P35 CONCUSSION MANAGEMENT GUIDELINES

Scheduled Reviewed Triennially or as required

Date of Board Approval 11 November 2019 Updated 30 November 2023

INTRODUCTION

Karting Australia takes the safety and wellbeing of our Competitors, teams and Officials seriously. These guidelines should be followed in any incident or when there is risk of concussion or any situation where concussion is suspected.

Australian based guidelines, education programs, research and referral tools are available at Concussion in Sport Australia ***https://www.concussioninsport.gov.au/***

These CONCUSSION GUIDELINES follow the "11 R's" of Sports Related Concussion management;

1. RECOGNISE	**2. REDUCE**	**3. REMOVE**
4. REFER	**5. RE-EVALUATE**	**6. REST**
7. REHABILITATE	**8. RECOVER**	**9. RETURN-TO- LEARN/RETURN-TO-SPORT**
10. RECONSIDER	**11. RESIDUAL EFFECTS**	

Mandatory Exclusion Period after Concussion Diagnosis

Adults (18 years and over)

- **Minimum period of exclusion is 10 days from diagnosis.**

Less than 18 years

- **Minimum period of exclusion is 14 days from resolution of symptoms.**

RECOGNISE

Sport-related concussion is a type of traumatic brain injury. It is caused by a direct blow to, or sudden deceleration or rotation of, the head, neck or body resulting in an impulsive force being transmitted to the brain. It does not require a head strike or loss of consciousness.

Symptoms and signs may present immediately, or evolve over minutes or hours, and commonly resolve within days, but may be prolonged.

Initial assessment of any person involved in an incident should first follow standard first-aid and trauma management procedures. Appropriate training may include First Aid, Basic Life Support, Advanced Trauma Life Support and/or Prehospital Trauma Life Support.

Emphasis is on assessing **Danger** at the scene, **Responsiveness** of the injured, assessment and management of **Airway**, **Breathing** and **Circulation**.

Unconscious/unresponsive persons should not be moved unless for airway or urgent medical management and/or reasons of safety.

Assessment for a spinal and/or spinal cord injury is a critical part of the initial evaluation. Only do so if you are trained.

Do not remove a helmet or any other equipment unless trained to do so safely or for reasons of immediate risk to the injured e.g. airway management or fire.

It is the responsibility of the competitor to inform Karting Australia of any concussion that occurs outside of a Karting Australia activity or event.

REDUCE

Drivers and teams must be aware of current Karting Australia safety equipment Rules (**Technical Rules Chapter 7 – Apparel**) and CIK homologation requirements, including expiry of use dates. Appropriately homologated and properly fitting safety apparel and equipment is important to reduce the risk of injury. Drivers should regularly assess their equipment for damage including but not limited to seats, helmets, chest and rib protectors, neck braces.

Homologated karts and seats may also reduce the risk of head-strike and/or concussion.

Optimal concussion management can reduce the risk of future concussion.

REMOVE

Any person suspected of concussion should be removed from training or competition until they have been evaluated:

- Mechanism of injury – Any incident that results in a significant impact, including sudden stop, side or vertical impact or rotation of the vehicle.

- Reported or witnessed features of concussion, significant concern or associated Red Flags. See **Concussion Recognition Tool 6 (CRT6).**

Mandatory removal from competition/practice for further evaluation;

- loss of consciousness
- motionless for >5 sec post incident
- no protective action was taken by the competitor after the initial impact
- impact seizure or tonic posturing (abnormal outstretched limbs)
- confusion, disorientation
- memory impairment/amnesia
- balance disturbance or motor incoordination (e.g. ataxia - clumsy movement/walking/removing themselves from vehicle)
- athlete reports significant, new, or progressive concussion symptoms dazed, blank/vacant stare or not their normal selves.
- behaviour change atypical of the athlete.

ASSESSMENT

Evaluation of possible signs or symptoms of concussion can be performed by anyone.

