



WRITTEN TESTIMONY OF  
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submitted to the

OHIO YOUTH SPORTS CONCUSSION AND HEAD INJURY RETURN TO PLAY GUIDELINES  
COMMITTEE

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I am a neuropsychologist and sports concussion expert who has been endorsed by the Ohio Board of Psychology, the Ohio Psychological Association, and the Inter Organizational Practice Committee (IOPC) of all major neuropsychological organizations in North America to testify on behalf of Ohio neuropsychologists. I want to start by thanking Director Hodges and the members of the committee for giving me an opportunity to speak today and for working to improve the identification and management of one of the most complex injuries facing youth athletes.

I have three main points to convey as a part of my testimony today:

- 1) **Neuropsychologists are highly qualified specialists** who have been contributing to the understanding and clinical management of sports concussion for decades and are widely recognized in globally accepted concussion guidelines as uniquely contributing to standard of care concussion management.
- 2) **Neuropsychologists should be included as providers that can make return-to-play and return-to-learn decisions in Ohio.** Independent clearance rights for neuropsychologists have been allowed by the majority of the states in the US and, therefore, I support the designation of neuropsychologists as being independently qualified for return to play in Ohio.
- 3) I support a requirement that all health care providers deemed appropriate to make return to play decisions following concussion (including physicians as well as any non-physicians) be required to complete **a minimum of 4 hours of annual continuing medical education specific to multidisciplinary sports concussion management.**

The American Psychological Association recognizes clinical neuropsychology as an area of psychology with specialized knowledge and training in brain-behavior relationships. As such, **clinical neuropsychologists are uniquely trained and skilled in the clinical assessment and treatment of brain disorders**, including the sophisticated evaluation of memory and cognitive disturbance common to many neurological problems. Neuropsychological training is most often achieved through obtaining a PhD in clinical psychology, followed by an internship and 2 years of fellowship in neuropsychology. Curriculum and practicum experiences throughout the years of specialization include, but are not limited to behavioral neurology, neuroanatomy, neuropathology, psychopathology, and intensive training in neurocognitive test interpretation.

Given neuropsychologists' special expertise in brain-behavior relationships, concussion has been described as the most neuropsychological of all diseases, with only 5-6% of all concussed athletes showing changes on measures such as CT or MRI. As such, the primary method for diagnosing, monitoring, and clearing athletes following a concussion is to evaluate cognitive and behavioral changes as well as to monitor concussion symptoms such as headache and dizziness. **Nearly all measures used by physicians and other health care providers for concussion management have been developed by and validated by neuropsychologists** (e.g. Standardized Concussion Assessment Tool, or SCAT, was developed by Michael McCrea, Ph.D.; the Immediate Post-concussion Assessment and Cognitive Testing, or ImPACT, was developed by Mark Lovell, Ph.D. and Michael Collins, Ph.D.; and nearly all concussion symptom scales utilized for concussion management were developed by or in collaboration with neuropsychologists). **Neuropsychologists could arguably be called the driving force behind the rapid advance in our understanding of sports concussion over the last 25 years**, with neuropsychologists being among the primary researchers and academic experts in concussion. As a testament to that, a review of the sports concussion literature showed that 22% of the over 1700 articles published about sports concussion in the last 20 years included the term *neuropsychological*. In addition to return to play, returning to the classroom (i.e. return to learn) is a key challenge for youth athletes who have suffered concussions, and it can be difficult to assess readiness with only a cursory screening. Neuropsychologists are uniquely qualified to assess the cognitive domains of functioning that are crucial for learning, and are in the best position to recommend academic accommodations to better serve those students with cognitive difficulties.

