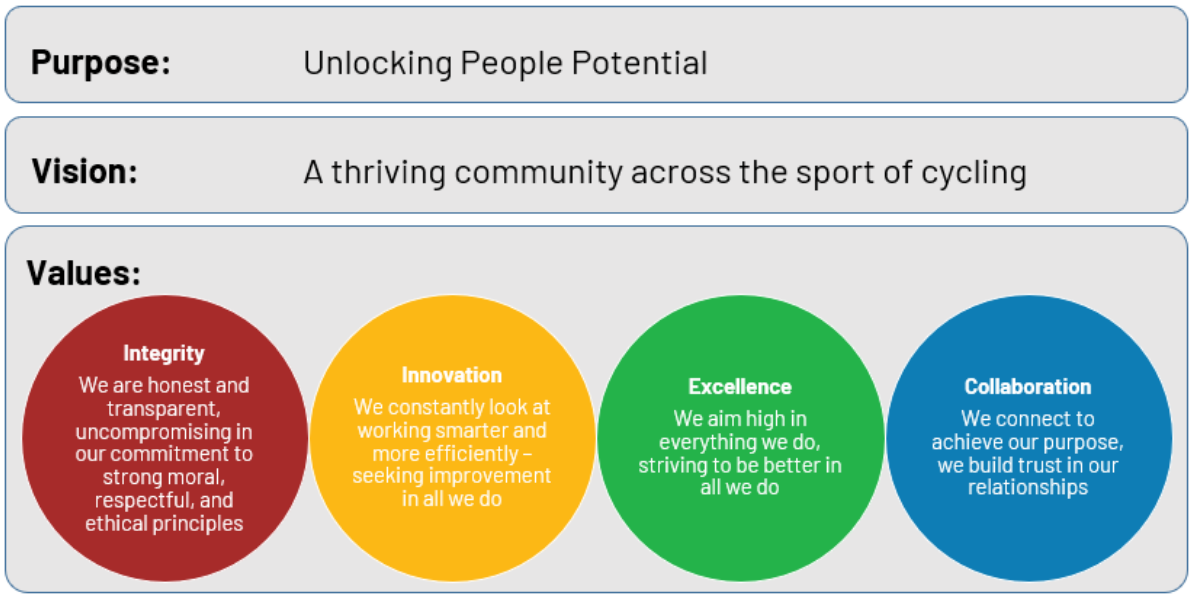
Cycling New Zealand Overview



CONCUSSION AWARENESS

Background and Scope

The purpose of this document is to provide:

1. An increased awareness of concussion in those involved in cycling – riders, officials, supporters and their families
2. Guidance on the recognition and management of concussion to those involved cycling in New Zealand.

The guideline applies to those involved in community, non-elite or grassroots sport, where there is minimal and often delayed access to medical support. This will be applicable to the majority of riders.

This summary is prepared specifically for the New Zealand cycling public and is not a medical document. It reflects the Sport Concusssion in New Zealand ACC National Guideline (2023) which was developed by an ACC led expert advisory group (including membership from ACC Sport Injury prevention and Prinicple clinical advice, NZ Football, Netball NZ, NZ Rugby League, NZ Rugby and Equestrian NZ) and is based on the best practice guidelines developed at the 6th International Conference in Concussion in Sport held in Amsterdam in 2022 . Refer Appendix 1.

This guideline relates to all athletes from child to adult. We advise that all riders with suspected concussion be assessed by a health practitioner.

Concussion (and rider welfare in general) is everyone's responsibility. Riders, parents, coaches officials and support staff need to act in the best interest of rider safety and welfare by taking responsibility for the ***recognition, removal*** and ***referral*** of riders to a health practitioner. They should then ensure that concussion is appropriately managed as per these guidelines.

It is acknowledged that concussion knowledge is evolving and more research is required to identify both the short and long term consequences of this brain injury. This policy is based on the current best practice guidelines and will be reviewed every four years in line with international consensus statements.