First Aid, Officials, Teams, and Crew

- Use **Concussion Recognition Tool 6** (CRT6)

Healthcare Providers Experienced in Concussion Assessment

- If the person is 13yo or older
  - Use **Sports Concussion Assessment Tool 6 (SCAT6)**
- If the person is less than 13yo
  - Use the **Child SCAT6**

FOR CRT6/SCAT6

Suggested modifications to the Maddocks/Awareness questions for the karting competitor/official.

"Which track are we at today?"
"What session were you in?"
"What was the corner that your incident occurred on?"
"What circuit/event were you last at prior to this one?"
"What was your result at the last event you attended?"

Failure to answer any of these questions correctly may suggest a concussion.

POST EVALUATION AND REPORTING

All "Red Flag" symptoms and signs should have an ambulance called immediately.

Unclear or suspected of concussion

- Refer for further evaluation **"*If in doubt, sit them out*"**
- Licence is suspended pending further evaluation and/or clearance
- Email details to operations@karting.net.au
- Licence suspended on KOMP

NOT suspected of concussion

- Cleared to return to competition.

REFER

"*<u>If in doubt, sit them out</u>*".

If there is any doubt in the case of suspected concussion, then the person should be removed from competition/training until they are referred to a health care provider for further evaluation.

Referral of all cases of suspected concussion should be referred to a healthcare provider. Initially, if not seen by a healthcare provider at an event, this referral should be to an Emergency Department.

Those with clear concussion symptoms should be referred to a healthcare provider experienced in the assessment and management of concussion.

Head injury/Concussion advice should be provided to the individual.

RE-EVALUATE

SCAT6/Child SCAT6 are most useful for evaluation and re-evaluation in the **first 72 hours.** Although their utility still exists for up to 5-7 days.

Re-evaluation by a specialist or healthcare provider after the initial 72 hours and/or diagnosis of concussion may include the use of office-based assessment tools and/or other assessment tools including imaging and functional assessments.

More expansive office-based assessment tools include;

- **<u>Sports Concussion Office Assessment Tool 6 (SCOAT6)</u>**
- **<u>Child Sports Concussion Office Assessment Tool 6 (Child SCOAT6)</u>**

REST

Relative rest (continue normal activities of daily living) and reduced screen time are encouraged for the first 48 hours. Strict rest, dark room and total screen restriction is no longer recommended.

Light physical activity is encouraged even if it mildly exacerbates symptoms. If moderate to severe symptoms occur, then activity should be reduced.

Individuals should systematically increase the levels of physical activity and exertion based on their symptoms and exacerbation of those symptoms.

Discussion and clear planning with their healthcare provider is strongly recommended.

REHABILITATE

Symptoms lasting more than 10 days should be referred to a specialist for a detailed evaluation and specific rehabilitation program.

Active symptoms persisting for greater than four weeks in children and adolescents should be referred for multi-specialist input.

Symptoms that recur as part of a Return-to-Sport or Return-to-Learn may also benefit from specific rehabilitation programs.

RECOVER

Assessment of clinical recovery should incorporate three components;

- Resolution of symptoms
- Resolution of symptoms under dynamic load including maximal exercise and cognitive load
- Completion of a Return-To-Sport program

RETURN-TO-SPORT/RETURN TO LEARN

Mandatory exclusion periods apply.

No competitor diagnosed with concussion may return to competition without completing a Return-To-Sport process and must have been cleared by a medical practitioner.

Exclusion Period

Adults (18 years and over)

- **The MINIMUM period of exclusion is** 10 days from diagnosis.

Less than 18 years

- **The MINIMUM period of exclusion is** 14 days from resolution of symptoms.

Return-To-Learn (RTL) programs are not required for all individuals but may be of benefit in those who have difficulty with cognitive tasks post-concussion and those that have exacerbation of symptoms during screen time and when performing cognitive tasks.

Detailed Return-To-Sport (RTS) programs should be followed in a stepwise fashion with increasing levels of exertion, cognitive load and
RTS and RTL should occur in parallel.

The Return-to-Sport Protocol should be supervised by a medical practitioner. If this is their second concussion within 12 months or third concussion ever, then a specialist review by a neurologist or neurosurgeon familiar with concussion management is required.

Please see the appendices for RTS and RTL procedures.

