Definition
Concussions are a type of Traumatic Brain Injury (TBI) that alters the function of the brain. A TBI is caused by a direct blow to the head, a fall landing on the head, or from an object striking the body that causes a force to the head that bounces the brain uncontrollably back and forth inside of the skull.

Frequency of Occurrence
According to the Centers for Disease Control (CDC), TBI’s make up a third (30.5%) of all injury-related deaths in the United States. Most injury-related deaths occur due to automobile accidents, but 75% of TBI’s causing deaths result from concussions. In 2011 the CDC estimated that as many as 4 million sports-related and recreation-related concussions occur in the United States each year.

Who’s at Risk
The ages where concussions are most prevalent are young children (0 to 4 years), older adolescents (15 to 19 years), and older adults (+65 years). The young children and older adults suffer many concussions due to their lack of balance during their activities of daily living. The 15 to 19 year old group’s high population of head trauma can be attributed to vehicle and sports accidents. In the world of athletics, high school football players rank first in most concussions reported. Girls’ high school soccer comes in second place for most concussions reported. The Journal of Athletic Training showed that girls playing high school soccer suffer 68% more concussions than high school boys playing soccer. Return-to-participation studies also showed that girls took much longer than boys for complete concussion recovery.

Detecting a Concussion
If an athletic trainer, coach, referee, teammate, or parent notices an athlete showing any of the behavioral changes listed below they should suspect that the athlete has a concussion and take immediate actions to remove them from play and seek immediate medical care from a health care professional.
**Signs** are observable things or behaviors that others notice about an injured athlete.

- Appears dazed or stunned
- Is unsure of game, score, or opponent
- Loses consciousness even for a brief period of time
- Is confused about assignment or position
- Moves clumsily
- Answers questions slowly
- Shows behavioral or personality changes like aggression or withdrawing
- Can't recall events that occurred before and/or after a hit or fall
- Forgets plays

**Symptoms** are what the athlete feels and can report to others.

- Headache or “pressure” in the head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light and/or noise
- Feeling sluggish, lethargic, foggy, groggy, or hazy
- Problems with concentration or memory recall
- Confusion
- Just “doesn’t feel right.”

**Myth Busting**
Contrary to popular belief, an athlete does not have to lose consciousness to have suffered a concussion.

**NO ATHLETE SHOULD RETURN TO PARTICIPATION WHILE STILL EXPERIENCING SYMPTOMS NO MATTER HOW SMALL THEY MAY SEEM.**
Complications that can come with Concussions
Setbacks from concussions are typically seen in the individual’s involvement in academic and sports activities and seldom have long-term consequences. While a student athlete is still experiencing symptoms of a concussion it is sometimes necessary to reduce the workload of the brain to help it fully recover. This is often accomplished by giving the student athlete extensions on tests and assignments in class; and, if necessary partial or full removal from classes until symptoms have subsided. If an athlete needs to be removed from the classroom it is necessary that they rest from electronic devices such as cell phones, computers, video games, and television. There are two main complications from concussions that are much more serious and far less common. The first is Post Concussion Syndrome, and the second is Second Impact Syndrome.

**Post Concussion Syndrome** is diagnosed when symptoms from a concussion are persistent over a period of months to years. It can often be mistaken for mononucleosis because of the constant headaches and extreme fatigue. The symptoms of Post Concussion Syndrome include:

- Chronic (long term) headaches
- Fatigue
- Sleep difficulties
- Personality changes
- Sensitivity to light and/or noise
- Nausea and dizziness when standing quickly
- Problems with short-term memory, problem solving, and academic functioning
- Seizures and/or convulsions
- Sustained amnesia
- Fatigue
- Sleep difficulties

**Second Impact Syndrome** occurs when an athlete who already has a concussion experiences a second concussion before the signs and symptoms of the first concussion have resolved. This usually happens within one week of the initial injury because it was unreported or unrecognized and the athlete continued to play. When a second concussion is sustained the brain begins to swell and fill the skull. The athlete will usually collapse and lose consciousness within seconds to a minute after the impact. Control of breathing, arms and legs, and eye movement are lost and blood pressure and heart rates will begin to deteriorate. This is cause for immediate transportation to emergency facilities for surgical treatment.
Louisiana State Law on Concussion