Guideline Summary:

- **Recognise and Remove.** If concussion is suspected, remove the rider from activity immediately. 'If in doubt, take them out'.
- **Refer** the rider for assessment by a health practitioner .
- Concussions often occur without loss of consciousness (being 'knocked out').
- Extra caution is required for child, adolescent and female athletes.
- It may take several hours (or even days) post injury for some or all of the symptoms of concussion to emerge.
- Members of the rider's and athlete's whanau and wider community (parents, coaches, team-mates, sporting organisations) all have an important role to play in recognising the signs and symptoms of concussion and referring the injured athlete for medical assessment.
- Concussion can present in a similar manner to other catastrophic conditions with delayed onset of symptoms.
- A medical professional (from general practice or primary care team) must provide assessment for confirmation or exclusion of a concussion and consideration of other diagnoses.
- No rider should return to sport/activity on the day of a suspected or confirmed concussive injury.
- The effects of concussion can interfere with the rider's ability to learn in the classroom or to function well at work. Return to school/work may need to be graduated and activities altered to reflect level of function, guided by a health practitioner experienced in ongoing concussion management. Return to school/work and social activities should be achieved before return to competitive cycling.
- Stage 5 of the graduated return to sport summary (Appendix ?) can commence **only if the** rider **has been symptom free at rest for a minimum of 14 days** and has fully reintegrated back into work/education.
- **Full return to sports competition should be no earlier than Day 21 post-injury** (Day 0 = day of the injury) AND it is strongly recommended that the rider has been medically cleared to return to play during that final week AND has remained asymptomatic during a graduated return to education/work and sports training process.

Refer Appendix 4 for graduated return education/work and sport summary.

Purpose

The purpose of this CNZ Concussion Awareness Policy is to:

a) Increase awareness and behaviour change for concussion within the cycling community and its supporters;
b) Provide guiding principles and general advice regarding the management of concussion;
c) Increase awareness and behaviour change for the process by which a rider may continue to participate or return to cycling, following a suspected concussion. <u>This process is the responsibility of everyone, not just the NSO.</u>

CNZ has adopted the ACC National Sports Concussion guidance on safe return to Sport. This has been informed by the Consensus Statement on Concussion in Sport: The 6th International Conference on Concussion in Sport, held in Amsterdam, October 2022 Refer Appendix 1.

> *"With respect to the assessment of concussion, the advice contained within this Concussion Policy is of a general nature only. Individual treatment will depend on the facts and circumstances specific to each individual case. This Concussion Policy is not intended as a standard of care and should not be interpreted as such."*

This Concussion Policy will be reviewed annually by CNZ and will be modified according to updates from ACC and the development of new knowledge.

The CNZ Concussion Awareness Policy

The CNZ Concussion & Awareness Policy:
a) Applies to; Clubs, riders and Officials;
b) Applies to all Events and training sessions;
c) Forms part of the CNZ statutes to which all competition participants are bound;
d) Does not limit or restrict the application of CNZ Statutes and, in particular, the code of conduct for behaviour or conduct of a club, rider or official; and
e) May be supplemented or varied from time to time by CNZ.

Riders should be educated on the signs and symptoms of concussion and encouraged to be honest with medical staff and report any new symptoms as they develop.

Definition

Concussion is a brain injury and is defined as *"a traumatic brain injury caused by a direct blow to the head, neck or body resulting in an impulsive force being transmitted to the brain that occurs in sports and exercise-related activities. This initiates a neurotransmitter and metabolic cascade, with possible axonal injury, blood flow change and inflammation affecting the brain. Symptoms and signs may present immediately, or evolve over minutes or hours, and commonly resolve within days, but may be prolonged".*
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.

More simply, a concussion may be defined as a transient alteration in the brain functioning of the rider that may, or may not, result in a loss of consciousness and which may or may not be clear to the person and their whanau.

There are several features that are important to highlight. These are:

a) A concussion is not always caused by a 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 brain.
b) Approximately 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.
d) Concussion can be difficult to diagnose. Whenever a rider has an injury to the head and becomes confused, acts abnormally or loses consciousness, even for a few seconds, they may have been concussed.

Signs of Concussion

Recognise, Remove & Refer
When a concussion, or possible concussion, occurs it is important to take action and to get help. The most important steps in the early identification of concussion are to **recognise** a possible injury and **remove** the participant from cycling.

Members of the rider's and athlete's whanau and wider community (parents, coaches, team-mates, sporting organisations) have an important role in observing possible concussion and its effects (e.g. behaviour/symptoms), and should take responsibility for removing the injured rider from cycling.

