

CONCUSSION INFORMATION - When in Doubt, Sit Them Out!

A concussion is a type of traumatic brain injury that interferes with normal function of the brain. All concussions are brain injuries. The WIAA recommends avoiding the use of nicknames like "ding" or "bell ringer" to describe concussion because those terms minimize the seriousness of concussion.

A concussion can be caused by blow to the head or even a blow to the body alone. The force moves or twists the brain in the skull. It is important to know that loss of consciousness is not required to have a concussion. In fact, less than 10% of athletes lose consciousness. A concussion is a very complex physiologic event that causes a problem with brain function not brain structure. Therefore, CT/CAT scan and MRI are usually normal in athletes with concussion. Imaging studies may be needed to rule out brain bleeds, but are not indicated in all head concussions.

Even what appears to be a mild blow to the head or body can cause the brain to suddenly shift or move. This motion can injure and damage brain cells. Research has shown that this damage may take up to 2 weeks to heal, but it can take longer.

There are unique concerns surrounding concussion in high school sports:

- 1) Adolescents are more vulnerable and get concussions more often
- 2) Adolescents take longer than adults to heal from concussion, unlike musculoskeletal injuries
- 3) Most high schools may not have access to a team physician or an athletic trainer for all of their teams & activities, thus the responsibility for identifying a possible concussion falls on athletes, coaches and parents
- 4) High school players can be reluctant to admit their symptoms for fear of removal from the contest

Concussion affects people in four areas of function:

- 1) Physical – This describes how they feel: headache, nausea, vomiting, dizziness, tired and loss of consciousness (which is uncommon in concussion).
- 2) Thinking – Poor memory and concentration, responds to questions more slowly and asks repetitive questions. Concussion can cause an altered state of awareness and thinking.
- 3) Emotions- A concussion can make a person more irritable or sad and cause mood swings.
- 4) Sleep – Concussions frequently cause trouble falling asleep and may wake athletes up overnight, which can make them more fatigued throughout the day.

Based on recent high school injury surveillance information, the following sports have the highest risk of concussion based on athletic exposures (practice + competition). Concussions occur most frequently in the following sports (in order): football, boys & girls ice hockey, girls lacrosse, girls soccer, boys lacrosse, wrestling, girls basketball, girls field hockey, boys soccer, softball and boys basketball.

Noticeable in this data is that the risk for girls is much higher than boys in the same sports; in fact soccer & basketball carry twice the risk for concussion in girls than boys.

Most importantly, concussion can happen to anyone in any sport. Concussions also occur away from organized sports in physical education class, on the playground, while skiing or snowboarding, and when involved in a motor vehicle collision.

Everyone involved with high school athletics must be alert for potential injuries on the field and be able to recognize signs and symptoms of concussion. While coaches are not expected to make a diagnosis of concussion, it is expected for coaches to be aware that their athletes may have a concussion and then hold them out of all activity until they are medically cleared by a healthcare provider. Signs are what can be seen by others, like clumsiness, while symptoms are what the injured player feels, like a headache. Remember, athletes should report their symptoms, but they may not unless they are asked and even then it is important to consider that athletes may not be telling the truth. Thus, it is important for schools to educate their athletes, coaching staff and parents in the preseason about the seriousness of concussion and the importance of athletes honestly reporting their symptoms and injuries.

These are some SIGNS concussion (what others can see in an injured athlete):

- Dazed or stunned appearance
- Change in the level of consciousness or awareness
- Confused about assignment
- Forgets plays
- Unsure of score, game, opponent
- Clumsy
- Answers more slowly than usual
- Shows behavior changes
- Loss of consciousness
- Asks repetitive questions or memory concerns

These are some of the more common SYMPTOMS of concussion (what an injured athlete feels):

- Headache
- Nausea
- Dizzy or unsteady
- Sensitive to light or noise
- Feeling mentally foggy
- Problems with concentration and memory
- Confused
- Slow

Injured athletes can exhibit many or just a few of the signs and/or symptoms of concussion. However, if a player exhibits any signs or symptoms of concussion, the responsibility is simple: remove them from participation. **“When in doubt sit them out.”**

It is important to notify a parent or guardian when an athlete is thought to have a concussion. Any athlete with a concussion must be seen by an appropriate health care provider before returning to practice (including weight lifting) or competition.

