Concussion in sport: the consensus process continues

Kathryn J Schneider 1,14, Jon Patricios 2, Ruben J Echemendia 13, Michael Makdissi 4,5, Gavin A Davis 6,7, Osman Hassan Ahmed 8,9,10, Cheri Blauwet, 11 Jiří Dvorák 12, Lars Engebretsen 13,14

Our understanding of the prevention, detection, management and potential longer-term effects of concussions in sport have evolved rapidly over the last 20 years. In 2001, the International Ice Hockey Federation (IIHF) initiated a meeting to discuss the diagnosis and management of sport-related concussion (SRC). This meeting was held in conjunction with the International Olympic Committee (IOC) and Fédération Internationale de Football Association (FIFA) in Vienna, Austria.

Every 4 years researchers and clinicians with expertise in SRC are brought together to summarise the published literature and provide updated, evidence-informed recommendations regarding the evaluation and management of concussions.1-5 To date, there have been five consensus statements. This 20-year journey has been supported by sports organisations including the IOC, IIHF, FIFA and later by Fédération Equestre Internationale, World Rugby and the Fédération Internationale de l’Automobile. The sporting bodies are then able to take the evidence summaries and consensus recommendations that are created and develop concussion guidelines specific to their sports.

The authorship group of the Consensus Statements has led the development and writing of the resulting output of the meetings including a quadrennial consensus statement and the accompanying Concussion Recognition Tool and Sports Concussion Assessment Tools (SCAT) for adults and children.4 Authors have been selected based on their research and clinical expertise in the area of concussion, including consideration for representation from broad geographical and content areas. The concussion consensus group remains aware of the need for a rigorous scientific process and has ensured since its inception that all outputs are made freely available to athletes and their medical providers.

AN EVER-CHANGING ‘FIELD’

As the evidence has evolved, so too have the recommendations. The SCAT Card, first published in Prague, 2004 has evolved to include the evaluation of additional domains such as balance assessment, cervical spine evaluation and a neurological screen in its most comprehensive iteration, the SCAT5 (fifth International Consensus Conference in Berlin, 2016).6 7 Gone are the days of resting for a prolonged time period in a dark room or ‘grading’ a concussion. Previous recommendations were to rest until asymptomatic and then gradually introduce increased levels of physical and cognitive exertion. However, given the mounting evidence for a more active approach to recovery following SRC, the current return-to-play progression evolved to advocate for a brief period of 24-48 hours of relative cognitive and physical rest prior to progressing to activities of daily living and then proceeding through a subsymptom threshold graduated return to sport strategy.4 8 The literature continues to evolve as we learn more about this common and heterogeneous injury. It will be exciting to see where the discoveries in the next 20 years will take us!

PLANNING AHEAD: THE PROCESS

The sixth International Consensus Conference on Concussion in Sport was first postponed to October of 2021 due to the pandemic. Given the interactive nature of the conference, the consensus format lends itself better to an engaged on-site meeting rather than an online or hybrid format. Global time zones posed additional challenges in agreeing on optimal scheduling of key sessions online. Unfortunately, due to travel limitations and the lack of ability to have participants from around the globe participate meaningfully in two full days of meetings followed by the expert panel consensus seminar, virtually or in a hybrid format, the Conference was again rescheduled—this time to Amsterdam on 27 October 2022–29 October 2022. This conference brings together researchers, clinicians and stakeholders with an interest in concussion in adults, children and athletes with disabilities, to summarise and present the latest science, discuss the current state of the evidence and write the sixth International Consensus Statement on Concussion in Sport.

A series of systematic reviews on key topics in SRC (acute screening, follow-up postinjury evaluation, rest and exercise, treatment/rehabilitation, persistent symptoms, recovery, return to sport, residual/long-term effects, retirement, risk reduction/prevention) are currently in preparation. The conference begins with 2 days of open meetings where the latest evidence is summarised and discussed. The accepted abstracts for each topic area will be presented as posters and the two top ranked abstracts in each category will be presented as podium presentations at the beginning of each topic of discussion. Each systematic review will then be presented, followed by a discussion period, which will be scripted for reference during the panel meeting. The third day is a consensus meeting that focuses on answering predetermined clinically relevant questions. The participants in the consensus meeting have been selected based on their expertise in SRC, while keeping in mind geographical and specific areas of content knowledge. Finally, the fourth day will focus on development and updating of tools such as the SCAT. The scientific committee is cognisant that SRC is a critical area of public health interest and
will embrace a broader spectrum of topics, experts and participants than ever before. A separate manuscript will describe the details of the methodology used. While consensus will be sought, dissenting opinions will be acknowledged and taken into full consideration. Athletes’ input will also be sought as part of this process. The science will be robust, the emerging advice will be athlete-centred, and the accompanying tools freely accessible.

**ABSTRACTS**

In order to acknowledge the work of researchers in the build-up to 2020/2021 and delays due to the COVID-19 pandemic, the scientific committee has decided to publish a first group of abstracts. These abstracts have undergone a peer-review process and cover all aspects of concussion science and clinical care. We invite you to submit your current research on concussion in sport during the second call for abstracts, which will close on 15 June 2022. Following the conference, the systematic reviews, methodology paper, abstracts submitted during the second call, and updated tools that result from the meeting will be submitted for publication and external peer-review alongside the consensus statement. Of note, the resulting papers are completed and approved by the co-authors of each manuscript, with no review or requirement for approval from the Sport Organisations who contribute educational grants and funding for the meeting.