Immediate Visual Indicators of Concussion Include:

a) Loss of consciousness or responsiveness;
b) Falling unprotected to the ground;
c) Lying motionless on the ground/slow to get up;
d) A dazed, stunned, blank or vacant expression;
e) Appears confused or disorientated;
f) Appearing unsteady on feet, balance problems or falling over;
g) Grabbing or clutching of the head;
h) Visible facial or head trauma or
i) Impact seizure or convulsion.

Concussion Can Include One or More of the Following Symptoms:

a) Symptoms; Headache, dizziness, 'feeling in a fog', noise or light sensitive, nausea +/- vomiting.
b) Behavioural changes; Inappropriate emotions, irritability, feeling nervous or anxious.
c) Cognitive impairment; Slowed reaction times, confusion/disorientation - not aware of location or event, poor attention and concentration, loss of memory for events up to and/or after the concussion.
d) Balance problems including dizziness, lightheadedness or vertigo.
e) Blurred or double vision.

The Concussion Recognition Tool 6 (CRT 6) or the ACC SportSmart Concussion Card (Appendix 2) may be used to help identify a suspected concussion. These tools are for non-medical personnel to assist with recogniton of a suspected concussion and should not be used to 'clear' people to return to cycling that day.

The Unconscious Athlete

If the rider is injured and / or unconscious apply first aid principles.
- DRSABC (Danger, Response, Send for Help, Airway, Breathing, Circulation).
- Treat all unconscious riders as though they have a spinal injury.
- An unconscious riders must ONLY be moved by personnel trained in spinal immobilisation techniques, unless the rider is in immediate danger.
- Do not remove a rider's helmet until trained personnel are present.
- Urgent hospital care is necessary if there is concern regarding the risk of structural head or neck injury – call 111.

Red Flags – Seek urgent medical help

Seek URGENT medical help (either go to A&E or call 111 for an ambulance) if a rider has any of the following:

- Loss of consciousness or seizures
- Increasing confusion or irritability
- Severe or increasing headache
- Repeated vomiting
- Unusual behaviour change
- Double vision
- Deterioration after being injured – increased drowsiness, headache or vomiting
- Report of neck pain or spinal cord symptoms – numbness tingling, muscle weakness.
- Is a child
- Personal medical history of bleeding disorder / clotting disorder
- Personal history of regular medication use that could result in prolonged bleeding (e.g. Warfarin, Aspirin)
- Anyone who has inadequate supervision post-injury
- Visible skull deformity

If at any time there is any doubt the rider should be referred to hospital for an immediate assessment.

All other riders who have been withdrawn from competition due to a suspected concussion are advised to seek review by a health practitioner as soon as possible to confirm diagnosis.

Remove From Further Competition

A rider should never return to riding/competing on the day of a suspected or confirmed concussive injury.

A rider with a suspected or confirmed concussion should be immediately removed from training or an event, and should not be returned to activity until they are assessed by a health practitioner.

Riders with a suspected concussion should not be left alone, should not drive a motor vehicle and should not consume alcohol. The rider MUST also be in the care of a responsible person who is aware of the concussion.

Only qualified health practitioners should diagnose a concussion, or provide advice as to whether the rider can return to cycling. All riders should be referred for assessment.

It is suggested that all clubs/events have a list of local medical doctors, A&E centres and emergency departments close to where the event is being held. It is always helpful to advise the health care facility that you have a person with a suspected concussion.

A pre-activity checklist of the appropriate services could include:

- Local doctors or medical centre
- Local A&E Centre
- Local hospital emergency department
- Ambulance services (111)

Concussion Assessment

Any rider who is suspected of having sustained a concussion should be reviewed by the designated on-site First Aider (if present) at the event initially. The rider should then be referred for immediate medical review (as per the Red Flags above) or have an assessment from a health practitioner.

A qualified medical professional (from general practice or primary care team)should:

a) Diagnose whether a concussion has occurred – based on clinical judgement;
b) Evaluate the injured rider for concussion using SCAT-6 (or SCAT-6 Child for those under the age of 12 years) or similar tool (e.g BIST) (Appendix 4);
c) Advise the rider as to medical management;
d) Advise the rider as to when it is appropriate to begin a Graduated Return to Cycling Protocol (refer Appendix 4 of this Concussion Policy);
e) Clear the rider to return to play following the Graduated Return to Cycling protocol, as detailed in this Concussion Policy.