While all concussions are serious injuries, some injured athletes will require emergency care. Anytime you are uncomfortable with an athlete on the sideline, it is reasonable to activate the Emergency Medical System (911). The following are reasons to activate the EMS, as any worsening signs or symptoms may represent a medical emergency:

- 1) Loss of consciousness, this may indicate more serious head injury
- 2) Decreasing level of alertness
- 3) Unusually drowsy
- 4) Severe or worsening HA
- 5) Seizure
- 6) Persistent vomiting
- 7) Difficulty breathing

If you suspect a player may have a concussion, that athlete should be immediately removed from play. The injured athlete should be kept out of play until they are cleared to return by an appropriate health care provider. If the athlete has a concussion, that athlete should never be allowed to return to activity (conditioning, practice or competition) that day. Athletes with a concussion should never be allowed to return to activity while they still have symptoms.

A player with a concussion must be carefully observed throughout the practice or competition to be sure they are not feeling worse. Even though the athlete is not playing, never send a concussed athlete to the locker room alone and never allow the injured athlete to drive home.

Most concussions are temporary and they resolve without causing residual problems. However in the adolescent population, 10-20% of athletes that have a concussion have signs or symptoms that persist beyond 2 weeks. These symptoms of headache, difficulty concentrating, poor memory and sleep disturbances can lead to academic troubles among other problems. Concussion symptoms may even last weeks to months (post-concussion syndrome).

Allowing an injured athlete to return too quickly increases the risk for repeat concussion. Repeat concussion may cause Second Impact Syndrome. Second Impact Syndrome is a rare phenomenon which happens only in young athletes that causes rapid brain swelling and death. Repeat concussions may increase the chance of long term problems, such as decreased brain function, persistent symptoms and potentially chronic traumatic encephalopathy (a disorder that cause early degeneration of the brain similar to what is seen with Alzheimer's disease).

A major concern with concussion in the high school athlete is that it can interfere with school performance. The signs and symptoms of poor short-term memory, concentration and organization may temporarily turn a good student into a poor student. The best way to address this is to decrease the academic workload by potentially taking time off from school or going partial days. Injured athletes should have extra time to complete homework and tests, and they should be given written instructions for homework. New information should be presented slowly and repeated. Injured athletes will need time to catch up and may benefit from tutoring. If an athlete develops worsening symptoms at school, he/she should be allowed to visit the school nurse. The school and coaches should maintain regular contact with the injured athlete's parents to update progress.

Athletes with a concussion should return to full speed academics without accommodations before returning to sports.

Rest is the essential component of concussion treatment. Further contact is to be avoided at all costs due to risk of repeat concussion and Second Impact Syndrome. Physical exertion can also worsen symptoms and prolong concussion recovery- this includes aerobic conditioning and resistance training. Physical activity should not be started without authorization by an appropriate health care provider.

It is also important to remember that the athlete's concussion can interfere with work and social events (movies, dances, attending games, etc.). It is important for injured athletes to sleep as often as possible. It is also helpful for parents to decrease brain stimulation at home by limiting video games, computer time, text messaging, and TV/movies.

Neuropsychological testing has become more commonplace in concussion evaluation as a means to provide an objective measure of brain function. It is best used as a tool to help ensure safe return to activity and not as the only piece of the decision making process. Testing is currently done using computerized neuropsychological testing (example: ImPACT, Axon Sports) or through a more detailed pen and paper test administered by a neuropsychologist.

If neuropsychological testing is available, ideally a baseline or pre-injury test is obtained prior to the season. This baseline should be done in a quiet environment when the athlete is well rested. It is felt that baseline testing should be repeated every two years for the developing adolescent brain. If there is no baseline available, the injured athlete's scores can be compared to age established norms. The WIAA feels that neuropsychological testing can be a very useful tool with regard to concussion management.

RETURN TO PLAY

Current recommendations are for a stepwise return to play program. In order to resume activity, the athlete must be **symptom free** and off any pain control or headache medications. The athlete should be carrying a full academic load without any significant accommodations. Finally, the athlete must have clearance from an appropriate health care provider.

The program described below is a guideline for returning concussed athletes when they are symptom free. Athletes with multiple concussions and athletes with prolonged symptoms often require a very different return to activity program and should be managed by a physician that has experience in treating concussion.

