

# SPORT CONCUSSION IN NEW ZEALAND: NATIONAL GUIDELINES

UPDATED OCTOBER 2023

This guideline document has been produced to inform and assist National Sports Organisations (NSOs), and recreation, education and health sectors in their development of specific policy for concussion in community, non-elite or grassroots sport.

The guidelines are intended to provide background information to inform the development of individual sport Concussion Awareness Policies. ACC has developed a Concussion Awareness Policy template intended to facilitate the development and application of sports specific concussion policy, with the purpose of:

- a. Increasing the awareness of concussion within sport, the community and its supporters;
- b. Providing guiding principles and general advice regarding concussion recognition and management; and
- c. Increasing awareness of the process by which a player may continue to participate or return to sport following a suspected concussion.

*This guideline has been developed to ensure safety in community sport where there is minimal and often delayed access to medical support. This will be different to environments where there is a high level of dedicated medical support, for example elite sport. Organisations should refer to High Performance Sport NZ (HPSNZ) Standard Operating Procedures for the Clinical Management of Concussion in elite sport.*

This guideline was produced by ACC in consultation with a panel of medical, sport and research experts and was informed by the 2022 Amsterdam Consensus Statement on Concussion in Sport.

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## DEVELOPING A ‘CONCUSSION AWARENESS POLICY’

National Sport Organisations (NSOs) and other relevant organisations should develop a concussion policy and educational strategy to ensure their members and broader community are aware of how to appropriately support suspected and confirmed concussion.

It is important that there is a standardised approach to **concussion** in sport because concussion is a serious injury.

- The annual estimate of head injuries in New Zealand is approximately 36,000.
- In 2022, ACC received claims for 6,440 sports related concussion injuries.
- It is estimated that there is a 30% under reporting of concussion.
- The highest number of sport related concussions occur in team-based sports (e.g., rugby, football, basketball) and from cycling and equestrian activities.

A standardised approach to increasing awareness of the recognition and management of concussion will minimise the likelihood that individuals have a poor outcome from the injury, supports best practice and provides confidence to parents of children involved in sport.

ACC can support NSOs in the development of a concussion policy, implementation plans and education material with review by an ‘expert panel’. This can help with the goal of ensuring a consistently high standard of recognition and management of concussion across New Zealand. Please contact [Sportsmart@acc.co.nz](mailto:Sportsmart@acc.co.nz) to request support.

The ACC Concussion Awareness Policy template may be used by NSO’s to create their respective Policy.



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## KEY MESSAGES

Concussion is a brain injury that affects the function of the brain and the person and may, or may not, result in a loss of consciousness.

There are several important features to highlight including:

- a. A concussion is not always caused by a direct hit to the head. It may be caused by a direct hit to the head, face, neck, or elsewhere on the body with an 'impulse' force transmitted to the head.
- b. Only 10% of concussions present with a loss of consciousness.
- c. A concussion typically results in the rapid onset of short-lived impairment of neurological (brain cognition) function that resolves spontaneously.



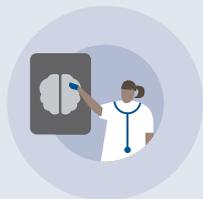
### GENERAL PRINCIPLES

- Early removal and early access to care reduces recovery time.
- Extra caution is required for child, adolescent and female athletes as they take longer to recover.
- *Everyone* has a role to play in supporting the recognition and management of concussion.



### RECOGNISE AND REMOVE:

- If a suspected concussion occurs, after checking for neck injury, remove the athlete from play/activity **immediately** and seek assessment by a qualified medical professional (doctor).
- Members of the player's and athlete's whanau and wider community (parents, coaches, teammates, sporting organisations) have an important role to play in recognising the signs and symptoms of concussion.
- **Individuals must NOT return** to sport/activity on the day of suspected concussion.