The Sport Concussion Assessment Tool Version 6 (SCAT-6) and the Child-SCAT 6 (ages 8 – 12yrs) are the most up to date tools for health care professionals in assessing a potential sports related concussion. These are most valid for use up to 3 days post injury. The Sport Concussion Office Assessment Tool Version 6 (SCOAT-6) is a further tool for evaluating concussion in a controlled clinic environment by healthcare professionals used between 3 – 30 days following a sports related concussion. Refer Appendix 3.

It is recommended that riders, coaches and officials become familiar with the symptoms outlined in the CRT 6, they are very similar to those symptoms evaluated in the SCAT-6.

The SCAT-6 is NOT to be used for diagnosis of concussion alone. It provides a standardised assessment to aid diagnosis by a health practitioner.

The Brain Injury Screening Tool (BIST) is another concussion tool that can be used on initial presentation after injury and to monitor symptoms and recovery over time (Refer Appendix 3).

Recovery

The majority (80%) of concussions resolve within 4 weeks. Some riders will have more long-lasting symptoms. The recovery frame may be longer in children and adolescents. As a result the return to cycling process should be more conservative for children and adolescents. It should be stressed that there is no arbitrary time for recovery and that decisions regarding a return to cycling need to be individualised.

When symptoms are prolonged (eg. >4 weeks) or graduated activity has not been tolerated, the rider needs to be referred to a health practitioner that can review the diagnosis, taking into consideration the potential traumatic and non-traumatic causes for ongoing symptoms (e.g a doctor, sports and exercise physician, neuropsychologist, specialist physiotherapist, nurse practitioner). You should ensure the person has registered with ACC for support.

It is suggested that any rider who has sustained multiple concussions (defined as ≥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 cycling.

Return to education/work and cycling

Concussion management should be guided by an a health practitioner with experience in concussion management. This includes the timing of progressions and clearance to return to sport.

The rider should commence and progress through a **Graduated Return To Cycling Program (Appendix 4)** under the supervision of a health practitioner.

A conservative approach to return to sport is recommended for adoption across sports codes in New Zealand and return to activity should be more cautious with children and adolescents. Recovery times are difficult to predict from an initial presentation.

Typical management involves the following process, with a minimum of 24 hours between stages before progressing, providing symptoms are not exacerbated with each increasing level. The rider should generally be improving symptomatically as they progress through the recovery Stages 2-4 and if not then progression should be at a slower rate:

- Stage 1: physical and cognitive rest for 48 hours (including reduced electronic screen use).
- Stage 2-4: initiating a graduated programme of controlled physical and cognitive activity (which does not worsen existing symptoms). This should form part of a treatment plan under supervision.
- Stage 5: commence return to full training. The following factors must be satisfied for a return to full return to training:
  i. The rider has returned to full time work or learning
  ii. The rider is symptom free at rest for a miminum of 14 days
  iii. The rider has completed up to and including Stage 4
- Stage 6: **return to competitive sport** – the following factors must be satisifed for a return to competitive sport:
  i. The rider remains symptom free at rest during Stage 5
  ii. A **minimum of 21 days post-injury** has occurred
  iii. Whilst not mandated it is strongly recommended for he rider to have received medical clearance from a health practitioner experienced in concussion management.
- If symptoms occur or worsen during any stage, then the rider should rest for 24hrs and then recommence the process starting at the stage below the one that caused or worsened symptoms.

Stage 5 cannot be commenced prior to being symptom free at rest for a minimum of 14 days.

Symptoms are the single best determinant for monitoring concussion throughout the recovery process.

The following points are important considerations:

- Symptoms are the single best determinant for monitoring concussion. Riders should be encouraged to report symptoms.
- Team-mates, coaches, supporters and parents should all be encouraged to report if a rider has symptoms. **This is everyones responsibility**.
- If concussion symptoms return or are exacerbated at any stage of the rider's return to cycling/competing, the rider must inform the managing health practitioner of their

symptoms and rest a minimum of 24 hours before resuming the level of activity where symptoms worsened.
- Return to activity should be particularly cautious where children and adolescents are concerned.
- The safety of the rider is the priority and must NOT be compromised.
- The decision regarding the timing of return to cycling should always be made by a health practitioner experienced in concussion management.