The following program allows for one step per 24 hours. The program allows for a gradual increase in heart rate/physical exertion, coordination, and then allows contact. If symptoms return, the athlete should stop activity and notify their healthcare provider before progressing to the next level.

STEP ONE: About 15 minutes of light exercise: stationary biking or jogging

STEP TWO: More strenuous running and sprinting in the gym or field without equipment

STEP THREE: Begin non-contact drills in full uniform. May also resume weight lifting

STEP FOUR: Full practice with contact

STEP FIVE: Full game clearance

PREVENTION

There is nothing that truly prevents concussion. Education and recognition of concussion are the keys in reducing the risk of problems with concussion.

Proper equipment fit and use may reduce the risk of concussion. However, helmets do NOT prevent concussion. They are used to prevent facial injuries and skull fractures. Most importantly, proper technique for hitting/contact are vital, for example, athletes that lower their head while making a football tackle have a significantly higher risk for concussion and neck injuries. Athletes should never lead with their head or helmet.

All schools should have an Emergency Action Plan. This plan can be used for any medical emergency from a concussion to a neck injury to anaphylaxis (severe allergic reaction). There should be an emergency action plan for every practice and competition area which should be practiced yearly.

The WIAA encourages every member school to promote concussion education and bring about a positive change in concussion culture by discussing this topic with all teachers, coaches, athletes and parents.

Further reading and additional education material can be obtained through the following locations:

www.nfhs.com

www.nfhslearn.com (free concussion education video)

www.cdc.gov/concussion/headsup/high_school.html (Heads Up program)

www.wisportsconcussion.org (Wisconsin Sports Concussion Collaborative)

Possible Information Sheets:

Coaches: <http://www.wiaawi.org/Portals/0/PDF/Health/ConcussionCoaches.pdf>

Parents: <http://www.wiaawi.org/Portals/0/PDF/Health/ConcussionParents.pdf>

Parents: <http://www.wiaawi.org/Portals/0/PDF/NFHSParentGuide.pdf>

Athletes: <http://www.wiaawi.org/Portals/0/PDF/Health/ConcussionAthletes.pdf>

Order CDC materials: <http://wwwn.cdc.gov/pubs/ncipc.aspx#tbi4>



KNOW YOUR CONCUSSION ABCs

Assess the situation Be alert for signs and symptoms Contact a health care provider

Wisconsin Concussion Fact Sheet for Athletes

What is a concussion?

A concussion is a type of brain injury that changes the way the brain normally works. A concussion is caused by a bump, blow, or jolt to the head. Concussions can also occur from a blow to the body that causes the head and brain to move rapidly back and forth. Even what seems to be a mild bump to the head can be serious. Concussions can occur during practices or games in any sport or recreational activity.

What are the signs and symptoms of a concussion?

Unlike a broken arm, you can't see a concussion. Most concussions occur without loss of consciousness. Signs and symptoms of concussion can show up right after an injury or may not appear or be noticed until hours or days after the injury. It is important to watch for changes in how you are feeling, if symptoms are getting worse, or if you just "don't feel right." If you think you or a teammate may have a concussion, it is important to tell someone.

COMMON SYMPTOMS OF A CONCUSSION:

Tell someone if you see a teammate with any of these symptoms:

- Appears dazed or stunned
- Forgets sports plays
- Is confused about assignment or position
- Moves clumsily
- Answers questions slowly
- Repeats questions
- Can't recall events prior to the hit, bump, or fall
- Can't recall events after the hit, bump, or fall
- Loses consciousness (even briefly)
- Shows behavior or personality changes

Tell someone if you feel any of the following:

Thinking/Remembering:

- Difficulty thinking clearly
- Difficulty concentrating or remembering
- Feeling more slowed down
- Feeling sluggish, hazy, foggy, or groggy

Physical:

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Fatigue or feeling tired
- Blurry or double vision
- Sensitivity to light or noise
- Numbness or tingling
- Does not "feel right"

Emotional:

- Irritable
- Sad
- More emotional than usual
- Nervous

Changes in your normal sleep patterns.