RECONSIDER

Effects of concussion and repeated concussion may have long term health implications. Specialist consultation is encouraged and is mandated in those with repeated concussions. An assessment of the balance of risks and rewards should be considered, including possible long-term effects and consideration of retirement.

Child and adolescent concussion should also take into account the possible impacts on learning and long-term implications in development. Repeated concussions in children and adolescents require specialist input and regular clearance to compete in sport, not restricted to motor sport.

RESIDUAL EFFECTS

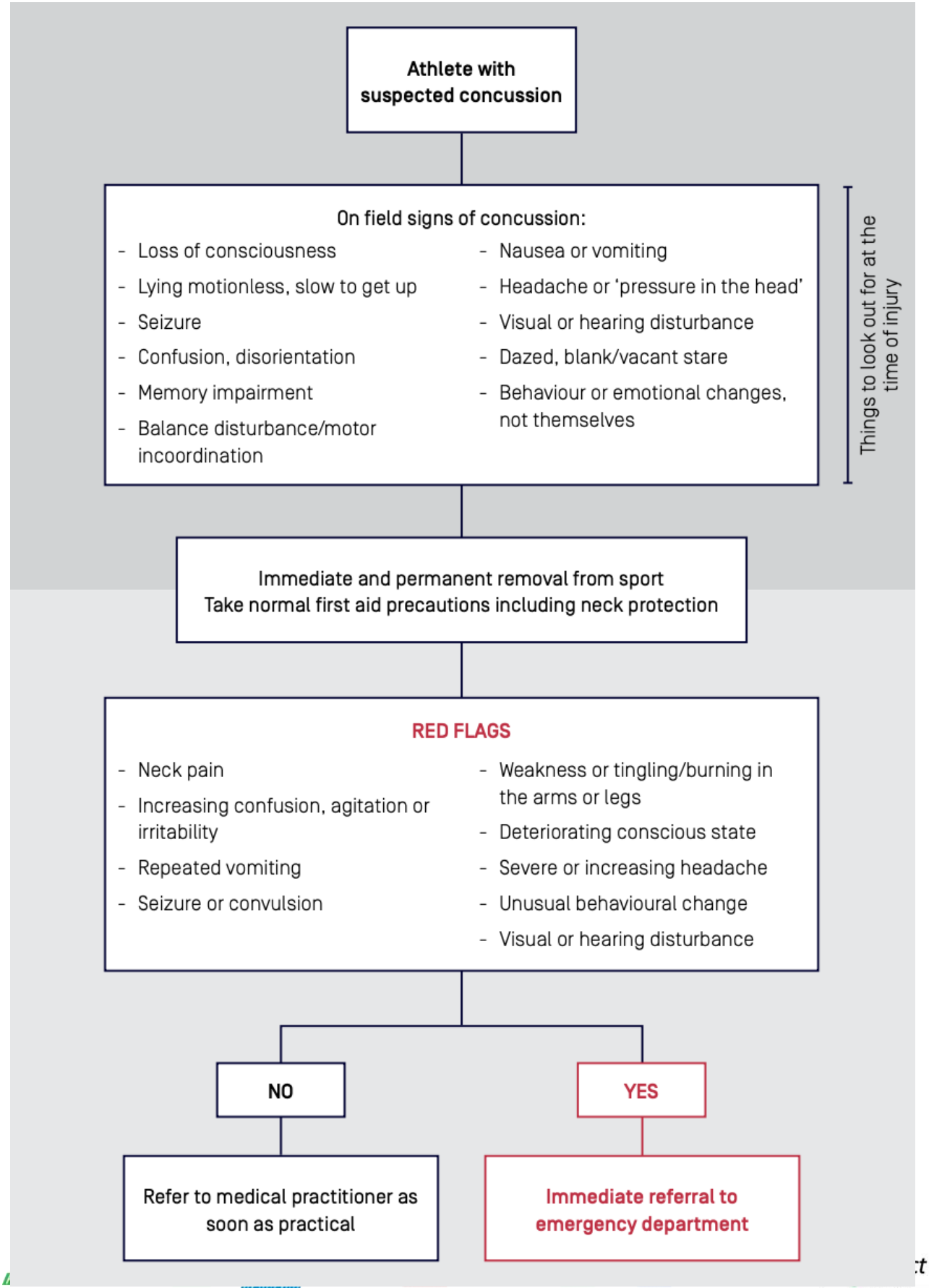
Ongoing residual effects from concussion may occur. Those suffering from long term symptoms or sequelae should actively engage a specialist in concussion management.

