

# Ski & Snowboard Australia Concussion Policy

Updated in compliance with SCAT5

Revised 26/08/2017

## INTRODUCTION

The aim of this policy is to provide guidelines for non-medical people who are involved with skiing and snowboarding at any level.

This policy applies to the care of snowsports participants from beginners and intermediates through to recreational experts and sub-elite or elite competitors. Everyone's brain is equally important and deserves the benefit of concussion management according to current international scientific guidelines.

This policy allows the Ski & Snowboard Australia community to access the same high standards of care that are available to full-time professional athletes.

It is written for the benefit of parents, teachers, coaches, peers and any program directors or support staff.

## BACKGROUND

The advice presented here is a plain-language non-technical version of the Olympic Winter Institute of Australia (OWIA) Concussion Policy (version 2) updated July 2017.

This is not a medical document. Healthcare professionals such as doctors and physiotherapists who seek greater detail are directed to the [OWIA Concussion Policy V2 SCAT5](#) or the [Summary OWIA Concussion Policy](#).

The protocol presented here is consistent with the principles outlined in the following documents:

- SCAT-5 – [Consensus statement on concussion in sport—the 5<sup>th</sup> international conference on concussion in sport held in Berlin, October 2016 \(British Journal of Sports Medicine, 2017\)](#)
- [FIS Medical Guide, 2013](#)
- World Rugby Medical Guidelines & Documents/Concussion – [WorldRugby Concussion Guidance](#)
- [AIS Concussion in Sport website](#) contains heaps of useful information.
  - Note that the information presented in this AIS Concussion website relates to the previous SCAT-3 guidelines and has not yet been updated to SCAT-5 (as at 26/08/2017).

## POLICY PRINCIPLES

- Concussion must be taken seriously to safeguard the long-term welfare of riders and skiers.
- Participants suspected of concussion must be removed from snow and may not resume on the same day
  - **"If in doubt, sit them out"**
- Anyone suspected of concussion must be thoroughly assessed and monitored by a healthcare professional
- Athletes with concussion must progress through a Graded Return to Sport (GRTS) protocol
- Participants must receive medical clearance before returning to sport

## WHAT IS CONCUSSION?

- Sport-related concussion may be caused by a direct blow to the head, face or neck, or by impact elsewhere on the body, with force transmitted to the head.
- Concussion is a brain injury.
- Concussion causes a disturbance of brain function.
- Resolution usually proceeds smoothly over days to weeks, but in some cases symptoms are prolonged.

- Concussions occur frequently in winter sports
- Children and adolescents are more susceptible to concussion, generally take longer to recover, have more significant cognitive disturbance and are more susceptible to rare complications, including death caused by a single or second impact.
- In most cases of concussion, there is no loss of consciousness.

### BEWARE OF EMERGENCY HEAD or NECK INJURY

- Cervical (neck) fractures and intra-cranial haemorrhage (bleeding around the brain) are the 2 emergencies that you don't want to overlook.
- First aid principles must take priority when you are faced with a head-injured skier or rider.
  - Pay attention to D-R-A-B-C & immobilising the cervical spine if fracture is possible
  - Refer to the **RED FLAGS** on the [Pocket Concussion Recognition Tool -5 \(Pocket CRT-5\)](#)
  - People with intra-cranial bleeding can deteriorate rapidly at any time in the first 6 hours
    - So, monitor them closely or evacuate to a medical facility if you're concerned
- Forces to the head can also cause lacerations, fractures, or dental injuries.

### CONCUSSION MANAGEMENT STEP-BY-STEP

**STEP 1 - READY****STEP 2 - RECOGNISE****STEP 3 - REMOVE****STEP 4 - REST & RECOVERY****STEP 5 - REHAB: RETURN TO EXERCISE & SPORT**

#### STEP 1 – READY

**Preparation: Wear a Helmet:**

- For prevention or reduction in severity of concussion, we encourage the use of helmets:
  - It is mandatory for an athlete to replace their helmet if they have a head impact or any damage has occurred to their helmet through normal use or travel

**Baseline Testing:**

- Although concussion can be managed without pre-injury baseline testing, it is preferable to have annual:
  - CogSport (or ImPact) baseline computerised testing
  - Clinical baseline by a healthcare professional, using [SCAT5](#) (or [Child-SCAT5 for ages 5-12](#))
- This assists with diagnosis of concussion and often allows an earlier safe return to sport.