Materials adapted from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention



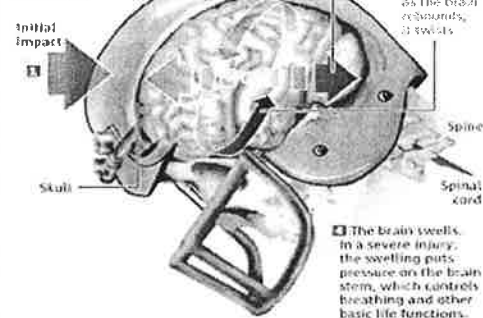
WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION



- *Wear the proper equipment for each sport and make sure it fits well.
- *Follow the rules of the sport and the coach's rule for safety.
- *Use proper technique.

Anatomy of a concussion

Here is what happens to the brain to cause a concussion:



Source: Dr. Jay Wessberg of Kaiser Permanente Medical Care Neurology, American Academy of Neurology, The Human Body
MARK NOLAN / THE SEATTLE TIMES

If you have a suspected concussion, you should NEVER return to sports or recreational activities on the same day the injury occurred. You should not return to activities until you are symptom-free and a health care provider experienced in managing concussion provides written clearance allowing return to activity. This means, until permitted, not returning to:

- Physical Education (PE) class,
- Sports conditioning, weight lifting, practices and games, or
- Physical activity at recess.

What should you do if you think you have a concussion?

1. Tell your coaches and parents right away. Never ignore a bump or blow to the head even if you feel fine. If you experience symptoms of a concussion, you should immediately remove yourself from practice/play. Tell your coach right away if you think you or one of your teammates might have a concussion.
2. Get evaluated by a health care provider. A health care provider experienced in evaluating for concussion can determine if you have a concussion, help guide management and safe return to normal activities, including school (concentration and learning) and physical activity. If you have been removed from a youth athletic activity because of a suspected or confirmed concussion or head injury you may not participate again until evaluated by a health care provider and you receive written clearance to return to activity. You must provide this written clearance to your coach.
3. Give yourself time to get better. If you have had a concussion, your brain needs time to heal. While your brain is still healing, you are much more likely to have a repeat concussion. It is important to rest until you receive written clearance from a health care provider to return to practice and play.

Why should you tell someone about your symptoms?

1. Your chances of sustaining a life altering injury are greatly increased if you aren't fully recovered from a concussion or head injury.
2. Practicing/playing with concussion symptoms can prolong your recovery.
3. Practicing/playing with a concussion can increase your chances of getting another concussion.
4. Telling someone could save your life or the life of a teammate!

Tell your teachers

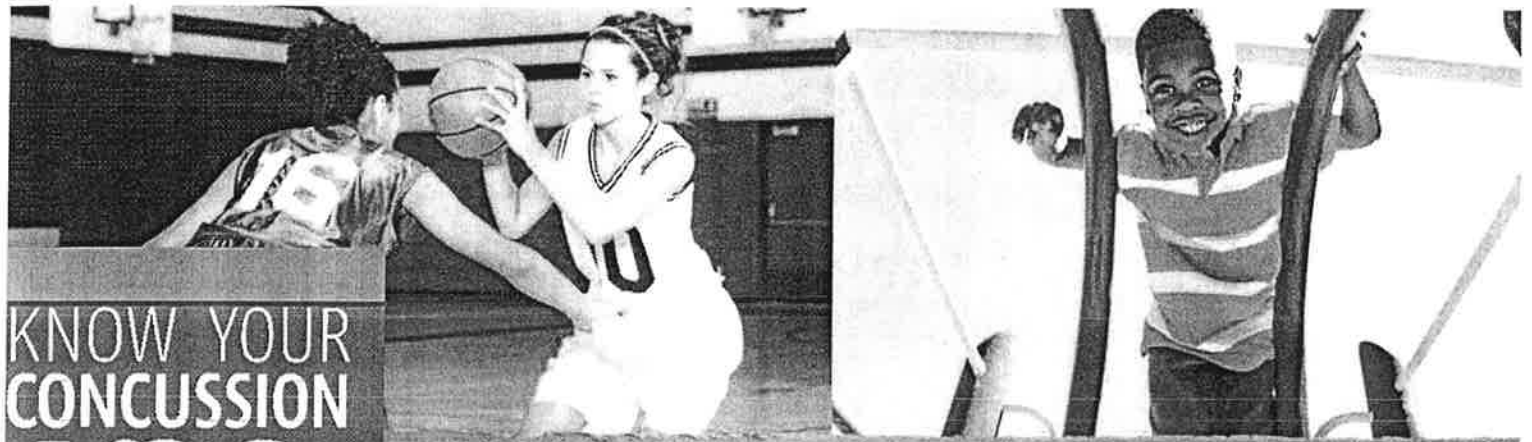
Tell your teachers if you have suffered a concussion or head injury. Concussions often impair school performance. In order to properly rest, many students often need to miss a few days of school immediately following a concussion. When you return to school after a concussion you may need to:

