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CONCUSSION IN SPORT

Think Safe. Play Safe. Stay Safe.

Sport
SINGAPORE

LIVE BETTER THROUGH SPORT

A Sport Safe Singapore

Sport Singapore (SportSG) recognises that safety must be a fundamental component of our sporting culture and a prerequisite for every healthy lifestyle. It is tasked to promote safety throughout Singapore's sporting community and to inculcate a safety-first mentality in the minds of every stakeholder. Therefore, SportSG has set a corporate goal of zero injuries, in the belief that all accidents are preventable. Emphasising the need for personal accountability, SportSG also urges people to be responsible for the safety of others. For more information, please visit sportsingapore.gov.sg/sports-education/sports-safety



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Another initiative by the Safety Management Division, ActiveSG

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INTRODUCTION

Concussion is a brain injury caused by a direct blow to the head, face or neck, or impulsive forces to the head due to trauma elsewhere in the body, which disrupts the way the cells in the brain normally work.

Although sport offers important exercise and team building opportunities for young people, there is also a risk of getting injured. Concussions can occur in any organised or unorganised sport or recreational activity. However, the risk is greatest in contact sports environment where collisions are common and also in some non-contact sports where collisions frequently occur.

Some coaches in youth sports programmes may have minimal exposure to the sport itself and/or do not have formal coaching qualifications in that sport. More often than not, they are not certified under the Singapore Coach Excellence (SG-Coach) Programme – a national standard for coaching qualifications and not a member of the National Registry of Coaches (NROC). Coaches play an important role in sharing this guide with athletes and parents as they are in the front line in the effort to identify and respond to concussions.

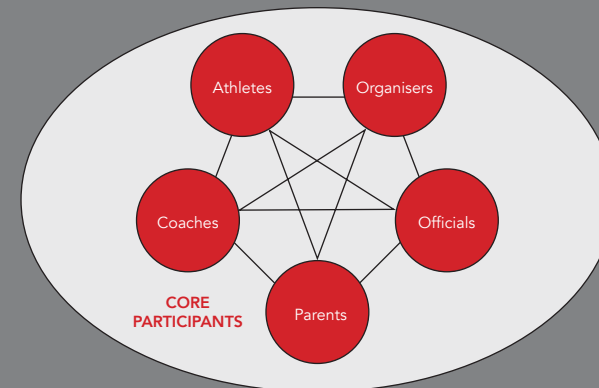
Through this guide, we aim to disseminate information to help coaches, teachers, athletes and parents:

- Increase their awareness and knowledge about concussion and prevent this injury
- Learn the signs and symptoms of concussion
- Take the appropriate steps to respond to a known or suspected concussion



TARGET AUDIENCES

Stakeholders of Sports



Coaches and teachers are the primary audiences for this initiative. They play a vital role in protecting their athletes from injury and influencing their behaviour during athletic activities.

Secondary audiences for this effort are parents and athletes, who are key partners in recognising and responding to concussion. Parents must recognise the seriousness of a concussion, know the signs and symptoms after an injury has occurred, support their child in taking the time needed to recover, and ensure that they are seen by a health care provider.

Athletes also need to understand the symptoms and signs of serious concussion and appreciate the importance of reporting an injury accurately and fully when it occurs. There are many myths about concussions and pressures on youth athletes to succeed that could prevent athletes from reporting their full symptoms.

WHAT IS A CONCUSSION?



The Facts

- A concussion is a brain injury
- All concussions are serious
- Concussions can occur without loss of consciousness
- All athletes with any new symptoms following a head injury:
 - Must be removed from playing/training
 - Must not return to playing/training until symptom-free
 - Should be assessed by a medical practitioner
- Concussions can occur in any sport
- Recognition and proper management of concussions when they first occur can help prevent further injury or even death

A concussion is an injury that changes how the cells in the brain normally work. It is caused by a blow to the head or body that causes the brain to move rapidly inside the skull. Even what seems to be a mild bump or blow to the head can be serious. Concussions can also result from a fall or from athletes colliding with each other or with obstacles, such as a goalpost.

