

## Appendix E) Concussion Modifiers

There are several modifying factors which may necessitate slower progression of the GRTS protocol. Many of these are addressed in the OWIA Concussion Management Pathways flowchart, including age, Criteria 1 presentation, concussion history, rate of early recovery and level of health care support available.

The presence of multiple concussion modifiers may have a cumulative influence on the management timeline. These can include:

### a) Comorbidities

- Medical and psychological conditions can modify concussion presentation or recovery
  - Headache disorder or migraine
  - Learning disability / dyslexia
  - Attention deficit hyperactivity disorder (ADHD)
  - Depression, anxiety or other psychological disorders
- Some symptoms such as sleep disturbance, depression and anxiety may be exacerbated by concussion. It is important that these symptoms return to pre-injury status.

### b) Sport / behaviour

All sports which fall under this policy are considered high risk and all athletes covered by this policy participate in elite level sport. Therefore, there is very little difference in the risk of returning to full contact, unrestricted training and returning to competition.

### c) Para Athlete / Disability

The concussion experience of the para-athlete is unique, due to the interaction of the individual's primary impairment and the pathophysiology of concussion.

Paralympic athletes are known to be at higher risk of injury when compared to athletes without disability. Those athletes with vision impairments may be at even greater risk of concussion, due to the mechanism of injury primarily being through collisions or direct head contact.

The Concussion in Para Sport Group Position Statement recommends the following:

1. Individuals with a history of central nervous system injury (eg. Cerebral Palsy, stroke) may require an extended period of initial rest.
2. Testing for symptoms of concussion may require modification.
3. RTS must be tailored to and include use of the individual's personal adaptive equipment. This includes partnership with their guide for athletes with vision impairment.