- Take rest breaks as needed,
- Spend fewer hours at school,
- Have more time allowed to take tests or complete assignments,
- Suspend your physical activity (PE class and/or recess)
- Suspend your extracurricular activities (band, choir, dance, etc)
- Reduce time spent reading, writing, or on the computer.

To learn more about concussions, go to:

www.cdc.gov/Concussion; www.wiaawi.org; www.nfhs.org





KNOW YOUR CONCUSSION ABCs

Assess the situation Be alert for signs and symptoms Contact a health care provider

Wisconsin Concussion Fact Sheet for Parents

What is a concussion?

A concussion is a type of brain injury that changes the way the brain normally works. A concussion is caused by a bump, blow, or jolt to the head and can also occur from a blow to the body that causes the head and brain to move rapidly back and forth. Even what seems to be a mild bump to the head can be serious.

Concussions can have a more serious effect on a young, developing brain and need to be addressed correctly.

What are the signs and symptoms of a concussion?

You can't see a concussion. Signs and symptoms of concussion can show up right after an injury or may not appear or be noticed until hours or days after the injury. It is important to watch for changes in how your child or teen is acting or feeling, if symptoms are getting worse, or if s/he just "doesn't feel right." Most concussions occur without loss of consciousness.

If your child or teen reports **one or more** of the symptoms of concussion listed below, or if you notice the symptoms yourself, seek medical attention right away. Children and teens are among those at greatest risk for concussion.

SIGNS AND SYMPTOMS OF A CONCUSSION

SIGNS OBSERVED BY PARENTS OR GUARDIANS

- Appears dazed or stunned
- Is confused about events
- Answers questions slowly
- Repeats questions
- Can't recall events prior to the hit, bump, or fall
- Can't recall events after the hit, bump, or fall
- Loses consciousness (even briefly)
- Shows behavior or personality changes
- Forgets class schedule or assignments

SYMPTOMS REPORTED BY YOUR CHILD

Thinking/Remembering:

- Difficulty thinking clearly
- Difficulty concentrating or remembering
- Feeling more slowed down
- Feeling sluggish, hazy, foggy, or groggy

Physical:

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Fatigue or feeling tired
- Blurry or double vision
- Sensitivity to light or noise
- Numbness or tingling
- Does not "feel right"

Emotional:

- Irritable
- Sad
- More emotional than usual
- Nervous

Sleep*:

- Drowsy
- Sleeps less than usual
- Sleeps more than usual
- Has trouble falling asleep

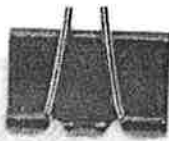
*Only ask about sleep symptoms if the injury occurred on a prior day

Materials adapted from U.S. Dept of HHS Centers for Disease Control and Prevention



WISCONSIN DEPARTMENT OF
PUBLIC INSTRUCTION





DANGER SIGNS

Be alert for symptoms that worsen over time. Your child or teen should be seen in an emergency department right away if s/he has:

- One pupil (the black part in the middle of the eye) larger than the other
- Difficult to arouse
- Severe headache or worsening headache
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Difficulty recognizing people or places
- Increasing confusion, restlessness, or agitation
- Unusual behavior
- Loss of consciousness (even a brief loss of consciousness should be taken seriously)



Children and teens with a suspected concussion should NEVER return to sports or recreation activities on the same day the injury occurred. They should delay returning to their activities until a health care provider experienced in evaluating for concussion says they are symptom-free and provide written clearance to return to activity. This means, until permitted, not returning to:

- Physical Education (PE) class,
- Sports conditioning, weightlifting, practices and games, or
- Physical activity at recess.

