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## How Can Concussion Be Prevented?

### **Why is prevention important?**

Concussion is a brain injury which should be identified, treated and managed correctly. Failure to do so can potentially have **serious short and long-term consequences**. Reducing the incidence or rate of concussion is important for rugby players' health, well-being and ongoing participation in the game.

### **Can all concussions be prevented?**

Concussion is a brain injury that occurs as a result of a direct or indirect blow to the brain.

Rugby is a collision sport with many high speed, high impact contact events between the players! Considering there are 2 teams of 15 players on the field, having frequent anticipated and unexpected collisions, within a dynamic ever-changing environment, it becomes very difficult to control the safety aspects of ALL contact situations between players. As a result, concussions will never be completely prevented.

However a number of important intervention strategies may help reduce the probability (chance) and incidence (rate) of concussions.

Equally important is a secondary prevention strategy to **avoid further concussions** in a player who has already suffered a concussive head injury. That is why **"Recognising and Removing"** is so essential for player well-being. It is also important to follow the most appropriate best practice concussion management protocols and individualised rehabilitation return to play guidelines before returning to full match play (details available here: [www.BokSmart.com/Concussion](http://www.BokSmart.com/Concussion) and here: <https://my.boksmart.com/Documents/BokSmart#ConcussionManagement>).

## Five “E’s” of Concussion Prevention – Educate, Enforce, Enhance, Equip and Evaluate

### **Educate**

- The more you know about concussion, the more you can do to prevent concussions!
- Understand the impact and significance of concussion.
- Learn how to identify a concussed player and what YOU can do.
- Identify those situations which may place players at potential risk of concussion and be aware.
- Follow best practice principles in managing concussions in your players.
- Use the freely available BokSmart Concussion Guides, Concussion Recognition Tool 6 (CRT6), and BokSmart Concussion Resources in your club or school.
  - [www.BokSmart.com/Concussion](http://www.BokSmart.com/Concussion) and <https://my.boksmart.com/Documents/BokSmart#ConcussionManagement>
- Go online to the World Rugby *Player Welfare* site for their Concussion education modules:
  - <https://www.world.rugby//the-game/player-welfare/medical/concussion/>

### **Enforce**

- Play strictly by the laws of the game of rugby union.
- Forbid dangerous tackles and players flying in or diving recklessly into rucks.
- Ensure that ALL coaches and referees are BokSmart Certified at all times, carry their BokSmart Concussion Guides or Concussion Recognition Tool 6 (CRT6) with them (on their mobile phones) while working with players, and understand the principles of concussion prevention, identification, treatment, and management.
- Enforce the mandated ‘Individualised rehabilitation’ return to play protocol and stand down periods away from contact-rugby on all of your players who have suspected or confirmed concussions:
  - [www.BokSmart.com/Concussion](http://www.BokSmart.com/Concussion) and <https://my.boksmart.com/Documents/BokSmart#ConcussionManagement>

### **Enhance**

- Improve and work only on safe and effective tackling techniques. Do this often!
  - <https://www.youtube.com/watch?v=yqyTsHatXZY>
- The tackle phase contributes to around 61% of all concussions.
- The tackler is almost four times more susceptible to concussion than the ball carrier, and alone contributes to about 49% of all concussions, so perfecting tackle technique is crucial for preventing concussions.

- Tackle technique is often not good in younger developing rugby players, and still requires a lot of coaching and individual practice; this makes younger players more susceptible to getting it wrong on match day and getting concussed!
- Good tackling technique takes time to perfect; regular practicing of safe and effective tackling techniques should therefore start at a young age so that it eventually becomes instinctive.
- Local research has shown that concussion rates also increase as game time progresses in a match. This could be due to fatigue, as fatigue reduces tackle technique proficiency.
- So essentially, the fitter you are for rugby, the easier it is to maintain good tackle technique and reduce the risk of getting concussed!
- Therefore, make sure that you are well conditioned and are fit enough for the game of rugby to be able to compete safely in contact situations with good technique up until the final whistle!
  - <https://www.springboks.rugby/media/taifea1z/aspects-of-physical-conditioning-for-rugby.pdf>
  - <https://www.springboks.rugby/media/ewvborcf/physical-conditioning-for-rugby-players.pdf>
- It is also important to occasionally practice tackling under fatigued conditions to reinforce safer tackling techniques under these circumstances!
- Specifically strengthen the neck by referring to BokSmart’s guidelines! This should be done throughout the year!
  - <https://www.springboks.rugby/media/4afpkbof/practical-guidelines-neck-injury-prevention.pdf>
  - <https://www.springboks.rugby/media/utrmbkhz/safe-necks-exercises-infographic.pdf>
- Practice and coach safe rucking techniques, practices, and principles, especially for those players already in the ruck. These players are potentially more vulnerable and exposed to concussions than the players entering the ruck.

## **Equip**

- Although mouth guards do not always reduce the incidence of concussion, players should use them to prevent injuries to teeth, gums, and the tongue. It is preferable to have a mouth guard fitted by a dentist.
- The use of rugby headgear may help reduce friction injuries to the ears (“cauliflower ears”) as well as cuts to the scalp but do not prevent concussions.
- In other sports such as cycling, cricket and horse-riding hard helmets are useful in preventing concussion.

## **Evaluate**

- Ensure that your school or club has a concussion policy and action plan in place for suspecting, identifying, treating, and managing concussions.
- Reassess this policy at the end of every season and align it with the updated BokSmart protocols.
- For SARU's Concussion Regulation go to the following links:
  - <https://www.springboks.rugby/general/boksmart-legislation/> or on MyBokSmart at <https://my.boksmart.com/Documents/BokSmart#ImportantRegulations>
- Send all players with a **suspected concussion** for medical evaluation before allowing them to participate again.
- Ensure that all **suspected and diagnosed** concussions undergo the complete graduated '*individualised rehabilitation*' return to play protocol before returning to rugby.

## **Conclusion**

Concussions occur in many sporting and non-sporting situations. Preventing all concussions is impossible. However, adequate conditioning, all-year round neck strengthening, good tackle and ruck techniques, abiding by the laws of the game, appropriate use of equipment and a concussion policy that players, coaches, referees and supporters understand, will significantly help reduce the risks.

## **References and Useful Resources**

Tator C. *Sport Concussion Education and Prevention. Journal of Clinical Sport Psychology*, 2012, 6, 293-301

How can concussion be prevented? [www.cdc.gov/concussion/sports](http://www.cdc.gov/concussion/sports)

Heads-Up factsheet. [www.cdc.gov/concussion/headsup/youth.html](http://www.cdc.gov/concussion/headsup/youth.html)

BokSmart, unpublished data McFie et al. 2014