Because of its clear utility in sports concussion management, **neuropsychological assessment has been consistently recognized by all national and international concussion management guidelines and position statements as being an important, if not essential, component of concussion management and return to play decisions**. This includes the most recent Consensus Statement from the International Conference on Concussion in Sport and the American Academy of Neurology Guidelines for the Evaluation and Management of Sports Concussion, both of which explicitly recommend the use of neuropsychological testing in concussion management and state that neuropsychologists are in the best position to interpret that testing. Consistent with that, every professional sport organization in North America requires neuropsychological testing and formal consultation with a neuropsychologist before returning to play, including the National Football League, National Hockey League, National Basketball Association, Major League Baseball, and Major League Soccer. Neuropsychologists have had representation on nearly all major national and international committees for the development of concussion management guidelines and the chairs for the NHL and MLS Concussion Committees are neuropsychologists. Neuropsychologists direct many of the most prominent concussion management programs in the nation (e.g. University of Pittsburgh Sports Medicine Concussion Program in Pittsburgh and Children's National Medical Center Sports Concussion Outcome Recovery and Education program in Washington DC). Consistent with these models, as a neuropsychologist, I am director of the Concussion Program for the University Hospitals Neurological Institute, which includes each of the Departments of Neurology, Neurosurgery, and Psychiatry.

Further evidence of the widely accepted role of neuropsychologists in concussion management is taken from the precedent set by other states in concussion legislation. **The majority of states in the US support the role of neuropsychologists in concussion management, including 28 states that allow independent clearance rights for neuropsychologists**, 8 of which specifically identify neuropsychologists as qualified professionals (CO, HI, LA, MA, NE, NM, PA, TN) as opposed to using a more generalist language. I would recommend that the committee follow the legal precedent set by Pennsylvania where in addition to physicians, neuropsychologists were identified as appropriate providers for concussion clearance using the following language: *a licensed psychologist who is neuropsychologically trained in the evaluation and management of concussions or who has postdoctoral training in neuropsychology and specific training in the evaluation and management of concussions.*

In addition to my strong support of the role of neuropsychologists in concussion management in Ohio, I would also like to voice my support for a requirement of continuing education for all providers deemed appropriate for return play decisions, no matter their background and educational credentials. Much of the debate surrounding Ohio's concussion management legislation likely reflects limitations in knowledge about what constitutes appropriate sports concussion management, even among health care professionals. **Sports concussion management is a rapidly changing field and even individuals who have appropriate educational qualifications may not have the most updated information** regarding concussion management practices unless regularly engaging in continuing education specific to sports concussion. For example, in a recent study by Broshek et al. (2014), the overwhelming majority of pediatric neurologists reported that they were using an outdated standard when managing sports concussion (most often the 1997 American Academy of Neurology guidelines). Less than 10% of pediatric neurologists in that sample relied on the most recent Consensus Statement from the International Conference on Concussion in Sport (the most widely accepted standard of concussion management among sports concussion specialists). Those pediatric neurologists that did use the correct standard had undergone regular continuing education specific to sports concussion. This study reflects how essential that regular continuing education is for providers to ensure that our youth are obtaining appropriate management, even among providers that are very qualified by training.

The most informative and clinically useful continuing education opportunities are those where a broad range of subjects are presented by a multidisciplinary faculty of concussion specialists. There are many opportunities for such multidisciplinary continuing education, both at national meetings (e.g. the annual International Sports Concussion Symposium presented by the Sports Neuropsychology Society) and in Ohio (e.g. Management of Concussion in Youth: Guidelines and Best Practices presented by Case Western Reserve University School of Medicine). Many additional opportunities also exist to obtain needed continuing education; however, the ideal situation would be an annual state-sponsored course for multidisciplinary education of concussion providers in Ohio. Given the clear need for continuing education in this area, **I recommend that all health care providers (physician and non-physician) be required to engage in at least 4 hours of annual continuing education specific to multidisciplinary sports concussion management and would recommend that the Ohio Department of Health sponsor an annual continuing education opportunity.**

In summary, neuropsychologists are crucial and widely accepted members in a concussion management team. In my experience, the best concussion management occurs when a multidisciplinary team of providers can work in collaboration for the evaluation and management of all aspects of concussion as the needs of a given athlete dictate. Excluding neuropsychologists from that team would neglect an important piece of evaluation and management for Ohio's youth, leading to inadequate, incomplete, or in some cases inappropriate care. In addition to the need to include neuropsychologists, ongoing continuing education for all concussion management providers is essential to maintain updated methods and management practices for Ohio's youth. It is with these issues in mind that **I strongly support the inclusion of neuropsychologists as approved providers for making return to play decisions following concussion and recommend a requirement of yearly multidisciplinary continuing education for all providers.**

Thank you again for this opportunity and for working to improve the health and safety of Ohio's youth.

References:

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