The potential for concussions is greatest in contact sport environment where collisions are common. However, concussions can occur in any organised or unorganised sport or recreational activity.

Recognising a possible concussion

To help recognise a concussion, you should watch for the following two things in your athletes:

1. A forceful blow to the head or body that results in rapid movement of the head. This could be from a collision with another player and/or contact with the ground or other objects.
2. Any change in the athlete's behaviour, thinking and/or physical functioning.

SIGNS AND SYMPTOMS

Signs	Symptoms
<ul style="list-style-type: none">• Appears dazed or stunned• Is confused about assignment or position• Forgets sports plays• Is unsure of game, score or opponent• Moves clumsily• Answers questions slowly• Loses consciousness (even briefly)• Shows behavioural or personality changes• Can't recall events prior to hit or fall• Can't recall events after hit or fall	<ul style="list-style-type: none">• Headache or 'pressure' in head• Nausea or vomiting• Balance problems or dizziness• Double or blurry vision• Sensitivity to light• Sensitivity to noise• Feeling sluggish or groggy• Concentration or memory problems• Confusion• Doesn't 'feel right'• Seizure (Fit)

Athletes who experience any of these signs or symptoms after a bump or blow to the head should be immediately taken out from play. This is known as Recognise and Remove. These athletes should also be kept from further play and/or subsequent training/games until given permission to return to play by a healthcare professional with experience in evaluating for concussion. The Graduated Return to Play (GRTP) should be followed as advised by the sport's international federations or as advised by a healthcare professional. Signs and symptoms of concussion can last from several minutes to days, weeks, months or even longer in some cases.

Remember, you cannot see a concussion, and some athletes may not experience and/or report symptoms until hours or days after the injury. If you have any suspicion that an athlete has a concussion, you should keep the athlete out of the game and practice/training.

What questions do you ask adults and adolescents?

Failure to answer **any** of these questions correctly is a strong indication of concussion or at least suspected concussion.

1. "What venue are we at today?"
2. "Which half is it now?"
3. "What team did you play last week/game?"
4. "Did your team win the last game?"

What questions do you ask children (12 years and under)?

Failure to answer **any** of these questions correctly is a strong indication of concussion or at least suspected concussion.

1. "Where are we now?"
2. "Is it before or after lunch?"
3. "What was your last lesson/class?" or "Who scored last in this game?"
4. "What is your teacher's name?" or "What is your coach's name?"

Recognise and Remove immediately even if in doubt. It is far safer to be safe than sorry.

PREVENTION AND PREPARATION TIPS FOR COACHES

As a coach, you can play a key role in preventing concussions and responding to them properly when they occur. Here are some steps you can take to ensure the best outcome for your athletes and the team:

Educate Athletes and Parents about concussion

Talk with athletes and their parents about the dangers and potential long-term consequences of concussion. Explain your concerns about concussion and your expectations of safe play to athletes, parents, assistant coaches and teachers.

Insist that Safety Comes First

- Teach athletes play safe techniques and encourage them to follow the rules of play
- Encourage athletes to practise good sportsmanship at all times
- Make sure athletes wear the right protective equipment for their activity (such as helmets, padding, shin guards, and eye and mouth guards). Protective equipment should fit properly, be well maintained and be worn consistently and correctly
- Review the checklist (for coaches, parents, athletes) with your team to help them recognise the signs and symptoms of a concussion



Photo by Andrew JK Tan/SportSG

Teach Athletes and Parents that they should not play with a concussion

Sometimes athletes and parents wrongly believe that it shows strength and courage to play while injured. Discourage others from pressuring injured athletes to play. Don't let athletes persuade you that they are 'just fine' after they have sustained any bump or blow to the head. Ask if the athletes have ever had a concussion. Keep a detailed record of all concussion injuries of your athletes.

Prevent long-term problems

A subsequent concussion that occurs before the brain recovers from the first – usually within a short period of time – can slow down recovery or increase the likelihood of having long-term problems. In rare cases, repeat concussions can result in brain swelling, permanent brain damage, and death. This more serious condition is called Second Impact Syndrome (SIS).³ SIS occurs in athletes who sustain a second head injury before full-recovery from the initial one.⁴ This syndrome differs from concussion; within 15 seconds to minutes of receiving a subsequent head trauma, minor or major, the athlete collapses to the ground, goes into semi-comatose state and the respiratory system starts to degenerate.

