MNZ CONCUSSION INFORMATION GUIDELINE

OBJECTIVE:

The Guideline is to provide medically approved information on concussion to all those involved in Motorcycling in New Zealand

Concussion MUST be taken seriously

All people involved in the sport of Motorcycling should be able to RECOGNISE what a concussion is.

Any rider with a concussion [suspected or otherwise] must be REMOVED immediately from the track, and/or high-activity areas and MUST NOT return.

ALL concussion [obvious and/or suspected] should be medically assessed.

Any persons with concussion MUST NOT be left alone and MUST NOT operate a vehicle of any nature.

All suspected concussions MUST be recorded and reported to the MNZ Race Steward and Club where the rider is registered. Concussion must also be reported to MNZ

INTRODUCTION:

It has been estimated that 35,000 head injuries occur in New Zealand every year.

Of these, 22% [7,500 approx] occur through sport-related-activity such as Motorcycling. The potential for concussion/head injury to occur in Motorcycling is fully recognised, but often poorly managed. As a result of this recognition, due consideration should be undertaken by all who partake, administer or manage Motorcycling activities in both the recreational and competitive environments.

The potential for serious and prolonged injuries occurring from concussion emphasise the need for comprehensive medical assessment, and follow-up of the person/rider until the concussion has fully resolved.

The perception has been that a concussion occurs only when there has been a loss of consciousness. This perception is incorrect as concussions can occur without loss of consciousness and can range in severity from brief periods of confusion, through to significant loss of memory and consciousness. Returning to riding/training before the complete resolution of a concussion exposes an individual to recurrent concussions and this may occur with ever decreasing forces. As well, evidence has identified that people with repeat-concussion[s] may experience a decline in their general health and quality of life up to 10 years following injury.

WHAT IS CONCUSSION:

A concussion is a mild Traumatic Brain Injury [mTBI]. Several common features incorporating clinical, biomechanical and pathological injury may be utilised in defining the nature of a concussion.

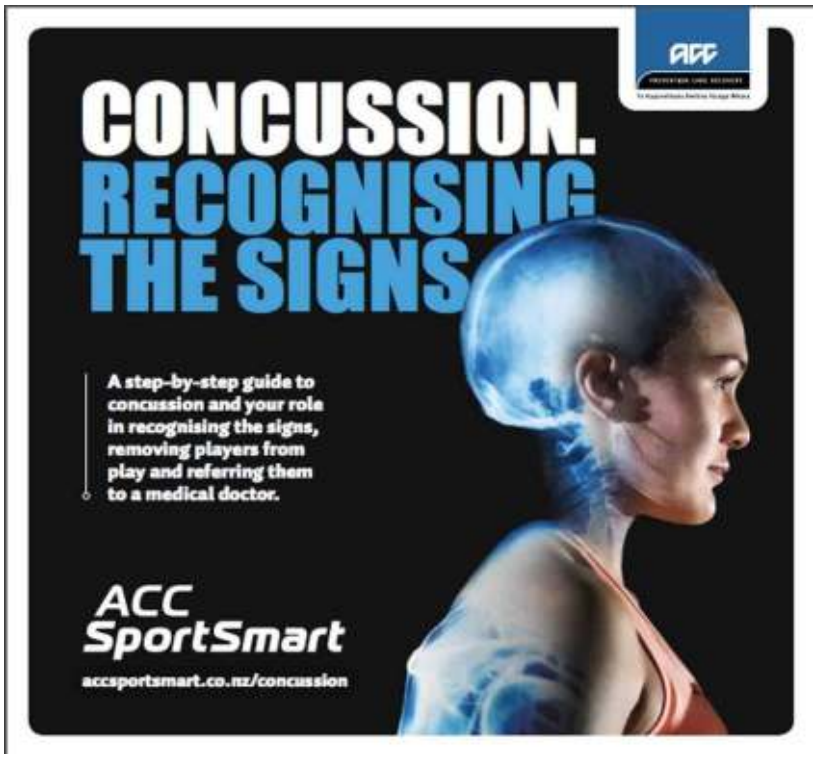
A concussion is a brain injury defined as a *'complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces'* More simply, a concussion is a brain injury that can occur in any sport, particularly where there is probability of – Full Body Contact, A Fall, or Crash [in the case of Motor-sport], involving speed and/or impact. Concussion is caused by the impact of a force [blow] to a part of the body, not necessarily to the head directly. Therefore, whenever a rider has an injury to the head, becomes confused, acts abnormally, or they lose consciousness, even for a few seconds, they have been concussed. Associated with the injury to the head is typically a period of memory loss [amnesia].

