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Statement on Concussion Baseline Testing in Canada

Parachute is releasing this statement to clarify the role of concussion baseline testing for Canadian youth and adult athletes. Members of Parachute's Expert Advisory Concussion Subcommittee were consulted in the development of this statement.

Background

On July 28th 2017, Parachute released the *Canadian Guideline on Concussion in Sport*.[1] This Guideline was developed based on the published systematic reviews that informed the 5th International Consensus Conference on Concussion in Sport (Berlin, 2016), expert consensus opinion from the Parachute Expert Advisory Concussion Subcommittee, and input from important stakeholders in Canadian sport, health, government, and education. The overall goal of the *Canadian Guideline on Concussion in Sport* is to provide clear and consistent information to all Canadian sport stakeholders (including athletes, parents, coaches, officials, teachers, trainers, and licensed healthcare professionals) on evidence-informed approaches that can prevent concussion and more serious forms of traumatic brain injury and help identify and manage an athlete with a suspected concussion.

One related issue that is not discussed in the *Canadian Guideline on Concussion in Sport* but that requires clarification is the role of concussion baseline testing in Canadian youth[2] and adult athletes. Baseline testing refers to the practice of having an athlete complete certain concussion assessment tools prior to sport participation to provide baseline measurements that can be compared to post-injury values in the event of a suspected concussion.

In recent years, baseline testing using a number of tools has become increasingly marketed to athletes throughout Canada by physicians and allied health professionals as a mandatory or recommended practice to help improve the care of athletes post-injury with suspected concussion. Although research continues to help examine the value of baseline testing with certain tools in certain athlete populations, Parachute, in consultation with members of our Expert Advisory Concussion Subcommittee, makes the following key recommendations with respect to the use of baseline testing in Canada.

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[1] Available at: http://parachutecanada.org/guideline.

[2] As defined in the *Canadian Guideline on Concussion in Sport*, a youth athlete is any sport participant under the age of 18. An adult athlete is any sport participant aged 18 years or older.

Recommendations for the use of concussion baseline testing in Canadian youth and adult athletes

1. Baseline testing of youth and adult recreational athletes using any tool or combination of tools is not required to provide post-injury care of those who sustain a suspected or diagnosed concussion. Baseline testing is not recommended in youth athletes regardless of the sport or level of play.

Current evidence does not support a significant added benefit of baseline testing in youth athletes or adult recreational athletes with the Child SCAT5, SCAT5 or computerized neurocognitive tests. Therefore, baseline testing of youth athletes or adult recreational athletes to assist in the medical management of those with a diagnosed concussion is not necessary and is not recommended at this time. Because medical doctors and nurse practitioners are the only healthcare professionals that are licensed in Canada to provide medical assessment of athletes with a suspected concussion and medical clearance of athletes with a suspected or diagnosed concussion, obtaining baseline testing from allied health professionals using any tool or test is not recommended.

2. Baseline testing is often used for adult national team-affiliated athletes where teams have access to licensed healthcare professionals who provide care to these athletes on a regular basis. If baseline testing using certain tests is considered for selected adult athletes, it is recommended that the medical teams caring for these athletes have access to the licensed healthcare professionals who are optimally trained and licensed to administer and interpret these tests.

The *Canadian Guideline on Concussion in Sport* states that licensed healthcare professionals (an experienced athletic therapist, physiotherapist or medical doctor) may use the SCAT5 to evaluate national team-affiliated adult athletes with a suspected concussion and make sideline decisions regarding return-to-sport (Parachute, 2017). Only those licensed healthcare professionals that have experience administering and interpreting the results of sideline assessment tools should consider use of these tools for baseline and post-injury testing in national team-affiliated adult athletes.

If other baseline tests are considered to aid in the in-office medical management of selected national team-affiliated adult athletes (for example, computer-based or non-computer-based neurocognitive or neuropsychological tests), it is recommended that licensed healthcare professionals that are optimally trained to use these tests (for example, neuropsychologists) be available to interpret the results (McCrory et al, 2017). All licensed healthcare professionals that consider baseline testing of selected adult athletes should be aware of the potential limitations of the tests they use and take this into clinical consideration when providing multi-modal medical assessment and medical clearance of athletes with a suspected or diagnosed concussion.

Additional considerations: Post-injury testing

Assessment Tools and Sideline Medical Assessment

Tools such as the Child SCAT5, SCAT5 and others are not to be used to make sideline decisions on returning youth athletes to sport. The *Canadian Guideline on Concussion in Sport* states that licensed healthcare professionals may use tools such as the Child SCAT5 or SCAT5 to document initial neurological status in athletes with a suspected concussion but these tools should not be used to make sideline return-to-sport decisions in youth athletes (Parachute, 2017). Any youth athlete who sustains a suspected concussion must not return to the game or practice the same day and should be referred for medical assessment by a medical doctor or nurse practitioner as soon as possible.

Assessment Tools and Concussion Management

Current evidence supports the use of SCAT5 testing in assessing athletes with acute concussion, but its utility appears to decrease significantly 3-5 days post-injury (McCrory et al, 2017). Concussion management and return-to-sport decisions should be multi-faceted and made on an individualized patient basis by the managing medical doctor or nurse practitioner, not by using any one specific test or group of tests.

If post-injury neurocognitive or neuropsychological testing is deemed medically necessary, it is recommended that these tests ideally be administered and interpreted by a registered neuropsychologist.

All athletes with a suspected or diagnosed concussion should receive written medical clearance by a medical doctor or nurse practitioner prior to returning to sport activities.

Key Messages

Based on the above-stated recommendations and the recommendations of the *Canadian Guideline on Concussion in Sport*, the following key messages are important for communicating about concussion and baseline testing:

1. Baseline testing is not required for post-injury care of youth athletes with suspected or diagnosed concussion and is not recommended.

2. Recognize and remove. Rather than using resources for baseline testing, sport organizations are encouraged to develop processes within their organizations to "recognize and remove" when a suspected concussion has occurred. (See *Concussion Recognition Tool 5*)

3. Appropriate medical assessment, management, and return to sport are key. Concussion management and return-to-sport decisions are multifaceted and should be made on an individualized basis by the managing medical doctor or nurse practitioner, not by using any one specific test or group of tests. Thus, it is important that an individual with a suspected concussion be seen by a medical doctor or nurse practitioner with experience in concussion management for appropriate care as soon as possible following injury.

Updates to this Statement

As research continues to shed light on the field of concussion, these recommendations on the use of baseline testing in athletes may require modification to incorporate new knowledge. Rather than using resources for baseline testing, sport organizations are encouraged to develop processes within their organizations that promote prevention, recognition, and management of concussion as outlined in the *Canadian Guideline on Concussion in Sport*.

References

McCrory, P., et al. (2017). Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016. *British Journal of Sports Medicine, 51*(11), 838-847.

Parachute. (2017). *Canadian Guideline on Concussion in Sport*. Toronto: Parachute.