During SIS, the brain's blood supply loses its auto-regulatory functions, leading the brain to swell i.e. herniation. Various parts of the brain are being put through extreme pressure, cutting off the blood supply to those areas. Chances of survival are slim when SIS has taken place.⁵

Keep athletes with known or suspected concussion from play, games and training until they have been evaluated and given permission to return to play by a healthcare professional with experience in evaluating for concussion. Remind your athletes "It's better to miss one game than to not be able to ever play again".

ACTION PLAN



What a Coach should do when a concussion is suspected

1) Remove the athlete from play – Recognise and Remove

Look for signs and symptoms of a concussion if your athlete has experienced a bump or blow to the head. Athletes who experience signs or symptoms of concussion should be taken out of the play immediately and not be allowed to return to play. When in doubt, keep the athlete out of play.

2) Ensure that the athlete is evaluated immediately by and appropriate healthcare professional

Don't try to judge the severity of the injury yourself. Healthcare professionals have a number of methods that they can use to assess the severity of concussions. As a coach, recording the following information can help healthcare professionals in assessing the athlete after the injury:

- Cause of the injury and force of the bump or blow to the head
- Any loss of consciousness (passed out/knocked out) and if so, how long
- Any memory loss immediately following the injury
- Any seizures immediately following the injury
- Number of previous concussions (if any)



Photo by Andy Chua/SportSG

3) Inform the athlete's parents or guardians about the possible concussion and give them the fact sheet on concussion

Make sure they know that the athlete should be seen by a healthcare professional experienced in evaluating for concussion. Ask that the parents/guardians keep you updated on the injury. Follow up regularly if necessary.

4) Allow the athlete to return to play only with permission from a health care professional with experience in evaluating for concussion

International Federations have issued the Graduated Return to Play (GRTP) protocol to their respective sports. These guidelines should be adhered to strictly. If a repeated concussion occurs before the brain has recovered fully, this will either result in a slow recovery or increase the likelihood of having long-term problems. Prevent common long-term problems and the rare Second Impact Syndrome (SIS) by delaying the athlete's return to the activity until the athlete receives appropriate medical evaluation and approval to return to play.

PREVENTION AND PREPARATION TIPS FOR ATHLETES

Tell your Coaches and Parents

Never ignore a bump or blow to the head even if you feel fine. Also, tell your coach if one of your teammates may have a concussion.

Get a medical check-up

A doctor or a healthcare professional can determine if you have a concussion and when you are able to return to play.

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 second concussion. Second or subsequent concussions can cause damage to your brain. It is important to rest until you get approval from a doctor or healthcare professional to return to play.

How can I prevent a concussion?

Every sport is different, but there are steps you can take to protect yourself:

- Follow your coach's rule for safety and the rules of the sport
- Practise good sportsmanship at all times
- Use the proper sports equipment, including personal protective equipment (such as helmets, padding, shin guards, and eye and mouth guards). For the equipment to protect you, it must be:
 - The right equipment for the game, position or activity
 - Worn correctly and well fitting
 - Used every time you play
 - Replaced when it is worn out



Photo by Andrew Ho/SportSG

Players with concussion or suspected concussion:

Failure to answer **any** of these questions correctly is a strong indication of concussion or at least suspected concussion.

- Should not be left alone in the first 24 hours
- Should not consume alcohol in the first 24 hours and thereafter should avoid alcohol until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available the injured player should avoid alcohol until symptom-free
- Should not drive a motor vehicle and should not return to driving until provided with medical or healthcare professional clearance or if no medical or healthcare professional advice is available should not drive until symptom-free

Rest the body, rest the brain

Rest is the cornerstone of concussion treatment. This involves resting the body, 'physical rest', and resting the brain, 'cognitive rest'. This means avoidance of:

- Physical activities such as running, cycling, swimming etc.
- Cognitive activities, such as school work, homework, reading, television, video games, etc.

