



## MTBNZ Concussion Awareness Policy

This guideline document has been produced to increase awareness of concussion in the sport of mountain biking and aid racers, riders, coaches, supporters, families and clubs to understand:

1. Why there is a need for a Concussion Awareness Policy
2. What concussion is
3. How to recognise the signs and symptoms of concussion
4. What action to take when concussion occurs
5. Who can assess concussion
6. Why graduated return to riding and racing is required

This guideline primarily pertains to adults, although the principals outlined can also be applied to juniors. As children and adolescents are at higher risk of protracted recovery, we strongly recommend riders with concussion or possible concussion in this age group be promptly assessed by a medical professional.

### Guideline Summary

- **Recognise and Stop.** If concussion is suspected, stop the rider from riding immediately and seek urgent assessment by a medical doctor.
- Concussions often occur without loss of consciousness (only 10-20% lose consciousness).
- Extra caution is required for child and adolescent athletes.
- It may take several hours (or even several days) after crashing for some or all of the symptoms of concussion to emerge.
- Everybody (e.g. riding buddies, training partners, families, support crew, coaches, race marshals, clubs) have an important role to play in recognising the signs and symptoms of concussion. Concussion can present in a similar manner to other catastrophic conditions with delayed onset of symptoms.
- A medical doctor must provide assessment and diagnosis of concussion because the diagnosis may be difficult and relies on clinical judgement.
- It is unanimously agreed that no return to riding on the day of concussive injury should occur.

- The effects of concussion can interfere with the athlete's ability to learn in the classroom or to function well at work. Return to school/work may need to be graduated and demands altered to reflect level of function, guided by a medical practitioner experienced in this area. Return to school/work and social activities should be achieved before return to riding.

## Why there is a need for a Concussion Awareness Policy

Concussion is a serious injury and occurs frequently. An estimated 35,000 head injuries occur in New Zealand every year. The rigorous demands of the sport of mountain biking place participants at potential risk of sustaining head injuries and concussion. By wearing helmets, mountain bikers significantly decrease their odds of head and skull injury but cannot prevent concussion completely. Those who have a history of prior concussion are at an increased risk of repeat injury due to slowed reaction times and loss of balance that may be caused by the initial injury. 11% of sports related ACC claimants have multiple concussions within a 2-year period. Evidence shows that with repeat concussion people may experience a decline in general health and quality of life up to 10 years following injury so it is imperative for repeat injuries to be prevented wherever possible.

## What concussion is

Concussion is a mild traumatic brain injury that results from direct blow to the head or rapid acceleration and deceleration of the brain inside the skull. There may or may not be direct impact to the head or helmet, lacerations or contusions, or visible damage to the helmet and loss of consciousness does not necessarily have to occur (and more often does not).

## How to recognise the signs and symptoms of concussion

Concussion presents with a wide range of signs and symptoms that may or may not include loss of consciousness. In fact, only 10-20% who suffer concussion experience a loss of consciousness. It is important to remember that not every sign and symptom will be present in every case and symptoms can develop gradually for up to 14 days after crashing.

*Signs and Symptoms of Concussion in Mountain Bikers:*

SIGNS of concussion (what you see)	SYMPTOMS of concussion (what they feel)
<ul style="list-style-type: none"> <li>• Appears <b>DAZED</b> or <b>STUNNED</b></li> <li>• Appears <b>CONFUSED</b> or <b>DISORIENTATED</b></li> <li>• <b>LOSES</b> consciousness</li> <li>• Shows <b>BEHAVIOUR</b> or <b>PERSONALITY</b> changes</li> <li>• <b>CAN'T RECALL</b> events prior to or after crashing</li> <li>• <b>DAMAGE</b> to face or head or <b>HELMET</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>HEADACHE</b> or <b>PRESSURE</b> in the head</li> <li>• Nausea or <b>VOMITING</b></li> <li>• <b>BALANCE</b> problems or <b>DIZZINESS</b></li> <li>• <b>DOUBLE</b> or <b>BLURRY</b> vision</li> <li>• <b>SENSITIVITY</b> to light or noise</li> <li>• Concentration or <b>MEMORY</b> problems</li> <li>• Feeling <b>SLUGGISH, HAZY</b> or <b>GROGGY</b></li> </ul>

## What action to take when concussion occurs

When concussion or possible concussion occurs, it is important to act and get help. The most important steps in the early identification of concussion are to recognise a possible injury and stop the rider from riding.