The value of concussion education and management has been acknowledged by the Louisiana State Legislature. They recognized the importance of protecting Louisiana’s youth and acted on their knowledge by creating the Louisiana Youth Concussion Act 314 of 2011. This act is applicable to public and nonpublic schools including high schools, middle schools, junior high schools, elementary school. Additionally, this act also extends to private clubs or public recreation facilities including athletic leagues that sponsor youth athletic activities. The concussion act states that these athletic leagues shall:

1) Provide information regarding the risks of concussions and continued play after a concussion to the coaches, officials, volunteers, athletes, and athlete’s parents or legal guardians.

2) Require each coach, whether employed or volunteer, and officials to complete an annual concussion recognition course with information on recognizing a concussion, the need for medical attention to an athlete with a concussion, and the danger associated with continued play after a concussion.

3) Require each parent or legal guardian to sign a concussion and head injury information sheet that states the return-to-participation requirements for concussions for their child to participate in the league’s athletic activity.

National Athletic Trainers’ Association
Best Practices Recommendations

In August of 2013, an Inter-Association task force comprised of 14 major healthcare organizations focused on the prevention of sudden death in secondary schools. The result of their studies on catastrophic brain and neck injuries was published in the Journal of Athletic Training. In this article they emphasized the following:

1) Any secondary school sponsoring contact or collision sports, including soccer should employ an Athletic Trainer.

2) When evaluating a concussion the assessment tools for baseline testing should be used in the clinical decision-making process.

3) The Team Physician and Athletic Trainer should have a neuropsychologist on staff to aid with diagnosis and treatment.

4) Coaches and players should undergo a concussion education course annually.
5) Team Physicians and Athletic Trainers should undergo concussion education focusing on updates to the diagnosis and treatment of a concussion.

6) A comprehensive emergency action plan for immediate care of potential brain and spine injuries should be in place.

7) No secondary school athlete with a suspected concussion should be permitted to return to a practice, game, or activity on the same day.

8) If the Team Physician or Athletic Trainer is not present at the time of injury the coach, parent/legal guardian, or responsible adult who is overseeing the athletic event should withdraw the athlete from competition and have them seek appropriate medical care in a timely manner.

9) Oral and written instructions for home care of a concussion should be given to the parents/legal guardians of a concussed athlete.

10) Clearance for an athlete to return to play is given only by a Medical Doctor or Doctor of Osteopathic medicine.

11) The Athletic Trainer and Team Physician should work together to provide the athlete with a graduated return to play process.

Louisiana High School Athletic Association

Although the Baton Rouge Soccer Club doesn't fall under the rules or regulations of the LHSAA, their recommendations are often consulted because of the similar nature of competitive sports competition for the youth and high school population. In 2012, the LHSAA adopted the following rules for high school competition:

1) No athletes can Return To Play (RTP) the same day of a concussion.

2) The athlete with a suspected concussion must seek medical attention from a health care professional (Medical Doctor or Doctor of Osteopathic medicine). If neither of these is available to the athlete at the time of injury the head coach will act as decision maker.

3) The athlete diagnosed with a concussion must be cleared for RTP in writing from a Medical Doctor or Doctor of Osteopathic medicine.

4) RTP should be graduated and follow a protocol approved by the Medical Doctor or Doctor of Osteopathic medicine overseeing the athlete’s treatment plan.
**BRSC’s Steps to Protect our Athletes**

We have hired a full-time Certified Athletic Trainer who will provide immediate care for concussed athletes. We also require coaches at our competitive and recreational levels, parents, and officials to complete a concussion education course focused on recognizing a concussion. This education enables all members of our organization to identify and reduce the harmful effects caused by concussions.

**Pathway of a BRSC Player with a Concussion**

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<td>Graduated Return to Play Process</td>
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**Step 1:** The athlete suffers some form of contact in a practice or game and is experiencing signs and/or symptoms of a concussion.