What should I do if my child or teen has a concussion?

1. Seek medical attention right away. A health care provider experienced in evaluating for concussions can direct concussion management and review when it is safe for your child to return to normal activities, including school (concentration and learning) and physical activity. If your child or teen has been removed from a youth athletic activity because of a suspected or confirmed concussion or head injury, they may not participate again until he/she is evaluated by a health care provider and receives written clearance to participate in the activity from the health care provider.
2. Help them take time to get better. If your child or teen has a concussion, her or his brain needs time to heal. Your child or teen should limit activities while he/she is recovering from a concussion. Exercising or activities that involve a lot of concentration, such as studying, using a computer, texting, or playing video games may worsen or prolong concussion symptoms (such as headache or tiredness). Rest will help your child recover more quickly. Your child may become upset that he/she cannot participate in activities.

3. Together with your child or teen, learn more about concussions. Talk about the potential long-term effects of concussion and the problems caused by returning too soon to daily activities to quickly (especially physical activity and learning/concentration).

How can I help my child return to school safely after a concussion?

Help your child or teen get needed support when returning to school after a concussion. Talk with your child's school administrators, teachers, school nurse, coach, and counselor about your child's concussion and symptoms. Your child may feel frustrated, sad, and even angry because he/she cannot keep up with schoolwork and learn as well after a concussion. Your child may also feel isolated from peers and social networks. Talk often with your child about these issues and offer your support and encouragement. As your child's symptoms decrease, the extra help or support can be removed gradually. Children and teens who return to school after a concussion may need to:

- Take rest breaks as needed,
- Spend fewer hours at school,
- Be given more time to take tests or complete assignments,
- Receive help with schoolwork, and/or
- Reduce time spent reading, writing, or on the computer.

To download this fact sheet in Spanish, please visit: cdc.gov/headsup/index.html. Para obtener una copia electrónica de esta hoja de información en español, por favor visite: cdc.gov/headsup/index.html

To learn more about concussions go to:

CDC.gov/headsup/index.html;

www.wiaawi.org;

www.nflhs.org



Wisconsin Concussion Law

Overview and Important Resources

1. First and foremost: **When in Doubt Sit Them Out!!** If you are unsure of whether or not your child has sustained a concussion, be cautious and remove them from the activity.
2. If your child is diagnosed with concussion like symptoms, they will not be allowed to participate in practice or games until they are cleared by a physician. An Athletic Trainer can not clear them to play. (Expect a three to five day minimum of no participation.)
3. Your child will not be able to participate in any athletic event until you and your child have both read and signed the release stating that you an understanding of what a concussion is and what symptoms to look for. This is not an option.
4. You and your child will need to read and sign this release for each sport that he/she participates in. (Example: 3 sports equals 3 sheets that will need to be signed.)
5. Barneveld has hired athletic training services through Upland Hills and our athletes will be given an ImPACT test to determine baseline brain activity in the event they should receive a concussion at some time during the year. This data is then compared with data after a concussion and used as one tool to determine if brain functioning has returned to baseline or close to baseline, before clearing an athlete to play.
6. Finally, your child's safety and well-being is what we are concerned with. Repetitive concussions has shown to shorten life spans in NFL players, diminished cognitive abilities in adults, cause early onset of Alzheimer's like symptoms, and cause depression. Although it may seem important to "Keep them in the game," the reality is we want to "Keep them in the game of life."

Concussion Resources

The resources listed below can be found at: <http://www.wiaawi.org/Health/Concussions.aspx>

WIAA Medical Policies & Procedures Guide

Free CDC Tool Kit on Concussion

CDC – Concussion in Youth Sports

Locker Room Poster

www.wisportsconcussion.org

NFHS Concussion Brochure

NFHS Parents Guide to Concussion

NFHS Concussion Physiology

NFHS Gender Differences

Heads Up to Schools Athlete Fact Sheet

Heads Up to Schools Checklist

Heads Up to Schools Coaches Guide

Heads Up to Schools Parents Fact Sheet

Heads Up to Schools Teachers Fact Sheet

Heads Up to Health-Care Professionals Course

Other Resources

Sport Concussion Institute- <http://www.concussiontreatment.com/concussionfacts.html>