Engagement in long-term research projects may help inform future management of concussion and improved outcomes. For example, the Concussion and Brain Health (CBH) Project 2021-2024 by the AIS.

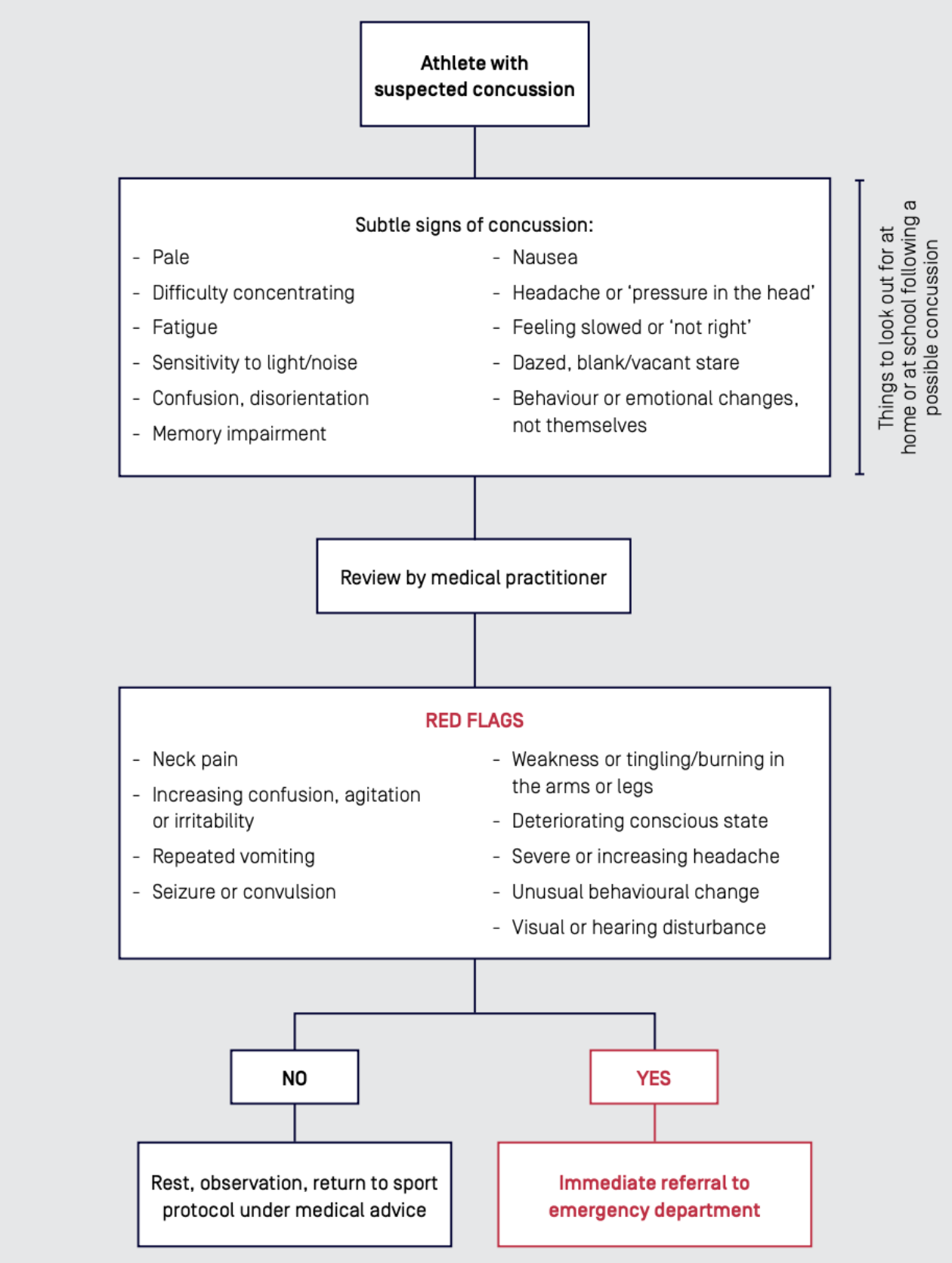
ASSESSMENT

Flowcharts courtesy of Concussion and Brain Health Position Statement 2023

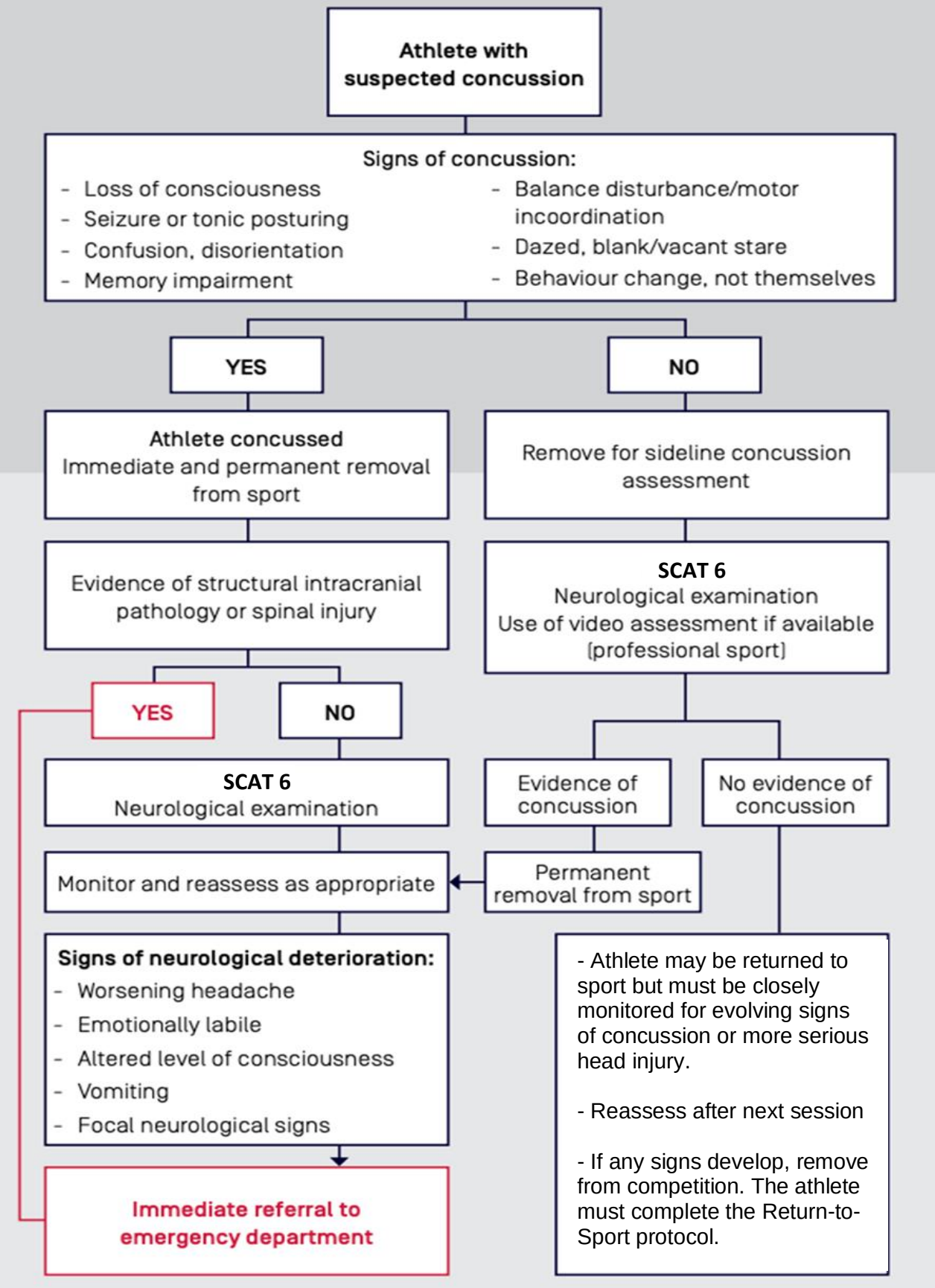
NON-MEDICAL TRACKSIDE ASSESSMENT - USE CRT6



