



Sports Neuropsychology: Definition, Qualifications, and Training Guidelines

An Official Position of the Sports Neuropsychology Society

Preamble

Clinical neuropsychology has a long history, and clinical neuropsychologists have made substantial contributions to the extensive literature in the evaluation, management, and treatment of traumatic brain injury (TBI), including mild traumatic brain injury (MTBI) or concussion. The application of clinical neuropsychology to the sports domain has resulted in an impressive growth in the use of neuropsychological assessment techniques and practices in the evaluation and management of sport-related brain injury for over 30 years. Consistent with this growth has been the development of the practice within neuropsychology of sports neuropsychology. This field integrates the skills, techniques, and assessment approaches of clinical neuropsychology within the unique context of sports. This document defines the role of neuropsychologists within sports, describes the scope of their practice, and outlines the minimum education and training requirements for the competent practice of sports neuropsychology.

As outlined in the By-Laws of the Sports Neuropsychology Society, sports neuropsychologists are involved in research, clinical practice, or a combination of research and clinical practice. The core education requirements outlined below apply to professionals engaged in either research or clinical practice. Those individuals involved in clinical practice must meet additional clinical training requirements while those involved primarily in research must demonstrate additional training and expertise in research methods. As per APA's ethical guidelines, sports neuropsychologists should only practice in those areas for which they have received appropriate training.

Definition: What is Sports Neuropsychology? Sports neuropsychology is a practice within the broader field of clinical neuropsychology that applies scientific knowledge of brain health and brain disorders to the setting of sports and athletes. Building on the education, training, and

experience required to meet the competencies set out by the Houston Guidelines, the sports neuropsychologist practices with athletes at all levels and ages, integrating an individual's developmental and cultural background in the context of the psychology and culture of their sport. The sports neuropsychologist assesses the cognitive, social, and emotional factors associated with concussion, using appropriate norms as guidelines to interpret assessment results. Furthermore, they provide evidence-based treatment and/or guidance to promote brain health and recovery after brain injury. The goal of sports neuropsychology is to advocate for the safe participation of athletes in sport, thereby promoting healthy behaviors integral to the sports domain. A primary focus of sports neuropsychology is to protect the brain health of athletes and support their mental and physical health across the lifespan.

Scope of Practice: What Do Sports Neuropsychologists Do?

- Assessment
- Intervention/management
- Consultation
- Research
- Professional and Public Education
- Consumer Protection and Advocacy
- Public Policy
- Injury Prevention
- Professional Development
- Lead or support Interdisciplinary Teams

Core Education and Training Guidelines: *The Houston Conference on Specialty Education and Training in Clinical Neuropsychology (1998), the NAN Definition of a Clinical Neuropsychologist (2001), and the APA Division 40 Definition of a Clinical Neuropsychologist (1989) served as the foundation for these educational and training guidelines:*

- Doctoral degree in psychology from a regionally accredited university training program.
- Internship in a professional psychology training program, with training in clinical neuropsychology.

- Specialized clinical training (two full-time years, or the equivalent) via a postdoctoral fellowship in clinical neuropsychology.
- To provide professional services, one must be licensed in the applicable state or province to practice psychology, clinical psychology, or clinical neuropsychology.

Core Neuropsychology Knowledge Base Guidelines: *In addition to the standard core course work required for the doctoral degree in general and clinical psychology, knowledge in the following areas of study is recommended (Houston Conference, 1998):*

- Functional neuroanatomy
- Neuropathology
- Non-neurologic conditions affecting the CNS
- Neuroimaging and other neurodiagnostic techniques
- Psychopharmacology
- Behavioral neurosciences
- Specialized neuropsychological assessment techniques and interpretation of neuropsychological test data
- Formalized training in psychometric theory
- Specialized neuropsychological intervention techniques
- Research design and analysis in neuropsychology
- Professional issues and ethics in neuropsychology
- Physical and psychological manifestations of neuropsychological conditions
- Cultural and ethnic factors affecting neuropsychological assessment results

Knowledge base and experience in Mild TBI and Concussion Assessment, Intervention, and Education: Traditionally, the major focus of sports neuropsychology has been on concussion assessment, diagnosis, management/intervention, and counseling athletes and their families. Many sports neuropsychologists have become “concussion specialists,” who work independently or as part of interdisciplinary teams, alongside athletic trainers and team healthcare providers in the evaluation and management of sport-related brain injury. A key goal of sports neuropsychology is to enhance the safety of the client/athlete. The following is a suggested, non-

exhaustive list of the knowledge and experience base specific to sports neuropsychology specialization:

- At least one year of experience in the identification, management, and treatment of sport-related brain injury.
- Experience in educational outreach to patients and families, community, school, and athletic organizations on the identification, management, and treatment of brain injury in the sports context.
- Didactic coursework/training in brain injury.
- Sport-related brain injury screening and assessment theory and procedures.
- Symptom rating scales and other procedures (e.g., postural stability, vestibular/oculomotor testing) in concussion assessment.
- Knowledge of sports concussion consensus statements and evidence-based professional practice parameters (e.g., Concussion in Sport Group International Consensus Statements, NATA Position Statement, American Congress of Rehabilitation Medicine Diagnostic Criteria, and AAN Evidence-Based Guidelines).
- Typical recovery curves following sports concussion based on age and level of play.
- Current evidence-based science on the broad range of assessment and management of sport-related brain injury, including potential long-term sequelae.
- Interaction of premorbid neuropsychological (e.g., learning disorder, ADHD), psychological, and medical conditions that may complicate diagnosis and recovery from concussion.
- Athletes' psychological reactions to injuries.
- Neuropsychological treatment and rehabilitation of injured athletes.
- Understanding of the unique sports culture and the influence of that culture in identification, recovery, and return to play following injury.
- The unique characteristics of personality variables among athletes and the interaction of these factors with the sports culture.
- Knowledge of the pathophysiology, psychological, and cognitive functioning of the brain across the lifespan from childhood through older adults.

- Specialized knowledge and training in the evaluation and management of sport-related brain injury with special populations across all ages, including cross-cultural and linguistic differences and para-athletes.
- For pediatric practitioners, knowledge of the developmental (cognitive, social, emotional), family, and school factors that contextualize the injury, its assessment, and the treatment/management process.

Knowledge base in Mild TBI and Concussion Research: In addition to clinical assessment, diagnosis, management, and intervention, sports neuropsychologists may engage in research related to the evaluation and management of sport-related brain injury. The following is a non-exhaustive list of the knowledge- and experience-based requirements specific to sports neuropsychology research specialization:

- Didactic coursework/training and applied experience in research methodology and research design.
- Didactic coursework/training and applied experience in univariate and multivariate statistical inference and analyses.
- Knowledge of basic and applied psychometrics as they apply to test reliability and validity.
- Knowledge of analytical techniques as they apply to measurement of clinical change, clinical outcomes, and sensitivity and specificity.
- Sensitivity to the importance of including participants who vary in biological sex, gender, age, access to healthcare resources, race, ethnicity, sociocultural and linguistic background, and country of origin.

How to Acquire Education, Training, and Experience in Sports Neuropsychology:

- Formal graduate school training in clinical neuropsychology and sports neuropsychology
- Attendance at relevant continuing education workshops and seminars through professional organizations (e.g., Sports Neuropsychology Society, National Academy of Neuropsychology, American Psychological Association, Society for Clinical Neuropsychology (APA D40), Division of Exercise and Sport Psychology, American Academy of Neurology, etc.)
- Mentorship/supervision from an established sports neuropsychologist.
- Independent reading of the relevant evidence-based literature and research

- Clinical experience through involvement with sport medicine programs, sport concussion clinics, and organized sports organizations
- Participation in applied or basic collaborative research

Ethical Obligations: The Sports Neuropsychology Society has adopted the current version of American Psychological Association’s *Ethical Principles of Psychologists and Code of Conduct* as the guiding document for ethical practice in sports neuropsychology. Importantly, APA Ethical Standard 2.01, Boundaries of Competence, subsection (c), states “Psychologists planning to provide services, teach, or conduct research involving populations, areas, techniques, or technologies new to them undertake relevant education, training, supervised experience, consultation, or study.” Very few neuropsychologists will have acquired the competencies discussed in the paragraphs above as part of their formal graduate training. Availing themselves of specialty education, training experiences, and supervision before offering themselves publicly as sports neuropsychologists is consistent with our ethical responsibilities. It is also important to note that APA’s ethical principles carry the force of law in many jurisdictions. sports neuropsychologists in other countries should practice according to the ethical standards relevant to their setting.

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