#### STEP 2 - RECOGNISE

**First response – apply first aid principles:**

- A head impact can result in injury far more serious than concussion (e.g. brain bleeding or spine fracture)
- Call an ambulance if you suspect ANY of the **RED FLAGS** listed on the [Concussion Recognition Tool 5](#)
  - Pay attention to first aid principles – DRABC
  - Management of unconscious patient
  - Cervical spine care – do not move the patient unless trained to do so

**Recognise the clinical domains of concussion:**

- Use your own observations, video if available and reports from athletes, coaches, teammates or officials
- Keep watching – symptoms may change or take 24-48 hours to appear
- Take note of multiple clinical domains:

Clinical domain	Symptoms	Signs
Somatic	Headache, sensitivity to light or sound	
Cognitive	Feeling slowed down, or in a fog	Amnesia, perseveration, slowed reaction time
Emotional	Sadness, anger	Emotional lability, tearfulness
Neurological	Visual disturbance, incoordination	Neurological signs
Balance	Balance impairment	Groggy, unsteady gait
Behavioural	Irritability	Uncharacteristic aggression
Conscious state	Sleepiness, drowsiness	Loss of Consciousness (LOC)

- Use the Concussion Recognition Tool 5 (CRT5) below (Figure 1)

**Figure 1 – Concussion Recognition Tool 5 (CRT5)**

## CONCUSSION RECOGNITION TOOL 5®

To help identify concussion in children, adolescents and adults

Supported by



### RECOGNISE & REMOVE

Head impacts can be associated with serious and potentially fatal brain injuries. The Concussion Recognition Tool 5 (CRT5) is to be used for the identification of suspected concussion. It is not designed to diagnose concussion.

#### STEP 1: RED FLAGS – CALL AN AMBULANCE

If there is concern after an injury including whether ANY of the following signs are observed or complaints are reported then the player should be safely and immediately removed from play/game/activity. If no licensed healthcare professional is available, call an ambulance for urgent medical assessment:

- Neck pain or tenderness
- Double vision
- Weakness or tingling/ burning in arms or legs
- Severe or increasing headache
- Seizure or convulsion
- Loss of consciousness
- Deteriorating conscious state
- Vomiting
- Increasingly restless, agitated or combative

**Remember:**

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Assessment for a spinal cord injury is critical.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

If there are no Red Flags, identification of possible concussion should proceed to the following steps:

#### STEP 2: OBSERVABLE SIGNS

Visual clues that suggest possible concussion include:

- Lying motionless on the playing surface
- Slow to get up after a direct or indirect hit to the head
- Disorientation or confusion, or an inability to respond appropriately to questions
- Blank or vacant look
- Balance, gait difficulties, motor incoordination, stumbling, slow laboured movements
- Facial injury after head trauma

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#### STEP 3: SYMPTOMS

- Headache
- "Pressure in head"
- Balance problems
- Nausea or vomiting
- Drowsiness
- Dizziness
- Blurred vision
- Sensitivity to light
- Sensitivity to noise
- Fatigue or low energy
- "Don't feel right"
- More emotional
- More irritable
- Sadness
- Nervous or anxious
- Neck Pain
- Difficulty concentrating
- Difficulty remembering
- Feeling slowed down
- Feeling like "in a fog"

#### STEP 4: MEMORY ASSESSMENT

(IN ATHLETES OLDER THAN 12 YEARS)

Failure to answer any of these questions (modified appropriately for each sport) correctly may suggest a concussion:

- "What venue are we at today?"
- "Which half is it now?"
- "Who scored last in this game?"
- "What team did you play last week/game?"
- "Did your team win the last game?"

**Athletes with suspected concussion should:**

- Not be left alone initially (at least for the first 1-2 hours).
- Not drink alcohol.
- Not use recreational/ prescription drugs.
- Not be sent home by themselves. They need to be with a responsible adult.
- Not drive a motor vehicle until cleared to do so by a healthcare professional.