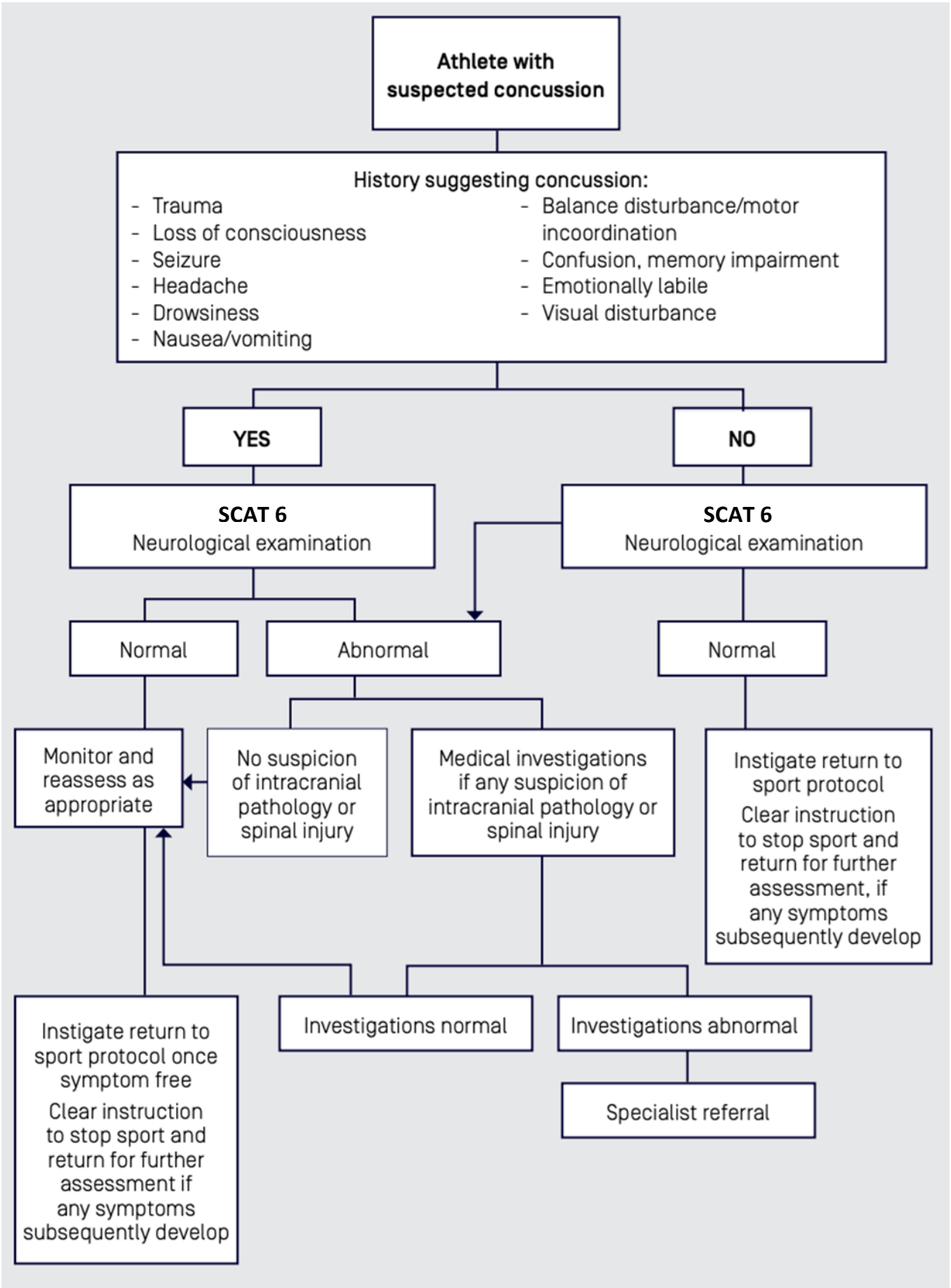
NON-MEDICAL OFF-TRACK ASSESSMENT - USE CRT6