**Step 2:** The athlete is promptly removed from the athletic activity and is evaluated by the Certified Athletic Trainer at the time of the injury, 20 to 30 minutes after the injury, and again one hour following injury to thoroughly examine and monitor the athlete’s symptoms. If the athlete shows any signs or symptoms requiring emergency medical care at any time during these monitoring periods, the athlete will be transported to the nearest emergency health care facility.

**Step 3:** Once the athlete has been symptom free for a minimum of 24 hours he/she will be allowed to return to class/academic activities and/or work.

**Step 4:** Once the athlete has been symptom free for a minimum of 24 hours after completing Step 3, a gradual return to play process is started for athletic activity. This process is outlined in the following stages:

**Stage 1:** Light aerobic activity which may include walking, jogging, or biking for 10-20 minutes. If the athlete remains symptom free during and after this step they will graduate to Stage 2 of the return to play process. If at any time the athlete shows symptoms they must go back to Step 3 of the concussion treatment plan until symptoms have subsided.
**Stage 2:** Sports specific training which may include speed ladder exercises, agility exercises, plyometric exercises, and/or running with increased speed and distance. All activity in this step must be non-contact. If the athlete remains symptom free during and 24 hours after this stage they will graduate to Stage 3 of the return to play process. If at any time the athlete shows symptoms they must go back to Step 3 of the concussion treatment plan until symptoms have subsided.

**Stage 3:** Non-contact training drills which may include dribbling, foot work, shooting, and/or passing. All activity in this step must be non-contact which means the athlete cannot have a defensive pressure while performing any of the tasks listed above. The athlete may not participate in a training drill by putting any other athlete under defensive pressure. If the athlete remains symptom free during and 24 hours after this stage they will graduate to Stage 4 of the return to play process with written consent from their treating physician. If at any time the athlete shows symptoms they must go back to Step 3 of the concussion treatment plan until symptoms have subsided.

**Stage 4:** Full contact training which has no restrictions on the athlete while participating in their team training. If the athlete remains symptom free during and 24 hours after this stage they will graduate to Stage 5 of the return to play process. If at any time the athlete shows symptoms they must go back to Step 3 of the concussion treatment plan until symptoms have subsided.

**Stage 5:** Return to competition which has no restrictions on the athlete during games. If the athlete remains symptom free during and after this stage they will graduate from the Return To Play process and will continue to play full contact. If at any time the athlete shows symptoms they must go back to Step 3 until symptoms have subsided.

**Step 5:** The athlete has completed both the concussion treatment plan and the full return to play process. Monitoring and follow up appointments may be recommended for a period of time after full return to play has been granted for continued care of the athlete.
By signing below it is acknowledged that we, the parent/legal guardian and the athlete(s), have read and understand the Concussion Education Program provided by the Baton Rouge Soccer Club Sports Medicine Program and agree to each of the following statements:

- It is the responsibility of the athlete and parent/legal guardian to report any injuries and/or illnesses to the coach, athletic trainer, and/or team physician, especially if it is a head or neck injury.

- If a teammate is showing or experiencing concussion symptoms the athlete is responsible for reporting their injury to the coach, athletic trainer, and/or team physician.

- Concussions can affect the ability to perform activities of daily living such as balance, memory, sleep, and physical activity as well as academic activity.

- No athlete will return to play in a game or practice if he/she has signs and/or symptoms of a concussion.

- If an athlete does return to play before the brain has time to heal there is a possibility for permanent brain damage or death.

- Each athlete who has sustained a concussion must be cleared to return to play by a Medical Doctor or Doctor of Osteopathic medicine.

____________________  ________________________  ________________________  ________________________
Signature of Athlete       Date                  Signature of Athlete       Date

____________________  ________________________
Printed Name of Athlete   Printed Name of Athlete

____________________  ________________________  ________________________  ________________________
Signature of Athlete       Date                  Signature of Parent/Legal Guardian       Date

____________________  ________________________
Printed Name of Athlete   Printed Name of Parent/Legal Guardian
Resources and References
(click image for reference materials)

Athletes, Parents, Coaches, Officials
Sports Medicine Team Members
CDC Concussion Information

Personal Testimony Video
Personal Testimony Document
Parents’ Testimony Video

Louisiana Concussion Act 314
Best Practices Recommendations
What You Need To Know