jog ½)
  - g. 30 mountain climbers
  - h. Run 1 lap, Sprint 1 lap
  - i. 20 Push-ups, 20 Sit-ups
  - j. Jog 3 laps
- iv. Day 4 – Athlete may start to practice without risk of contact.
    - 1. Football: Non-Defended Pass Routes; Pass Defense Without a Receiver; Sideline Passing Drills: Any similar activity
    - 2. Soccer: Ball Drills; Passing Drills; Shooting Drills (unless keeper); Any similar activities; *NO HEADING during level 4*
    - 3. Field Hockey: Passing Drills/Lines; Shooting Drills; Any similar activity
    - 4. Basketball: Dribbling Drills; Defensive Drills without Partner; Shooting Drills; Any similar activities
    - 5. Boys' Lacrosse: Passing Drills; Shooting Drills; Any similar non-contact activity
    - 6. All Other Sports: Based on consultation between Certified Athletic Trainer, Coach, and athlete
  - v. Day 5 – Athlete returns to full practice without restriction.
  - vi. Day 6 – Athlete is cleared for game participation.
  - vii. Athlete must not have symptoms during or after activity for progression to continue.
- b. Physician clearance
    - i. Based on successful completion of the above steps unless otherwise noted in clearance note.
    - ii. Continued return of symptoms during progression will result in return visit to physician for re-evaluation or referral to neurologist.
  - c. Athletic Trainer clearance
    - i. The Certified Athletic Trainer will have final clearance for return to competition based on consultation with the athlete, athlete's parents, coaching staff, team physician, and the schools Athletic Director, as needed and appropriate.
- 3. Multiple Concussions
    - a. Day 1 will be one week following a second concussion in the same season unless specified otherwise by physician.
    - b. A third concussion in the same year (365 days) will require clearance from neurologist.

- b. Athletes exhibiting the following symptoms are recommended to see a physician (Emergency Room, Urgent Care, or their personal physician) on the day of injury:
- i. Amnesia
  - ii. Increase in blood pressure
  - iii. Cranial nerve deficits
  - iv. Vomiting
  - v. Motor deficits subsequent to initial on-field exam
  - vi. Sensory deficits subsequent to initial on-field exam
  - vii. Balance deficits subsequent to initial on-field exam
  - viii. Cranial nerve deficits subsequent to initial on-field exam
  - ix. Post-concussion symptoms that worsen
  - x. Additional post-concussion symptoms as compared with those on the field
  - xi. Athlete is symptomatic at the end of the game

### KORT Concussion Management Protocol

#### 1. School modifications

- a. The Head Coach (or member of the coaching staff performing the In-Building management for the team) is asked to assist with monitoring the student during the day and assisting with appropriate school modification.
- b. Notify other teachers of post concussion symptoms
- c. Student may need special accommodations such as limited computer work, reading activities, testing, assistance to class, etc. until symptoms subsided. Student may only be able to attend school for half days or may need daily rest periods until symptoms subside

#### 2. Return to Play Guidelines

- a. Activity progression
  - i. Day 1 – Athlete must be symptom-free for 24 hours.
  - ii. Day 2 – Athlete performs 2 light aerobic training sessions with no head impact activities over 2 days for 20-30 minutes without return of symptoms.
    1. Light aerobic training sessions will include:
      - a. Exercise bike workouts
      - b. Jogging on the track or field
      - c. Pool workouts if monitored by a coach or communicated with lifeguard
  - iii. Day 3 – Athlete performs 2 interval training sessions over 2 days without return of symptoms. These sessions include body weight exercises intermixed with sprints.
    1. A typical interval training session would be:
      - a. 30 situps
      - b. Jog 1 lap
      - c. 30 pushups
      - d. Run 1 lap

#### INITIAL SYMPTOMS OBSERVED:

DATE: \_\_\_/\_\_\_/\_\_\_

TIME: \_\_\_:\_\_\_ AM PM

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Anisocoria             | <input type="checkbox"/> Confusion             | <input type="checkbox"/> Loss of Consciousness |
| <input type="checkbox"/> Balance Problems       | <input type="checkbox"/> Cranial Nerve Deficit | <input type="checkbox"/> Nausea/Vomiting       |
| <input type="checkbox"/> Blurred Vision         | <input type="checkbox"/> Dizziness/Vertigo     | <input type="checkbox"/> Photophobia           |
| <input type="checkbox"/> Change in Personality  | <input type="checkbox"/> Drowsiness            | <input type="checkbox"/> Retrograde Amnesia    |
| <input type="checkbox"/> Concentration Problems | <input type="checkbox"/> Headache              | <input type="checkbox"/> Tinnitus              |

NOTES: \_\_\_\_\_

DISPOSITION: Continue to Monitor by ATC    Continue to Monitor at Home, Follow-up with MD    To ER

#### FOLLOW-UP SYMPTOMS:

DATE: \_\_\_/\_\_\_/\_\_\_

TIME: \_\_\_:\_\_\_ AM PM

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Anisocoria            | <input type="checkbox"/> Concentration Problems | <input type="checkbox"/> Headache           |
| <input type="checkbox"/> Anterograde Amnesia   | <input type="checkbox"/> Confusion              | <input type="checkbox"/> Nausea/Vomiting    |
| <input type="checkbox"/> Balance Problems      | <input type="checkbox"/> Cranial Nerve Deficit  | <input type="checkbox"/> Photophobia        |
| <input type="checkbox"/> Blurred Vision        | <input type="checkbox"/> Dizziness/Vertigo      | <input type="checkbox"/> Retrograde Amnesia |
| <input type="checkbox"/> Change in Personality | <input type="checkbox"/> Drowsiness             | <input type="checkbox"/> Tinnitus           |