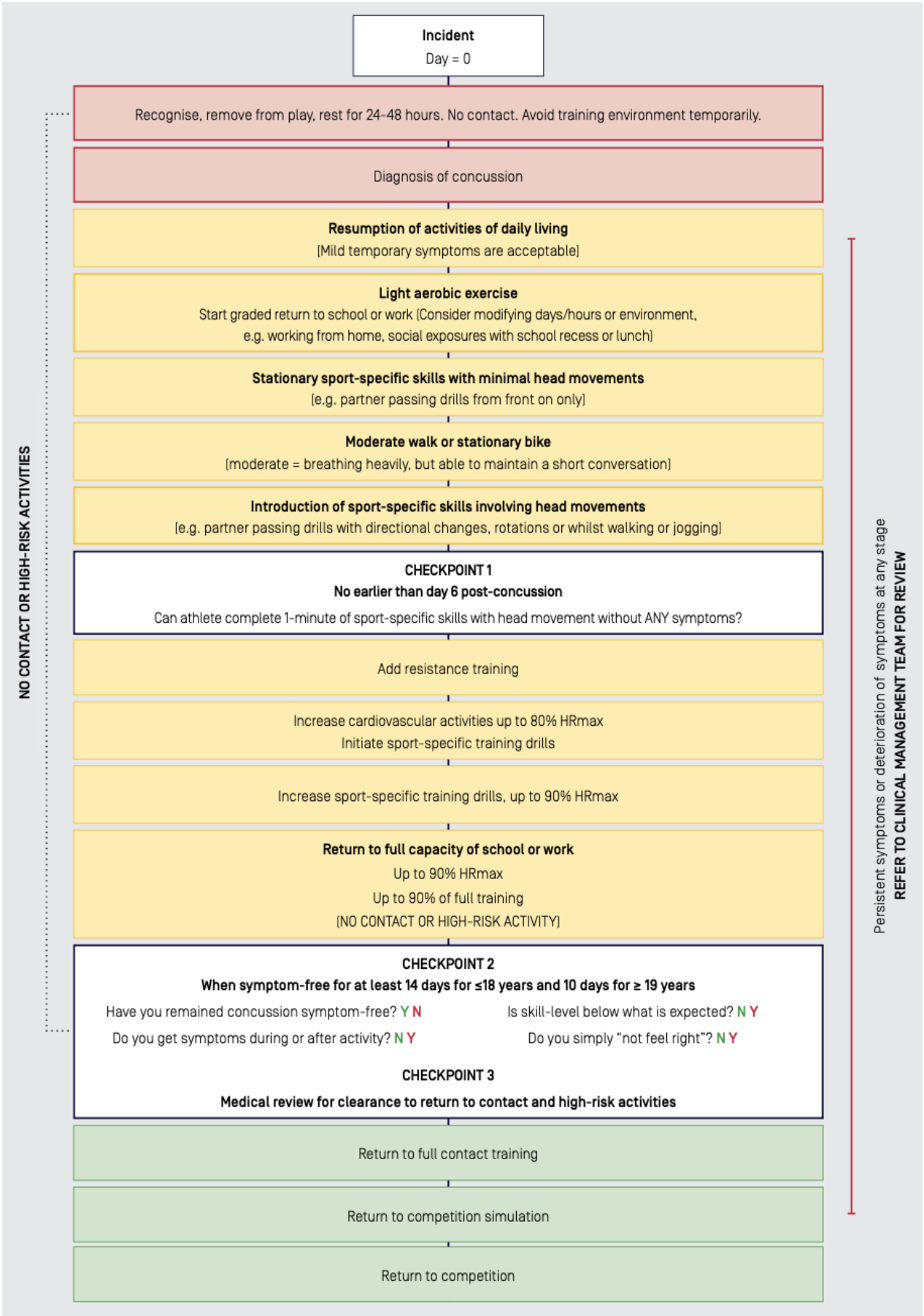
MEDICAL TRACKSIDE ASSESSMENT - USE CRT6 AND SCAT6