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**ANY ATHLETE WITH A SUSPECTED CONCUSSION SHOULD BE IMMEDIATELY REMOVED FROM PRACTICE OR PLAY AND SHOULD NOT RETURN TO ACTIVITY UNTIL ASSESSED MEDICALLY, EVEN IF THE SYMPTOMS RESOLVE**

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**Note: CRT5 - Step 4: Memory Assessment – Use these winter-sport-specific questions instead:**

- What venue are we at today?
- Which round of the competition is on now?
- Who is leading this competition at the moment?
- What was your last event before this one?
- Where did you come in the last competition?

### STEP 3 - REMOVE

- The athlete **MUST** be removed from play and **MUST NOT** resume sport that day if concussion is suspected
- The athlete should be evaluated by an experienced medical professional - arrange prompt referral
- If there is any doubt about **"red flags"** – spinal or brain injury – referral and evacuation is **urgent**
- The following signs are strongly indicative of concussion:
  - Fitting, convulsions or seizures

- Loss of consciousness – sliding like a “rag doll”
  - Unsteady on feet, “groggy”
  - Disorientation or confusion
- We recommend a cautious approach, “If in doubt, sit them out”
- The athlete should not be left alone; monitor for deterioration over the first 4-6 hours.
- Any athlete with a suspected concussion should go through a Graded Return To Sport (GRTS) Program
- Team-mates, other athletes, coaches, and parents who observe a skier or rider with features of concussion have a duty of care to ensure the athlete is looked after appropriately.
- Referral to a medical practitioner is recommended as soon as possible for comprehensive assessment