### REFER:

- Individuals suspected of suffering a concussion must have an assessment with a qualified medical professional (doctor) for confirmation or exclusion of a concussion and consideration of other diagnoses.
- Those with 'RED FLAGS' must seek urgent medical help (go to Accident & Emergency clinic or hospital).
- If there is significant concern about the degree of severity of the injury it may be necessary to call an ambulance (111).



## RED FLAGS (REQUIRE URGENT REVIEW)

- Complaint of neck pain.
- Increasing confusion or irritability.
- Repeated vomiting.
- Weakness or tingling/burning in arms or legs.
- Deteriorating after being injured – increased drowsiness, headache or vomiting.
- History of bleeding disorder.
- Loss of consciousness or seizures.
- Severe or increasing headache.
- Unusual behaviour (different from normal).
- Double vision.
- Anyone who has inadequate supervision post-injury.
- Visible skull deformity.
- History of regular medication use that could result in prolonged bleeding (e.g. Warfarin, Aspirin).



## RECOVER

- Treatment is most effective when initiated early.
- The effects of concussion can interfere with an individual's ability to learn or to function well at work.
- Return to education/work needs to be graduated and work activities altered to reflect the level of function. This should be guided by a healthcare professional (e.g. Doctor, Physiotherapist or Occupational Therapist) experienced in ongoing concussion management.
- Typical management includes physical and cognitive rest for 24-48 hours (including reduced electronic screen use), prior to initiating a graduated programme of progressive physical and cognitive activity.
- Strong evidence supports the benefits of aerobic exercise at a level that does not worsen symptoms during the activity as an early intervention treatment Within a recovery plan.
- Return to competitive sport must only occur after progressive physical activity (see later stage explanation) and return to education/work and social activities.
- Where symptoms are prolonged (e.g. >4 weeks) or graduated activity has not been tolerated, the person must have further evaluation by a medical professional (doctor) to review the diagnosis. You should ensure the person has registered with ACC for support.
- The medical professional (doctor) may refer the person to ACC concussion services if they meet certain criteria, this is a service that offers comprehensive support (specialist physiotherapy, Occupational Therapy, Neuropsychologist) to guide symptom management and return to activity.



## RETURN TO SPORT

- Concussion management should be guided by a healthcare professional (e.g. Doctor, Physiotherapist or Occupational Therapist) experienced in ongoing concussion management. This includes the timing of progressions and clearance to return to sport.
- A conservative approach to return to sport is recommended for adoption across sports codes in New Zealand. Return to sports related activity should be progressed more slowly with children, adolescents and females. This approach is aligned with international literature that now recognises more time is needed to recover from concussion than earlier statements had indicated. Safe return to sport following a concussion typically occurs within 1 month of injury in children, adolescents and female adults.
- All athletes diagnosed with concussion should go through a graduated return to education/work and sport programme (**Appendix 1**), guided by a healthcare professional experienced in the management of concussion (e.g. doctor, physiotherapist or occupational therapist) and implemented by those involved with the team/sport (e.g. coaches, physical trainer, teacher, parent etc.). Athletes should have fully returned to school or work and social activities **before** returning to contact-based training or sport specific competition.
- **Members of the player's and athlete's whanau and wider community (parents, coaches, team-mates, sporting organisations) all have a role in facilitating the comprehensive return to sport process by providing support.**
- It is suggested that any (player) who has sustained multiple concussions (defined as  $\geq 3$  in one season or  $> 5$  during their sporting career) have a review from a clinician with expertise in managing sports-related concussion (for example a Sport and Exercise Medicine Physician, Neurologist, or Neuropsychologist) before returning to sport.
- **Clearance by a medical doctor is strongly recommended before returning to contact-based and sports specific training (i.e Stage 5), or full competition (Stage 6).**
- The following requirements must be met for an individual to return to *sport specific training* (i.e stage 5). The individual
  - a. has returned to and is tolerating full time work or learning.
  - b. is symptom free and has completed up to and including **Stage 4**.
  - c. is a **minimum of 14 days post-injury** (Day 0 = Day of injury).
- The following factors should be satisfied for a return to competitive sport/play (Stage 6):
  - a. The individual remains symptom free having completed 7 days at **Stage 5** of the graduated return to education/work and sport protocol.
  - a. The individual is a **minimum of 21 days post-injury**.
  - a. The individual has received medical clearance from a qualified medical professional (doctor).