**SEE YOU THERE!**

Since the conference was delayed for 2 years, when we meet again it will be 6 years since our fifth Consensus Statement on Concussion in Sport was published. We look forward to seeing you in Amsterdam on 27 October 2022–29 October 2022 to discuss concussions in sport! For more details on the conference, please see: https://www.concussionconference.org

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**Collaborators** Lars Engebretsen is signing on behalf of the Organising Committee of the 6th International Consensus Conference on Concussion Sport.

**Contributors** All authors contributed to the writing of the editorial. KJS and JP were responsible for the initial draft of the work which was critically reviewed and edited by all other authors.

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**Competing interests** KJS is a lead and coinvestigator on grants related to concussion and traumatic brain injury funded by several government or other organisations (including but not limited to the Canadian Institutes of Health Research, Canadian Academy of Sport and Exercise Medicine, National Football League Scientific Advisory Board, Public Health Agency of Canada/Parachute Canada, Hotchkiss Brain Institute, Wellcome Trust, International Olympic Committee, Highmark Innovations Inc, Mitacs Accelerate, University of Calgary) with funds paid to her institution and not to her personally. She is an Associate Professor and Clinician Scientist at the University of Calgary in the Sport Injury Prevention Research Centre and is a Physiotherapy Consultant, primarily working with patients with concussion and traumatic brain injuries. She is an Associate Editor of BJSM (unpaid) and has performed travel and accommodation support for meetings where she has presented. She is coordinating the writing of the systematic reviews that will inform the 6th International Consensus on Concussion in Sport, for which she has received an educational grant to assist with the development of free-to-access abstracts submitted during the second call, and updated tools that result from the meeting will be submitted for publication and external peer-review alongside the consensus statement. Of note, the resulting papers are completed and approved by the co-authors of each manuscript, with no review or requirement for approval from the Sport Organisations who contribute educational grants and funding for the meeting.

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youth sport is unclear, case reports reveal condemnation, the lasting impact on this phenomenon at the elite level. However, the rate of youth abuse, especially in Figure 1. A new paradigm centered model designed to promote healthy, resilient and capable youth athletes. This paradigm recognizes the importance of not only enhancing athletic performance but also prioritizing mental health and well-being. The pursuit of the young skater for answers to her coach (with the apparent dysfunction) further highlights the need for timely and appropriate intervention.

Increasingly, we are witnessing younger athletes subjected to psychosocial pressures and emotional abuse, notably overlooking harmful potential risks. Left unchecked, more youth athletes are at risk of injury, burnout, or worse. This raises numerous concerns regarding the pursuit of excellence in sport, the rising number of Russian teenager Kamila Valieva and doping related harassment and abuse. Although this concerning display in Beijing at the 2022 Winter Olympic Games is too commonplace. Fortunately, European athletes reported an alarming trend with expansion of new ‘youth-orientated’ sports (eg, skateboarding, sport dancing, parkour). With earlier emphasis on athletic/sport success en route to and at the Olympic Games, the rise in everyday injury prevention training, beginning at the grass roots level, will increase every stakeholder engaging education and practical knowledge. Norway shows how effective, holistic development approach can creatively translate science into action and, in turn, gives ownership through motivation and engagement. In 2014, the International Olympic Committee (IOC) convened a meeting on youth oriented world-class events, the Summer Youth Olympic Games (YOG) in Buenos Aires (2018) and Winter YOG in Lausanne (2020). The definitive evidence-based consensus statement3 stands as the result of this conference on concussion in sport held in Berlin, October 2016. Br J Sports Med 2017;51:838–47.


With a deliberate effort to inspire success for all youth athletes in a new paradigm centered model, Norway shows how the national sport organisations and International Olympic Committees, a new oversight levels—will need to responsibly oversee levels—will need to responsibly collaborate in concert. It will be important that all national educational school system) and National Olympic Committees, a new oversight levels—will need to responsibly collaborate in concert. It will be important that all national educational school system) and National Olympic Committees, a new oversight levels—will need to responsibly collaborate in concert. It will be important that all national educational school system) and National Olympic Committees, a new oversight levels—will need to responsibly cooperate. With a deliberate effort to inspire success for all youth athletes in a new paradigm centered model, Norway shows how the national sport organisations and International Olympic Committees, a new oversight levels—will need to responsibly cooperate. With a deliberate effort to inspire success for all youth athletes in a new paradigm centered model, Norway shows how the national sport organisations and International Olympic Committees, a new oversight levels—will need to responsibly cooperate. With a deliberate effort to inspire success for all youth athletes in a new paradigm centered model, Norway shows how the national sport organisations and International Olympic Committees, a new oversight levels—will need to responsibly cooperate. With a deliberate effort to inspire success for all youth athletes in a new paradigm centered model, Norway shows how the national sport organisations and International Olympic Committees, a new oversight levels—will need to responsibly cooperate.

The fundamental principle of the paradigm presented is that every youth athlete deserves the opportunity to participate, enjoy and develop through sport. The definitive evidence-based consensus statement3 stands as the result of this conference on concussion in sport held in Berlin, October 2016. Br J Sports Med 2017;51:838–47.

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