

## TH 5. MHRS CONCUSSION MANAGEMENT PROTOCOL

### Information for coaches

#### What is a concussion?

A concussion is a brain injury. Concussion is a very prevalent injury in snow sports. It is defined as a disturbance in the functioning of the brain following a blow to the head or a force transmitted to the head, which may or may not cause a loss of consciousness. This typically results in the rapid onset of a short-lived impairment of neurologic function, which resolves spontaneously. Athletes suffering from a concussion can display a wide variety of signs and symptoms, some of which can be very subtle. It is important to identify the athlete that has suffered a concussion, as they are more vulnerable for recurrent injury, persistent post concussive symptoms, cumulative injury, and potentially even life threatening injury, with subsequent concussive injury. Concussions are caused by a bump or blow to the head. Even a 'ding' or 'getting your bell rung' or what seems to be a mild bump or blow to the head can be serious. You can't see a concussion. Signs and symptoms of concussion can show up right after the injury or **may not appear or be noticed until days or weeks after the injury**. If a child reports any symptoms of concussion, or if you notice the symptoms yourself, seek medical attention right away.

#### Facts and Statistics

- 10% of all contact sport athletes sustain concussions early
- 63% of concussions occur in football
- Estimated that up to 20% of football players will sustain a concussion pre season
- An athlete who sustains a concussion is 4-6 times more likely to sustain a second concussion
- 'Bell ringers' or mild concussions account for 75% of all concussive injuries
- Effects of concussion are cumulative in athletes who return to play prior to complete recovery
- The best way to prevent problems with concussion is to manage them effectively when they occur
- No athletes should return to play while experiencing symptoms of concussion

Ski racing specific data was not available when this document was being written (May, 2011)

#### Signs & Symptoms

##### Concussion Signs:

- Appears dazed
- Confused about play
- Answers question slowly
- Personality/behavior change
- Forgets plays prior to hit
- Retrograde amnesia
- Forgets plays after hit
- Anterograde amnesia
- Loss of consciousness

##### Concussion Symptoms:

- Headache
- Nausea
- Balance problems
- Double vision
- Photosensitivity
- Feeling sluggish
- Feeling foggy
- Change in sleep pattern
- Cognitive changes

## MHRS Concussion Management Protocol

### 1. Remove the athlete from play.

- a. Follow the steps of the EAP listed above.
- b. Contact ski patrol immediately. Professional assistance should be sought **immediately in all cases of suspected head injury.**
- c. Contact your head coach immediately informing them of the incident
- d. The ski patrol, in conjunction with the program head coach / coach will decide if additional assistance is required.

Athletes who experience signs or symptoms of concussion should not be allowed to return to play. When in doubt, keep the athlete off the hill and out of all conditioning activities. The incidence of possible head injury should never be taken lightly.

### 2. Ensure that the athlete is evaluated right away by an appropriate health care professional.

- a. Do not try to judge the injury yourself. Health care professionals have a number of methods that they can use to assess the severity of concussions.
- b. Please record the following information to assist the health care professional in assessing the athlete after the injury:
  - i. Cause of the injury and force of the hit, or blow to the head
  - ii. Any loss of consciousness (passed out / knocked out) and if so, for how long
  - iii. Any memory loss immediately following the injury
  - iv. Any seizures immediately following the injury
  - v. Number of previous concussions (if any)
- c. Neuroimaging (CT or MRI) may be required.

### 3. Inform the athlete's parent or guardians about the possible concussion.

- a. The head coach will contact the parents and all relevant parties as soon as practical
- b. Direct the families to the fact sheet on the website for concussion. (??website)
- c. The head coach will keep in touch: with the athlete / family the evening of the incident.
- d. Refer the family to the '**Return to Activity Protocol**'

### 4. Allow the athlete to return to play only with permissions from a health care professional with experience in evaluating concussion.

- a. A repeat concussion that occurs before the brain recovers from the first can slow recovery or increase the likelihood of having long term problems.
- b. Prevent common long term problems and the rare second impact syndrome by delaying the athlete's return to activity until appropriate medical evaluation is received and approval to play has been given.

Repeat neurocognitive testing (ImpACT) will be performed by MHRS staff, when recommended by the health care professional. This is likely to be when the athlete is completely symptom free after engaging in activities as prescribed up to and including step 4.

Progression to step 5 will only follow if the athlete's ImpACT scores have returned to baseline or better.

- Athletes with simple concussion typically easily progress through all the steps, in the 'Return to Activity Protocol' over 7-10 days.
- Athletes with complex concussion (an injury where athletes suffer persistent symptoms, specific sequelae, or prolonged cognitive impairment, or athletes who have suffered multiple concussions) may require a prolonged period of asymptomatic rest (step 1) as well as more time at each of the subsequent steps in the progression.

### Post injury management

The cornerstone of concussion management is rest, until the complete resolution of symptoms. This includes both physical and cognitive / mental rest. Athletes should have a quiet environment and avoid exposure to stimulation such as TV and video games.

- Meditation has been shown to assist recovery
- Athletes should avoid alcohol and medication use after concussion. Some analgesics and anti-inflammatories may be prescribed but it should be recognized that these may mask some of the signs and symptoms of concussion.

### Return to Activity Protocol

The return to activity progression is begun once the athlete has been off all medications and completely symptom free for a minimum of 24 hours.

- As recommended by the FIS, MHRS uses the return to play guidelines from the Summary and Agreement Statement of the Second International Symposium on Concussion in Sport-Prague 2004.
- The 'Return to Activity Protocol' is a step-wise process, each step being separated by a minimum of 24 hours.
- Progression to the next step only occurs if the athlete is completely asymptomatic at the current level. Any recurrence of concussive symptoms should lead to the athlete dropping back to the previous asymptomatic level

#### Return to Activity Protocol' steps include:

1. Complete physical and mental rest until asymptomatic
2. Commence low intensity aerobic exercise
  - a. walking, spinning on a stationary bike, but no resistance training
3. Commence higher intensity aerobic exercise
  - a. Jogging, spinning on a stationary bike, basic ABC's
4. Commence easy free skiing and start light resistance training
  - a. Green runs on SL skis

5. After medical clearance can train gates
6. After medical clearance return to full competition, and training

A physician should supervise the progression of an athlete through the 'Return to Activity' protocol and give final clearance for return to competition.

## REFERENCES

1. FIS Return to Snowsports Concussion Protocol, November 2007
2. Powell JW. Cerebral Concussion: causes, effects and risks in sports. *Journal of Athletic Training* 2001; 36(3): 307-311
3. Langlois JA, Rutland Brown W, Wald. M. The epidemiology and impact of traumatic brain injury; a brief overview. *Journal of Head Trauma Rehabilitation* 2006; 21 (5) 375 – 378
4. Canadian Alpine Ski Team Concussion Protocol, December 2008