#### **STEP 4 - REST & RECOVERY**

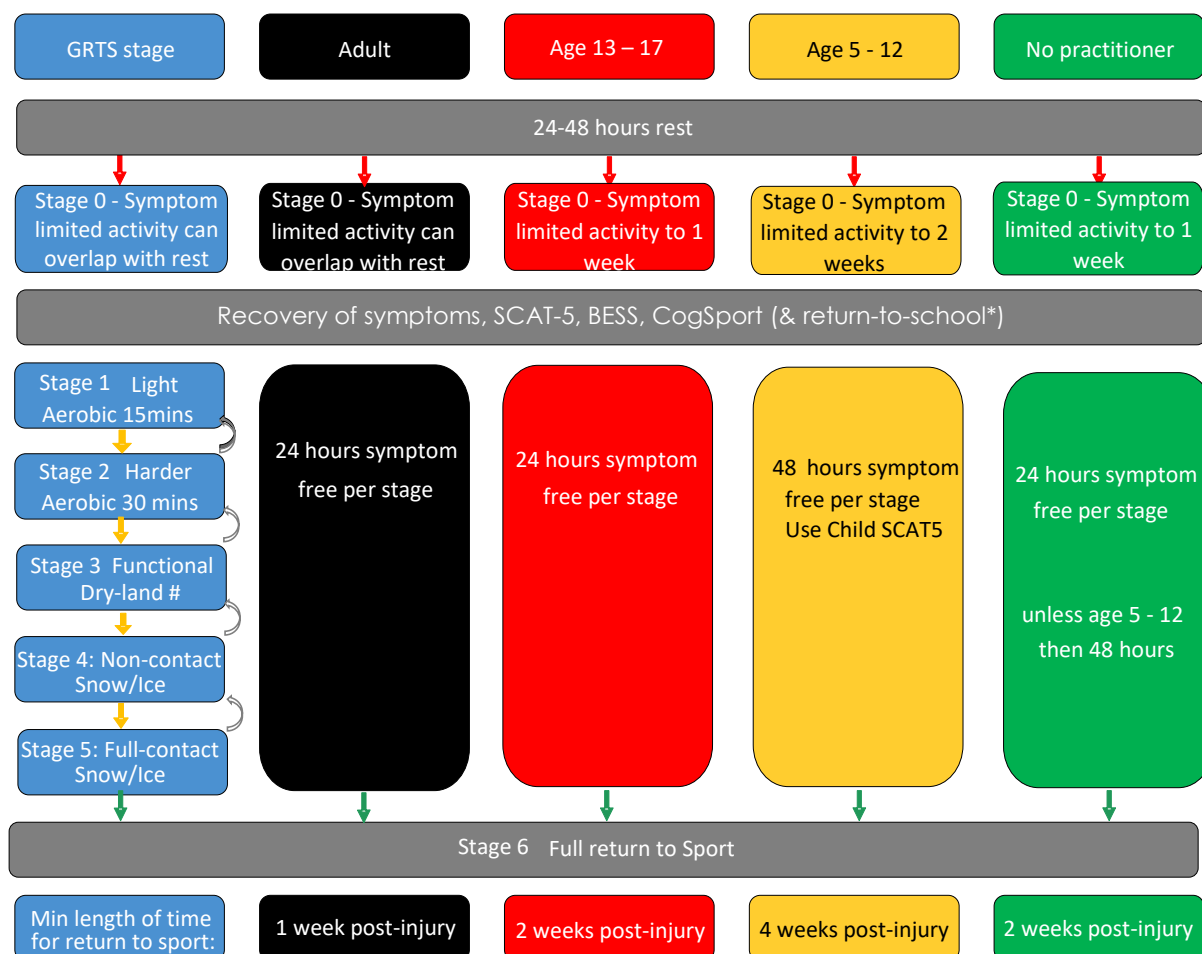
- This is best guided by a medical practitioner with concussion management expertise
- Physical and mental rest
  - “Symptom-limited physical & mental rest” is recommended
    - This means avoiding physical or cognitive activities that worsen symptoms
    - It does not mean “punishment” by complete withdrawal of screen time
    - Rest for only 24-48 hours, even if acute symptoms have not resolved.
    - Allow a comfortable amount of screen use, reading and light exercise (eg. walking)
    - The rest period is usually just 24-48 hours
- GRTS Stage 0:
  - The rest period overlaps with GRTS Stage 0, which continues until all symptoms have gone completely
    - Gradually increase physical and mental activity that does not aggravate symptoms
    - Athletes don’t have to be symptom-free to do light exercise (in fact, it often helps relieve symptoms)
- Successful **return to school** is a key objective of Stage 0
- Medical doctor clearance is needed before commencing Return to Exercise (GRTS Stage 1)
  - This ensures that symptoms and balance have returned to baseline
  - And if available, computerised concussion tests (CogSport, ImPact) are used to confirm recovery.

#### **STEP 5 – REHAB: RETURN TO EXERCISE & SPORT (GRTS 1-6)**

- The Graded Return to Sport Program (GRTS) progresses from light general exercise, to increase the volume, intensity and specificity of exercise.
- The quickest possible progression is to move forward by one stage per 24 hours
- If symptoms recur at any stage, drop back to the previous asymptomatic level and try again 24 hours later
- Medical doctor review is required if recurrent symptoms are:
  - repeated (more than once)
  - severe (needing to miss school or work)
  - prolonged (more than 24 hours)
- Medical clearance is required at 3 time points:
  - Moving from Stage 0 (rest / symptom-limited activity) to commence Stage 1 (light aerobic)
  - Moving from Stage 3 (dry-land) to Stage 4 (snow / ice)
  - Moving from Stage 5 (full-contact snow / ice) to Stage 6 (unrestricted, competition)

■ GRTS Protocol Colour Chart for Winter Sport:

**GRTS Protocol for Winter Sport**



# Note: Medical clearance is required to progress at 3 key time-points:

- Stage 0 (rest & recovery) to Stage 1 (return to exercise)
- Stage 3 (dry-land) to Stage 4 (snow-ice)
- Stage 5 (full-contact) to Stage 6 (unrestricted sport)

\* Note: For school-aged athletes, return to school is an additional prerequisite prior to commencement of GRTS Stage 1