Concussed persons are often described as 'stunned, dazed, confused, had their bell-rung' The cause of this amnesia is typically a sudden, violent movement of the head due to a collision, direct or indirect resulting in an acceleration then deceleration of the brain within the skull. The result is damage to the brain. This is in most cases slight and recovery from a single injury is the rule. The healing period is usually 2-3 weeks, but in this time the brain is sensitive and another injury may occasionally result in serious or fatal reaction.

In the long-term, the damage from further concussions may cumulate enough to impair performance. After the impact, there is usually a period of unresponsiveness or confusion, and/or amnesia. The memory loss usually spans the time just before the injury occurred to the moment of injury itself, and a period of time following the injury [post-trauma-amnesia] which may be permanent. The memory loss can extend to include previous days or weeks [retro-grade-amnesia].

Remember – Serious and sometimes fatal results can follow an injury what at first seems trivial. Approximately 3% of patients, who have had concussion, will have a bleed inside the skull, or in to the brain [intracranial-haemorrhage]. The key signs of a haemorrhage include worsening headache, increasing confusion, prolonged nausea/vomiting. If there is any presence of these symptoms the rider **must** be transferred for further medical care immediately.

SIGNS and SYMTOMS of a CONCUSSION:



When assessing an injured rider trackside, it is important that a quick and accurate assessment is made. A useful tool to have available is the ACC [side-line] Concussion Check card to assist in the assessment of concussion and provides advice on treatment for this injury. While designed primarily for sport such as rugby, rugby-league the assessment and measure protocols remain the same.

It is the size of a credit card, so fits in your pocket for quick reference, has an insert detailing procedure that should be followed in the two [2] days following a suspected trauma and does come in other languages.

These are readily available through ACC and Sport NZ. A recommended tool to be distributed to all riders and support on ride/race days.

Maddocks Method – Along with questions in the pocket concussion booklet, you should test the riders cognitive function by asking questions based on the mentioned 'Maddocks Method'

• What race track are we at?
• Who is present here with you, name them?
• How far in to the race are we?
• Did you ride last week – where?
• Count pre-determined numbers backward
• Months of year in reverse

Failure to successfully and accurately answer any of the questions in conjunction with **any** signs or symptoms of an acute concussion [see below] indicates that the rider has been concussed and must stop riding and be removed [if possible and safe] from the track. If the rider is obviously unconscious, then priority and all precaution should be taken to evaluate and protect the airway and cervical spine. The rider should be accompanied from the field and taken to a qualified medical provider who has qualification in determining concussion or the local emergency department for assessment as soon as possible. The rider will require observation at all times as convulsion may sometime occur

It is recommended that the rider should then see appropriate medical professionals for their assessment to the best future management. Often the Local GP is not qualified or experienced in this area of assessment, often their recommendations will not be recognised as sufficient for the rider to now begin/continue to ride again. Please take the time and care to seek professional advice in this area.

MNZ can recommend expert medical professionals in concussion assessment and follow-up.

SIGNS and SYMTOMS of CONCUSSION cont..

Concussion presents with a range of signs and/or symptoms. This **may not** include loss of consciousness. It is important to remember that not every sign and symptom will present wih every concussion, with some experiencing a delayed onset [Delayed Concussion]

Physical Signs [What you may see]	Clinical Signs [What they may feel]
Loss of consciousness, delayed responsiveness	Blurred vision
Lying on ground, no movement	Neck pain
Loss of balance/coordination	Pressure in head/Headache
Disorientation	Nausea
Visible injury [face, head in conjunction with signs]	Dizziness, problems with balance
Convulsions, vomiting	Light sensitive, Noise sensitive
	Confusion, sluggish 'don't feel right'

Only those personnel trained to carry out a track-side concussion assessment should conduct these. The results of the assessment should accompany the injured person to the Emergency Department/Medical Physician.

MANAGEMENT of a CONCUSSED RIDER:

The most important steps in the early identification of a concussion is to recognise a possible injury and take a rider off the course.

Each concussion should be managed individually as it is impossible to predict the clinical course of a particular concussion from a group of signs and symptoms. Onset of symptoms may occur over hours, or days later. The majority [80-90%] of concussions progressively resolve over 10-21 days without complication. This represents the most common form of concussion seen in sport activity.

Management and resolving of concussion should be done by medical practitioners, using the cornerstone protocols of – ALL symptoms are resolved, followed by a 'graduated return'

Some concussions result in persistent symptoms occurring [including symptoms that occur when participating in activity]. These types of concussions often result from persons who have had consecutive concussions over time, or when the person is repeatedly concussed with less and less impact force.