PREVENTION AND PREPARATION TIPS FOR PARENTS



Photo by Shaun Ho/SportSG

What should you do if you think your Child has a concussion?

1. Seek medical attention right away

A healthcare professional will be able to decide how serious the concussion is and when it is safe for your child to return to sports training and competition.

2. Keep your child out of play

Concussions take time to heal. Do not let your child return to play until a healthcare professional says it is okay. Children who return to play too soon while the brain is still healing, risk a greater chance of having a second concussion. Second or subsequent concussions can be very serious and cause permanent brain damage or even death.

3. Tell your child's coach about any recent concussion

Coaches should know if your child have had a recent concussion in ANY sport. Your child's coach may not know about a concussion your child received in another sport or activity unless you tell the coach.

How to help my Child return to play safely after a concussion?

- Encourage them to gradually return to the sport by playing fewer hours
- Reduce their screen time
- Give them more time to complete their assignments or school work
- Allow them to take rest breaks when needed

Talk to your child's coach and school teachers about your child's progress and recovery stage. As your child's symptoms decrease, the extra support can be slowly removed gradually.



ACTIONS TO TAKE AFTER CONCUSSION/ BEFORE RETURNING TO PLAY

Adults

Physical rest shall be for a minimum of one week for any adult player with concussion or suspected concussion. This physical rest comprises 24 hours of complete physical and cognitive rest followed by relative rest (activity that does not induce or aggravate symptoms) for the rest of the week. Cautious reintroduction of cognitive ("thinking") activities are allowed following an obligatory 24 hours of complete (physical and cognitive) rest as long as symptoms related to the concussion are not aggravated.

After one week of physical rest period, the player:

- must be symptom-free or if pre-injury symptoms existed, these must have returned to pre concussion level at rest; and
- should be cleared by a medical practitioner or approved healthcare provider

Children and Adolescents

Physical rest shall be for a minimum of two weeks for any child or adolescent (18 years and under) with concussion or suspected concussion. This physical rest comprises a minimum of 24 hours of complete physical and cognitive rest followed by relative rest (activity that does not induce or aggravate symptoms) for the rest of the two weeks. Cautious reintroduce of cognitive ("thinking") activities are allowed following an obligatory 24 hours complete (physical and cognitive) rest as long as symptoms related to the concussion are not aggravated.

After the two week of physical rest period, the player:

- must be symptom-free or if pre-injury symptoms existed, these must have returned to pre concussion level at rest;
- should be cleared by a medical practitioner or approved healthcare; and
- must, if a student, have returned to school or full studies.

Children and adolescents must be managed more conservatively than adults.

CHECKLIST: [FOR COACHES, PARENTS, ATHLETES]

If your athlete/child has received a blow or bump to the head during a game or training session, look for any of the following signs and symptoms:

	YES	NO
1. Loss of consciousness (even a brief loss of consciousness should be taken seriously)	<input type="checkbox"/>	<input type="checkbox"/>
2. Headaches, 'pressure' in the head	<input type="checkbox"/>	<input type="checkbox"/>
3. Nausea or vomiting	<input type="checkbox"/>	<input type="checkbox"/>
4. Sensitive to light or noise	<input type="checkbox"/>	<input type="checkbox"/>
5. Double or blurry vision	<input type="checkbox"/>	<input type="checkbox"/>
6. Difficulty in concentrating or memory problems	<input type="checkbox"/>	<input type="checkbox"/>
7. Balance problems, dizziness, drowsiness, feeling sluggish, hazy, foggy or groggy	<input type="checkbox"/>	<input type="checkbox"/>
8. Shows mood, behaviour, personality changes or unusual behaviour	<input type="checkbox"/>	<input type="checkbox"/>
9. Slurred speech, weakness or decreased coordination	<input type="checkbox"/>	<input type="checkbox"/>
10. Difficulty recognising people or places	<input type="checkbox"/>	<input type="checkbox"/>

Following the rules of the sport for safety, practising good sportsmanship at all times, and using only sports protection equipment that are in good condition are all ways to prevent concussion.

Athletes who have a concussion should not return to play until they are symptom-free and have received approval from a doctor or health professional to return to play gradually.

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