

Commentary

Role of Neuropsychologists in the Evaluation and Management of
Sport-Related Concussion: An Inter-Organization Position Statement[†]

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Abstract

Over the past 20 years, clinical neuropsychologists have been at the forefront of both scientific and clinical initiatives aimed at developing evidence-based approaches to the evaluation and management of sport-related concussion (SRC). These efforts have directly impacted current policy on strategies for injury assessment and return-to-play by athletes after concussion. Many states are considering legislation requiring (a) education of athletes, parents, coaches, and school/organization officials on the recognition, evaluation, and management of SRCs; (b) removal from play of any youth athlete that is suspected of having sustained a concussion; and (c) not allowing the student to return to participation until the student is evaluated and cleared for return to participation in writing by an appropriate healthcare professional. It is the official position of the American Academy of Clinical Neuropsychology (AACN), American Board of Professional Neuropsychology (ABN), Division 40 (Neuropsychology) of the American Psychological Association (APA), and the National Academy of Neuropsychology (NAN) that neuropsychologists should be included among the licensed healthcare professionals authorized to evaluate, clinically manage, and provide return to play clearance for athletes who sustain a SRC.

Keywords: Concussion; Traumatic brain injury; Children; Legislation

Overview of Concussion

Sport-related concussion (SRC), widely recognized as a major public health issue in the USA and worldwide, has become the focus of increasing concern from clinicians, researchers, sporting organizations, and athletes themselves over the last two decades (DeKosky et al., 2007; DeKosky, Ikonovic, & Gandy, 2010; Gilchrist, Thomas, Wald, & Langlois, 2007; Kelly, 1999; Langlois, Rutland-Brown, & Wald, 2006; McCrory et al., 2005, 2009). It is estimated that 1.6–3.8 million SRCs

[†] This Position Statement is a summary of the literature regarding current issues raised by the diagnosis and management of sports concussion. The report has been approved by the American Academy of Clinical Neuropsychology (AACN), American Board of Professional Neuropsychology (ABN), Division 40 (Neuropsychology) of the American Psychological Association (APA), and the National Academy of Neuropsychology (NAN), with the goal of providing information of relevance on an important public policy matter within their respective areas of expertise. The report is not intended to establish guidelines or standards for the professional practice of psychology, nor has it been adopted as official policy by the American Psychological Association.

might occur each year in the USA (Langlois et al., 2006). The true incidence of SRC is thought to be higher than that reported in conventional epidemiological studies, in large part due to a tendency by athletes to either not recognize or report these injuries (Echlin et al., 2010; McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004).

A concussion is a mild traumatic brain injury typically caused by acceleration/deceleration forces from a blow to the head or body. These forces produce biochemical and neurometabolic changes in the brain that typically evolve dynamically over time following the injury. A concussion can result in diverse symptoms that are somatic (e.g., headache, nausea, or dizziness), cognitive (e.g., difficulty with attention and concentration, memory, or information processing speed), and psychological (e.g., anxiety and emotional lability). The symptoms of concussion usually resolve within 7–10 days in college-age and professional athletes. Some people might be vulnerable to slower or more complicated recoveries, including women, athletes with comorbid neurologic or psychiatric disorders or substance abuse issues, or individuals with previous prior history of multiple concussions. Children and adolescents might be at greater risk for slower recovery than young adults. Although most athletes recover relatively quickly from a concussion, some experience protracted symptoms and problems that can linger for many weeks to months (cf. Echemendia, 2006; McCrory et al., 2009).

Neuropsychologists and Sports Medicine

Over the past 20 years, clinical neuropsychologists have been at the forefront of both scientific and clinical initiatives aimed at identifying the symptoms and problems associated with concussions, monitoring recovery, and facilitating return to school and sports. Several large, prospective studies led by neuropsychologists have not only advanced the science of concussion, but also provided an evidence base that now drives evidence-based approaches to the clinical assessment and management of concussion in athletes.