Formal neuro investigations should be considered for concussions with on-going symptoms.

MANAGEMENT of an UNCONSCIOUS RIDER:

If the rider is unconscious, the first priority is to evaluate and protect the airway, and cervical spine. The person must be monitored closely until consciousness returns. Should breathing stop, appropriate resuscitation is necessary. Follow the 'Airways-Breathing-Circulation' guidelines.

Always remember the possibility of a spinal/neck injury, and if the person must be moved, appropriate measures must be taken. ***Do not attempt to move a person while they are unconscious***

Once the person has regained consciousness and their breathing appears unobstructed and more regular, the person should be moved to a safe area and allowed to recover as fully as possible. Such incidents require immediate review by a doctor. The person should then see an appropriate medical professional for their opinion and best future management.

POST-CONCUSSION SYNDROME:

It is quite common following concussion, for persons to continue to experience problems after their apparent recovery from the initial injury. Should this continue to occur after 28 days then this is collectively referred to as 'post-concussion-syndrome'. Family, friends, coaches should be aware of the following:

Signs and Symptoms

- Sleep Disturbance
- Difficulty concentrating
- Difficulty in applying to tasks
- Lack of attention span
- Irritability and low tolerance, particularly to noise
- Dizziness when turning head
- Recurrent headaches
- Symptoms bought on by exercise
- Anxiety and/or depression

If any of these symptoms are present then it is '***Mandatory the person is assessed by a qualified neurologist or sports medicine physician before recommencing in any riding or sporting activity***'

The person is potentially prone to develop more symptoms if they continue to partake in the activities, from there increasing the risk or requiring specialist assistance to aid recovery and a return to both sport and normal life.

SECOND IMPACT SYNDROME:

If a rider receives a second injury to the head before the initial has completely recovered, the chances of the person suffering effects such as – Brain swelling, Heavy bleed and increased pressure within the head dramatically increases. This can result in permanent damage and potentially fatal. Children and adolescents are at an increased risk of this occurring and extra precaution is needed.

RECOVERY PERIOD:

Perhaps the most contentious issue surrounding head injury is the decision regarding the length of time a person should stay away from participation in riding or any sporting activity. No simple way exists to determine the seriousness of a concussion, or whether a person has fully recovered.

The main reason for the mandatory stand-down times for people following a concussion is related to reaction times. In the period following a concussion, the person's reaction times and decision-

making abilities are likely to be less than optimal and the person is at an increased risk of further accident or injury.

Despite the fact that a person may seem to be physically fit and outwardly unaffected, all parties close to the person must be aware of this and support the decision to stand a rider/person down.

It is well-documented that repeated episodes of concussion produce lasting effects and, after a number of concussions, a person may suffer permanent changes of character and ability. A person who has had a number of concussions should therefore, consider whether they should continue to partake and/or compete in their sport.

GRADUATED RETURN to PLAY:

The majority of concussions will recover spontaneously over several days. It is important that the first few days after a concussion has occurred that a complete physical **and** cognitive rest is required. The person should avoid all activities that require concentration or attention. This includes watching television, computers, cell-phones, reading, driving. Failure to do this may result in delay to overall recovery.

Rehabilitation Stage	Minimum Time Under 19 years	Minimum Time 19+ years
Rest/No Activity – Complete mental and physical rest. No Screens	2 Days	2 days
Light Aerobic – Symptom-guided low to moderate. Walking, Swimming, Stationary Bike	14 Days	14 days
Sport-Specific – Exercises including light running, short speed work	2 Days	1 Day
Progression-Training – More complex. Drills, Weight-training. Intensity increases	2 Days	1 Day
Following Medical Clearance – Full Training, Riding	2 Days	2 days
After 24 Hours – Return to Play Person Rehabilitated	1 Day	1 Day
Total Stand-down Period	**23 Days**	**21 Days**

The above protocol has been developed that follows a 'step-wise-process'. This should be used in conjunction with the persons own medical practitioner or sports physician. The duration times are estimated times from date of the concussion occurring and are a reference only.

CHILD and ADOLESCENT RIDERS:

The management and return to play procedures identified in this guideline can be applied to persons as young as 10 years. Below that age, the symptoms of concussion are reported differently, necessitating a full medical clearance **before** undertaking the return to play protocols above.

Return to play prior to the minimum stand-down periods identified can only occur with an appropriate neurological specialist assessment and clearance.

CONCUSSION

IT'S EVERYBODY'S RESPONSIBILITY TO RECOGNISE & REMOVE

IF IN DOUBT – SIT IT OUT