# APPENDIX ONE

## GRADUATED RETURN TO EDUCATION/WORK & SPORT PROTOCOL

<b>STAGE 1</b>	<b>Day 1-2</b>		Relative Rest for 24-48 hours (i.e light activities of daily living that do not provoke symptoms are ok) <ul style="list-style-type: none"><li>• Minimize screen time</li><li>• Gentle exercise (i.e. walking around the house)</li></ul>
<b>STAGE 2</b>		Minimum of 24 hours between stages before progressing	Gradually introduce daily activities <ul style="list-style-type: none"><li>• Activities away from school/work (introduce TV, increase reading, games etc)</li><li>• Exercise – light physical activity (e.g. short walks outside)</li></ul>
<b>STAGE 3</b>	<b>Day 2-13</b>	Symptoms should be progressively improving.	Increase tolerance for mental & exercise activities <ul style="list-style-type: none"><li>• Increase study/work-related activities with rest periods</li><li>• Increase intensity of exercise guided by symptoms</li></ul>
<b>STAGE 4</b>		If symptoms worsen drop back a stage.	Return to work/study & sport training <ul style="list-style-type: none"><li>• Part time return to work/education</li><li>• Start training activity without risk of head impact</li></ul>
<b>STAGE 5</b>	<b>Earliest Day 14</b>	Minimum of 7 days at Stage 5 before progressing	Return to normal work/study & sport-specific training <ul style="list-style-type: none"><li>• Completion of Stages 1-4 <b>AND</b></li><li>• Fully reintegrated into work or school <b>AND</b></li><li>• <b>Symptom free</b></li><li>• <b>And ≥ Day 14 post-injury</b> → reintegration into full sport-specific training can occur</li></ul>
<b>STAGE 6</b>	<b>Earliest Day 21</b>		Return to sports competition <ul style="list-style-type: none"><li>• Completion of Stage 5 <b>AND</b></li><li>• <b>Symptom free during sports training</b></li><li>• <b>AND ≥ Day 21 post-injury</b></li><li>• <b>AND</b> the (player) has received medical clearance from a qualified medical practitioner (doctor).</li></ul>

## RECOMMENDED READING

Feigin, V, Theadom, A. et al (2013). Incidence of traumatic brain injury in New Zealand: A population-based study. *The Lancet Neurology*, 12(1), 53-64.

Theadom, A, Starkey, N, Dowell, A, Hume, P, Kahan, M, McPherson, K, & Feigin, V. (2014). Sports related brain injury in the general population: An epidemiological study. *Journal of Science and Medicine in Sport*, 17(6), 591-596. doi: 10.1016/j.jsams.2014.02.001.

Patricios, JS. et al. (2023) Consensus statement on concussion in sport: The 6th International Conference on Concussion in Sport held in Amsterdam, October 2022. *British Journal of Sports Medicine*, 57(5), 695-711.

Theadom, A, Parag, V, Dowell, T, McPherson, K, Starkey, N. & et al. (2014). Persistent problems one year following traumatic brain injury within a population based incidence and outcomes study.

Kara, S, Crosswell, H, Forch, K, Cavadino, A, McGeown, J and Fulcher, M. (2020), Less than half of patients recover within 2 weeks of injury after a sports related mild traumatic brain injury: A 2 year prospective study. *Clinical Journal of Sports Medicine*, 30(2), 96-101.

UK Government (April 2023) *UK Concussion Guidelines for Non-Elite (Grassroots) Sport*.

ACC data - accessed\*\*\*\*\*

*It is intended to formally review this document prior to end of 2027.*