There is a mature multidisciplinary body of evidence establishing the value of neuropsychological assessment in detecting neurocognitive changes following SRC (Broglia, Macciocchi, & Ferrara, 2007; Broshek et al., 2005; Bruce & Echemendia, 2003; Collie, Makdissi, Maruff, Bennell, & McCrory, 2006; Collins et al., 1999, 2003; Covassin, Schatz, & Swanik, 2007; Echemendia, Putukian, Mackin, Julian, & Shoss, 2001; Erlanger et al., 2003; Fazio, Lovell, Pardini, & Collins, 2007; Guskiewicz, Ross, & Marshall, 2001; Iverson, Brooks, Collins, & Lovell, 2006; Iverson, Lovell, & Collins, 2003; Lovell et al., 2003; Lovell, Collins, Iverson, Johnston, & Bradley, 2004; Macciocchi, Barth, Alves, Rimel, & Jane, 1996; Makdissi et al., 2001; Matser, Kessels, Lezak, & Troost, 2001; McClincy, Lovell, Pardini, Collins, & Spore, 2006; McCrea et al., 2003; Sosnoff, Broglia, Hillman, & Ferrara, 2007; Van Kampen, Lovell, Pardini, Collins, & Fu, 2006). Neuropsychologists have also contributed significantly to the development of standardized sideline concussion assessment tools (Barr & McCrea, 2001; McCrea et al., 1998), objective methods of symptom assessment (Gioia, Schneider, Vaughan, & Isquith, 2009; Lovell, 1996, 1999; Lovell & Collins, 1998; Lovell et al., 2006; Randolph et al., 2009), and office assessments (Gioia, Collins, & Isquith, 2008).

Role of the Neuropsychologist

Neuropsychologists receive extensive specialized training in brain-behavior science and are licensed as independent clinical practitioners. The neuropsychologist is formally defined as follows:

A clinical neuropsychologist is a professional within the field of psychology with special expertise in the applied science of brain-behavior relationships. Clinical neuropsychologists use this knowledge in the assessment, diagnosis, treatment, and/or rehabilitation of patients across the lifespan with neurological, medical, neurodevelopmental and psychiatric conditions, as well as other cognitive and learning disorders. The clinical neuropsychologist uses psychological, neurological, cognitive, behavioral, and physiological principles, techniques and tests to evaluate patients' neurocognitive, behavioral, and emotional strengths and weaknesses and their relationship to normal and abnormal central nervous system functioning (Barth et al., 2003).

The complexity of both neurological and psychological factors relevant to concussion management underscores the important role of the neuropsychologist based on their training, expertise, and scope of clinical practice. Neuropsychologists are uniquely qualified to assess an athlete's cognitive and psychological functioning following SRC. Neuropsychologists can provide early intervention in the form of education and reassurance, monitor an athlete's return to school, and treat emotional problems that might arise during the recovery period.

The widespread use of neuropsychological testing to evaluate SRC has led to questions about who should administer the tests and who should interpret the results. Echemendia, Herring, and Bailes (2009) discussed this issue at length and concluded that (a) paraprofessionals can be adequately trained for the administration of tests, and (b) neuropsychologists are uniquely qualified to interpret the results.

Legislative Position

Many states are considering legislation requiring (a) education of athletes, parents, coaches, and school/organization officials on the recognition, evaluation, and management of SRC; (b) removal from play of any youth athlete who is suspected of having sustained a concussion; and (c) not allowing the student to return to participation until the student is evaluated and cleared for return to participation in writing by an appropriate healthcare professional. It is the official position of the American Academy of Clinical Neuropsychology (AACN), American Board of Professional Neuropsychology (ABN), Division 40 (Neuropsychology) of the American Psychological Association (APA), and the National Academy of Neuropsychology (NAN) that neuropsychologists should be included among the licensed healthcare professionals authorized to evaluate, clinically manage, and provide return to play clearance for athletes who sustain SRC.

Conflict of Interest

None declared.

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