**Graduated Return to School Strategy (GRTS Stage 0)**

Graduated Return to School strategy			
Phase	Aim	Activity	Goal of each step
1	Symptom-free activities at home	Typical symptom-free ADL including reading and screen time, 5-15 minutes & build up	Gradual return to usual activities
2	School activities at home	Homework, reading, other cognitive tasks	Increase tolerance to cognitive work
3	Return to school part-time	Graduated return to schoolwork. Part-day attendance or full days with increased breaks	Increase academic activities
4	Return to school full-time	Gradually progress to full days at school	Return to full academic activities & catch up on missed work

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**GRTS Stages - Main Features: (Refer to [OWIA Concussion Policy V2 SCAT5](#) for more detail.)****GRTS Stage 1 - Light aerobic exercise**

- 15 mins of steady heart rate physical activity, at low intensity (easily able to talk without panting)
- Suitable forms of cardio exercise include treadmill walking, swimming, stationary bike, rower, etc

**GRTS Stage 2 - Moderate aerobic exercise**

- 30 mins steady heart rate activity
  - The first 15 minutes at low intensity, like Stage 1
  - The next 15 minutes at higher intensity
- The cold winter environment is an additional stressor. Outdoor activity such as walking, running or cycling can be incorporated for GRTS Stage 2

**GRTS Stage 3 - Sport-specific functional activities**

- A dry land battery of sport-specific tasks includes activities such as rolling, jumping, landings, hopping
- These can be modified to best replicate the demands of each discipline. Some useful suggestions include:
  - 10 x jumps forwards (continuous)
  - 10 x jumps backwards
  - 10 x hops forward each leg
  - 10 x hops backwards each leg
  - 10 x hops sideways each leg (to L & R with each leg)
  - 10 x crossover hops each leg
  - 10 x double leg landings (from 50cm height)
  - 10 x drop jumps
  - 5 x single leg landings each leg
  - 5 x landing drills with ¼ turn to each side
  - Balance drills – eyes open and closed
  - Handstands
  - Rolls
- This interval type training work leads to variable higher levels of intracranial pressure, as well as challenging coordination, balance and cognitive function
- Medical clearance is required before return to snow/ice (Stage 4)

**GRTS Stage 4 - Non-contact, low-impact, sport specific on-snow/ice training**

- Be sensible and creative in designing a logical progression relevant to the sport and team programming
- Some suggestions include:
  - Mogul skiing - ski flats, smooth easy bottom sections
  - Ski-Cross - ski flats, berms and transitions but no air
  - Half pipe - riding flats, dropping in and riding pipe but no hits
  - Short track - belt work, slow laps
- Weight training and high intensity interval training (HIIT) can also be resumed

**GRTS Stage 5 - Full-contact, normal on-snow/ice training**

- This will include usual practice of jumps, landings, technical manoeuvres, tactical responses and potential for falling and/or physical contact with other athletes
- Resumption of usual resistance training intensity

**GRTS Stage 6 - Unrestricted resumption of competition activities**

- Medical clearance is required.
- The quickest possible progression to Stage 6, is 7 days from the day of injury for adults

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**COMPLEX CONCUSSION SCENARIOS:**

There are a number of modifying factors, which necessitate close medical supervision and a slower progression of the GRTS protocol. These include:

- 2 or more concussions in the previous 12 months
- Multiple concussions over a competitive career
- Concussions occurring with decreased impact force
- Prolonged or severe concussion symptoms

For a more detailed discussion of concussion modifiers, please refer to [OWIA Concussion Policy V2 SCAT5](#)

**SUMMARY****READY**

Prepare by wearing a helmet & getting pre-season baseline testing

**RECOGNISE & REMOVE**

Anyone suspected of concussion must be removed from participation, and not return on the same day

**REFER**

Medical assessment is urgent if there are any RED FLAGS

Medical guidance is required as soon as practical, and at 3 time points in the GRTS process

**REST & RECOVERY**

Rest & limit light exercise until all symptoms have resolved, school has resumed and baseline tests are normal again

**REHAB: GRADED RETURN TO SPORT**

Medical clearance is needed to progress from GRTS Stage 0 to 1 (light exercise), Stage 3 to 4 (snow / ice) and Stage 5 to 6 (unrestricted competition)