NOTES: \_\_\_\_\_

DISPOSITION: Continue to Monitor by ATC    Continue to Monitor at Home, Follow-up with MD    To ER

#### FOLLOW-UP SYMPTOMS:

DATE: \_\_\_/\_\_\_/\_\_\_

TIME: \_\_\_:\_\_\_ AM PM

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Anisocoria            | <input type="checkbox"/> Concentration Problems | <input type="checkbox"/> Headache           |
| <input type="checkbox"/> Anterograde Amnesia   | <input type="checkbox"/> Confusion              | <input type="checkbox"/> Nausea/Vomiting    |
| <input type="checkbox"/> Balance Problems      | <input type="checkbox"/> Cranial Nerve Deficit  | <input type="checkbox"/> Photophobia        |
| <input type="checkbox"/> Blurred Vision        | <input type="checkbox"/> Dizziness/Vertigo      | <input type="checkbox"/> Retrograde Amnesia |
| <input type="checkbox"/> Change in Personality | <input type="checkbox"/> Drowsiness             | <input type="checkbox"/> Tinnitus           |

NOTES: \_\_\_\_\_

DISPOSITION: Continue to Monitor by ATC    Continue to Monitor at Home, Follow-up with MD    To ER

### KORT SPORTS MEDICINE CONCUSSION RETURN TO ACTIVITY PROTOCOL

- Day 1** – Athlete must be symptom-free for 24 hours.
- Day 2** – Athlete performs 2 light aerobic training sessions over 2 days for 20-30 minutes without return of symptoms.
- Day 3** – Athlete performs 2 interval training sessions over 2 days without return of symptoms. These sessions include body weight exercises intermixed with sprints.
- Day 4** – Athlete may start to practice without risk of contact. Level 4 is 2 days.
- 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.
- Continued return of symptoms during progression will result in return visit to physician for re-evaluation or referral to neurologist.
- Level 1 will be one week following second concussion in the same season. A third concussion in the same year (365 days) will require clearance from neurologist.

## Introduction

The Centers for Disease Control (CDC) estimates that there are approximately 300,000 cases of mild traumatic brain injury (MTBI) or concussions annually in the United States as the result of participation in sports. The Sports Concussion Institute estimates that 10 percent of athletes in contact sports suffer a concussion during a season. A 2006 report estimated that there were 92,000 cases of concussions in American high school sports annually, and that these rates seem to be increasing. Also of concern is the risk of repeated concussions and second impact syndrome to our young athletes. These two problems can have long lasting, and even terminal effects, on the individual. In order to have a standard method of managing concussions to Eastern High School athletes, the following guidelines are intended to serve as a written protocol for concussion management.

## Definitions

*Concussion or Mild Traumatic Brain Injury (MTBI)* - A concussion or 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 occur. Concussions can have serious and long-term health effects, even from a mild bump on the head. 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 mentally slow, lethargy, photosensitivity, sensitivity to noise, and a change in sleeping patterns. These symptoms may be temporary or long lasting.

*Second Impact Syndrome* – Second impact syndrome (SIS) refers to catastrophic events which may occur when a second concussion occurs while the athlete is still symptomatic and healing from a previous concussion. The second injury may occur within days or weeks following the first injury. Loss of consciousness is not required. The second impact is more likely to 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.

## Prevention Strategies

1. All headgear must be NOCSAE certified.
2. Make sure the headgear fits the individual.
3. For all sports that require headgear, a coach or appropriate designate should check headgear before use to make sure air bladders work and are appropriately filled. Padding should be checked to make sure they are in proper working condition.

4. Make sure helmets are secured properly at all times.
5. Mouth guards should fit and be used at all times.

## Evaluation for Concussion/MTBI

1. At time of injury, the Certified Athletic Trainer will evaluate the athlete to determine whether a concussion was sustained.
  - a. If the injury occurs during a road contest, the coach should seek assistance from the Certified Athletic Trainer covering the game.
  - b. If there is not a Certified Athletic Trainer covering the game, the coach should use their best judgment when determining the course of action for the athlete
  - c. **When In Doubt, Sit Them Out**
2. Observe athlete 15 to 20 minutes and re-evaluate.
3. Athlete does not return to a game or practice if he/she has symptoms that indicate they have sustained a concussion or have been determined to have a concussion by the Certified Athletic Trainer.
4. Doctor Referral and Home Instructions
  - a. All athletes who have sustained a concussion are required to be cleared by a physician before returning to activity.
    - i. The physician will make the determination as to when an athlete is allowed to return to activity.
    - ii. Though not required, the physician is asked to allow for a graduated return to activity via the KORT Post-Concussion Return to Activity Plan, based on the recommendations of the 3<sup>rd</sup> International Conference on Concussion in Sport.
  - b. All athletes who have sustained a suspected concussion should only be released to a responsible adult (preferably a parent or guardian) who is provided the Home Care Instructions and Concussion Management packet.
5. Guidelines for Physician Referral
  - a. Athletes exhibiting these symptoms should be referred immediately to the nearest emergency room, either via activation of EMS or in the personal vehicle of a parent or guardian:
    - i. Loss of consciousness on the field
    - ii. Deterioration of neurologic function
    - iii. Decreasing level of consciousness
    - iv. Decrease or irregularity in respiration
    - v. Decrease or irregularity in pulse
    - vi. Unequal, dilated or unreactive pupils
    - vii. Any signs or symptoms of associated injuries, spine or skull fracture or bleeding
    - viii. Mental status changes: lethargy, difficulty maintaining arousal, confusion, or agitation
    - ix. Seizure activity