MEDICAL OFF-TRACK ASSESSMENT



RETURN-TO-SPORT PATHWAY



Return-To-Sport

Step	Exercise Strategy	Activity at Each Step	Goal
1	Symptom-limited activity.	Daily activities that do not exacerbate symptoms (e.g., walking).	Gradual reintroduction of work/school.
2	Aerobic exercise **2A – Light** (up to approx. 55% max HR) **then** **2B – Moderate** (up to approximately 70% max HR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate.
3	Individual sport-specific exercise **NOTE:** if sport-specific exercise involves any risk of head impact, medical determination of readiness should occur prior to step 3.	Sport-specific training away from the team environment (e.g., running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction.
Steps 4-6 should begin after resolution of any symptoms, abnormalities in cognitive function, and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills.	Exercise to high intensity including more challenging training drills (e.g., passing drills, multiplayer training). Can integrate into team environment.	Resume usual intensity of exercise, coordination, and increased thinking.
5	Full contact practice.	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff.
6	Return to sport.	Normal game play.	

maxHR = predicted maximal Heart Rate according to age (i.e., 220-age)

Age Predicted Maximal HR= 220-age	Mild Aerobic Exercise	Moderate Aerobic Exercise
55%	220-age x 0.55 = training target HR	
70%		220-age x 0.70 = training target HR

Return-To-Learn

Step	Mental Activity	Activity at Each Step	Goal
1	Daily activities that do not result in more than a mild exacerbation* of symptoms related to the current concussion.	Typical activities during the day (e.g., reading) while minimizing screen time. Start with 5–15 min at a time and increase gradually.	Gradual return to typical activities.
2	School activities.	Homework, reading, or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work.
3	Return to school part time.	Gradual introduction of schoolwork. May need to start with a partial school day or with greater access to rest breaks during the day.	Increase academic activities.
4	Return to school full time.	Gradually progress school activities until a full day can be tolerated without more than mild* symptom exacerbation.	Return to full academic activities and catch up on missed work.

NOTE: Following an initial period of relative rest (24-48 hours following injury at Step 1), athletes can begin a gradual and incremental increase in their cognitive load. Progression through the strategy for students should be slowed when there is more than a mild and brief symptom exacerbation.

*Mild and brief exacerbation of symptoms is defined as an increase of no more than 2 points on a 0-10 point scale (with 0 representing no symptoms and 10 the worst symptoms imaginable) for less than an hour when compared with the baseline value reported prior to cognitive activity.

Karting Specific Suggested Return-To-Sport

See above for more detailed approaches to each step.

Step	Exercise Strategy	Activity at each step	Goal
1	Symptom limited activity	Daily activities that do not exacerbate symptoms (e.g. walking)	Gradual return to typical activities
2	Aerobic Exercise 2A - Light <55% Max HR then 2B - Moderate up to 70% Max HR *see above for calculations	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increased heart rate
3	Individual Sport Specific Exercise	Sport-specific training away from the team environment (e.g., running, change of direction, cycling/running including around circuits or tracks, and/or individual training drills). Simulators including gaming. No activities at risk of head impact.	Add movement and change in directions
4	Non-Contact Training Drills	Exercise to high intensity including more challenging training drills. Simulators/gaming after high aerobic exercise. Low speed karting training (e.g. individual karting, low - moderate speed laps)	Resume usual intensity of exercise, coordination, and increased thinking
5	Full Practice	Participate in normal training. High speed karting, private practice, event practice sessions (with clinical review post session).	Restore confidence and assess functional skills by coaching staff.
6	Return To Sport	Normal event inclusion. Practice, qualifying and racing.	

References

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