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.

### Use the MTBNZ Concussion Awareness Pocketcard

Riders, riding buddies, training partners, families, support crew, coaches, race marshals, club members are encouraged to download the Concussion Awareness Pocketcard from [www.cyclingnewzealand.nz/mtb/mtbnz](http://www.cyclingnewzealand.nz/mtb/mtbnz) and either print it and/or save it on their phone.

## Concussion Awareness Pocketcard

for Mountain Bikers



### Concussion in MTBers: SIGNS and SYMPTOMS



Regardless of the rider's ability to continue to ride, race or train, any rider suspected of concussion should be observed for signs and symptoms of concussion. Riders with symptoms of concussion and/or other concerning changes in their health should stop riding and seek prompt medical attention.

**HIGH RISK features**

- Significant head/neck trauma
- Seizure
- Skull fracture
- Persistent nausea/vomiting
- Disorientation lasting >30 mins
- Inability to speak/swallow
- Clear fluid leaking from nose/ears
- Inability to walk/ride in straight line

**ORIENTATING Q's**

- Can you tell me how you crashed?
- What city/trail network is this?
- What is the name of the trail you were riding?
- How far are you from the trailhead (or finishline in a race)?
- Who are you riding (or racing) with?
- What's in your jersey pockets (or pack)?
- Can you name the months of the year backwards, starting with December?

Following a **CRASH** assess for the following:

Any **HIGH RISK** features?

YES

**Call 111** for emergency medical transport

Spinal precautions

NO

Rider **UNRESPONSIVE** at any time?

YES

**STOP** - Needs medical evaluation

NO

Answers less than 5 **ORIENTATING QUESTIONS** correctly

YES

**STOP** - Needs medical evaluation

Monitor rider/assess for signs & symptoms of **CONCUSSION** (see other side)

**SIGNS of concussion (what you see)**

- Appears **DAZED** or **STUNNED**
- Appears **CONFUSED** or **DISORIENTATED**
- **LOSES** consciousness
- Shows **BEHAVIOUR** or **PERSONALITY** changes
- **CAN'T RECALL** events prior to or after crashing
- **DAMAGE** to face or head or **HELMET**

**SYMPTOMS of concussion (what they feel)**

- **HEADACHE** or **PRESSURE** in the head
- Nausea or **VOMITING**
- **BALANCE** problems or **DIZZINESS**
- **DOUBLE** or **BLURRY** vision
- **SENSITIVITY** to light or noise
- Concentration or **MEMORY** problems
- Feeling **SLUGGISH, HAZY** or **GROGGY**

In case of emergency call 111. The information on this card is not a replacement for medical assessment. Please refer to MTBNZ's Concussion Awareness Policy for more information.

Non-medical personnel (e.g. riding buddies, training partners, families, support crew, coaches, race marshals, clubs) have an important role in observing possible concussion and its effects, and should take responsibility for stopping the injured rider from riding.

If a suspected concussion has occurred, it is important to see a medical doctor for assessment immediately. Medical doctors are available at general practitioner practices, sports medicine clinics or hospital emergency departments.

It is unanimously agreed that no return to sport/activity on the day of concussive injury should occur. In cases of uncertainty, always adopt a conservative approach – **“If in doubt sit it out”**.

To help an unconscious rider:

- Apply first aid principles – DRABC (Danger, Response, Airway, Breathing, Circulation). Formal training for providing first aid in remote locations can be obtained through the Pre-Hospital Emergency Care (PHEC) course.
- It is extremely important to treat all unconscious athletes as though they have a neck injury. An unconscious athlete must **ONLY** be moved by a medical professional trained in spinal immobilisation techniques.

A rider with any of the following should be referred to hospital **URGENTLY** – **call 111**:

- Loss of consciousness or seizures.
- Persistent confusion.
- Deterioration after being injured – increased drowsiness, headache or vomiting.
- Report of neck pain or spinal cord symptoms – numbness, tingling, muscle weakness.
- If at any time there is any doubt the rider should be referred to hospital for prompt medical assessment.

## Who can assess concussion

Only a qualified medical doctor can assess and diagnose concussion.