NOTE that ALL riders should be wearing a helmet when riding Helmets do *not* prevent concussion, they help minimise head fractures or abrasions.

Clearance by a qualified medical professional is strongly recommendeded before return to cycling.

Enforcement

These guidelines reflect best practice in the management of concussion in a cycling context. It is everyone's responsibility to ensure that they are applied. Riders, coaches, officials and clubs are encouraged to promote these guidelines and to ensure that all members of the community are aware of the guidelines.

Legal Disclaimer

This policy contains information of a general nature to give guidance to those involved in (insert sport). This policy is not a substitute for professional, medical or legal advice regarding any individuals particular circumstances. If you require professional, medical or legal advice please seek this from the appropriate persons. CNZ and its Federations, Clubs and their employees, agents and other associates (including rider and officials) disclaim all liability or responsibility for any actions undertaken by any person on reliance on any information provided herein.

Appendicies

The following resources provide useful further information regarding sports concussion. It is suggested that they are used and referred to.

Policy Owner:	CEO		
Policy Reviewed By:	People & Culture Manager & ACC		
Date Reviewed:	August 2024	Version Number	1
Next Review Date:	August 2027		
Approved By:	Board Chairman		
Signature:			

Appendix One

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*.

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

Appendix Two

Consensus Statement on Concussion in Sport:

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.

This article can be found here - https://bjsm.bmj.com/content/57/11/695

Sport Concusssion in New Zealand. ACC National Guidelines 2023:

Found here:
http://www.acc.co.nz/PRD_EXT_CSMP/groups/external_communications/documents/reference_tools/wpc136118.pdf

Appendix Three

1. The Concussion Recognition Tool 6 (CRT 6)
   (a printable PDF of the pocket CRT can be downloaded at:
   https://bjsm.bmj.com/content/57/11/692

2. The ACC SportSmart Concussion Wallet Card :
   https://accsportsmart.co.nz/assets/Uploads/files/Sportsmart-Concussion-card.pdf

Appendix Four

1. SCAT6 – Sport Concussion Assessment Tool – 6th Edition, found here:
   https://bjsm.bmj.com/content/57/11/622

2. Child-SCAT6- Sport Concussion Assessment Tool (for children ages 5-12 years), found here:
   https://dx.doi.org/10.1136/bjsports-2023-106982

3. SCOAT6 – Sport Concussion Office Assessment Tool
   https://dx.doi.org/10.1136/bjsports-2023-106859

4. BIST – Brain Injury Screening Tool
   https://tbin.aut.ac.nz/support-and-resources/brain-injury-screening-tool-bist
   https://tbin.aut.ac.nz/__data/assets/pdf_file/0006/448593/37827_AUT-TBI-Network-BIST-Tool_v2.pdf

Appendix Five

Day 0 = Day of the injury/concussion

GRADUATED RETURN TO EDUCATION/WORK & SPORT PROTOCOL			
STAGE 1	**Days 1-2**		Relative Rest for 24-48 hours (i.e light activities of daily living that do not provoke symptoms are ok) • Minimize screen time • Gentle exercise (i.e. walking around the house)
STAGE 2		*Minimum* of 24 hours between stages before progressing Symptoms should be progressively *improving*. If symptoms worsen drop back a stage.	Gradually introduce daily activities • Activities away from school/work (introduce TV, increase reading, games etc) • Exercise – light physical activity (e.g. short walks outside)
STAGE 3			Increase tolerance for mental & exercise activities • Increase study/work-related activities with rest periods • Increase intensity of exercise guided by symptoms
STAGE 4			Return to work/study & sport training • Part time return to work/education • Start training activity without risk of head impact
STAGE 5	**Earliest Day 14**		Return to normal work/study & sport-specific training • Completion of Stages 1- 4 **AND** • Fully reintegrated into work or school **AND** • **Symptom free at rest** • **AND ≥ Day 14 post-injury** → reintegration into full sport-specific training can occur
STAGE 6	**Earliest Day 21**		Return to sports competition • Completion of Stage 5 **AND** • **Symptom free during sports training** • **AND ≥ Day 21 post-injury** • **AND** whilst it is not mandated, it is strongly recommended that the rider has received clearance from a health practitioner experienced in concussion management.