Anyone with a suspected head injury needs to see and be assessed by a medical doctor. This is essential to confirm the diagnosis of concussion and to assess the risk for more serious injury.

ACC endorse the Sport Concussion Assessment Tool version 3 (SCAT3) as a validated means of assessing concussion by a medical doctor. A printable PDF of SCAT3 can be downloaded at: <http://links.lww.com/JSM/A30>. It is also possible to download various Concussion Assessment apps that utilise SCAT2 or SCAT3 tools free.

## Why a graduated return to riding and racing is required

The return to normal activities is a critical step in the recovery of concussed riders. Performing this safely requires supervision by a medical professional. Though each rider's recovery should be evaluated on an individual basis, a few basic premises should be followed to maximise safety and allow for proper recovery. ***These should serve as educational guidelines only and not rules for unmonitored return to riding and/or racing.***

- **Rest**

It is unanimously agreed that no return to sport/activity on the day of concussive injury should occur. The primary treatment for concussion is physical and mental rest. Avoid all physical and mental exertion including the use of technology (e.g. use of phones, computers, reading, watching TV) as this may continue to stress the brain and prolong recovery.

- **Rehabilitation**

For riders who have a baseline neurocognitive test, return for repeat evaluation and comparison to baseline once the rider no longer reports any concussion related symptoms.

- **Gradual Return to Activity**

Once the rider exhibits no further signs or symptoms of concussion, a gradual return to activity should be used. **Advance to the next step no more quickly than every 24 hours and only if symptoms of concussion are not reproduced with each level of increasing activity.**

*Gradual Return to Activity Post Concussion Protocol:*

	Return to Activity Stage	Functional Exercise	Objective
1	No activity.	Avoid all physical and mental exertion including the use of technology (e.g. use of phones, computers, reading, watching TV).	Recovery.
2	Indoor (stationary trainer) riding.	Light exercise riding at less than 70% of maximum heart rate for a short duration only. Avoid riding on rollers as balance may be impaired.	Increase heart rate.
3	Riding on road/non-technical tracks and trails.	Avoid riding that poses a risk of repeat head impact.	Add movement.
4	Riding on road/non-technical tracks and trails incorporating hills and/or higher levels of intensity riding.	Progression to adding more intensity.	Add intensity of exercise. A coach and/or sports doctor can help you monitor your progression.
5	Riding on more technical terrain.	Progression to adding more mentally challenging riding.	Movement, co-ordination, cognitive load. Restore confidence. A coach and/or skills instructor can help assess your functional skills.
6	Return to full riding/racing.	Normal pre-injury riding.	Full return to riding.

**Important Points:**

- If concussion symptoms return at any stage of the rider’s return to riding/racing, the rider must inform the managing medical professional of their symptoms and rest a minimum of 24 hours before resuming the level of activity where symptoms recurred.
- Return to activity should be particularly cautious where children and adolescents are concerned.
- The safety of the athlete is the priority and must NOT be compromised.
- The decision regarding return to school/work and clearance to return to restricted activity should always be made by a medical doctor.
- The decision regarding the timing of return to sport/activity should always be made by a medical doctor.

- In some cases, symptoms may be prolonged or graded activity may not be tolerated. If recovery is prolonged, evaluation by a concussion specialist or clinic may be warranted to determine if there are other aspects of the concussion that could respond to rehabilitation.

In summary, the table below shows the roles and responsibilities for concussion management (i.e. stages of identification, assessment and diagnosis, rehabilitation and return to sport).

*Roles and Responsibilities for Concussion Management:*

	Recognition of Concussion	Assessment & Diagnosis	Rehabilitation	Return to school,work and riding	Return to Racing
Responsibility	Everybody	Medical doctors	Coaches, skills instructors, physios, sports doctors.	Medical doctors	
Tools/How	Concussion Awareness Pocketcard	SCAT3, medical assessment & diagnosis.	SCAT3 – symptom checklist only. Gradual Return to Activity protocol.	SCAT3, medical assessment & diagnosis.	
Education	Riding buddies, training partners, families, support crew, coaches, race marshals, clubs.	GP, ED doctors, sports doctors.	All responsible	GP	

*It is intended for this document to be formally reviewed annually – last reviewed 28 December 2016 by author Dr Kim Hurst MBChB FRNZCGP*