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Neuroscience Knowledge Among Athletic Training Professional Programs

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Context: Athletic trainers (ATs), more than any other healthcare professional, has expertise in areas of on-field assessment and management of sport related concussion and spinal cord injury. A search of the key words “brain” (n=>100) or “spinal cord/spine” (n=~50) were identified in National Athletic Trainers’ Association Position Statements on Concussion and Spinal Cord Injury. However, a significant gap exists in the basic science knowledge of neuroscience and neuroanatomy.

Objective: The goal of this study is to identify the basic science coursework in professional and post-professional athletic training curricula.

Design and Setting: This is a descriptive, curricula analysis of CAATE Professional and Post-Professional Athletic Training Programs using web-based search and review.

Participants: Curricula for accredited Professional (n=336) and Post-Professional (n=15) Athletic Training Programs were reviewed and analyzed to characteristics basic science content.

Interventions: This web-based program review of CAATE standard course content and elective options occurred.

Main Outcome Measures: Course titles, numbers and descriptions were accessed at CAATE.net and offerings of anatomy, gross anatomy, neuroanatomy and neuroscience, human physiology, exercise physiology, psychology, chemistry and physics content were

quantified. Main outcome measures include frequencies and distributions of courses in each subject area.

Results: We reviewed 309 programs (91.2%) of the total 336 professional programs. Anatomy (91.59%), physiology (88.35%) and exercise physiology (92.56%) were most frequently required basic science courses. However, only 4.85% (n=15) of programs have human gross anatomy dissection or prosection in their curricula and just 2.59% (n=8) of athletic training programs require a course in neuroscience/neuroanatomy. **Conclusions:** Our data demonstrates a gap exists in athletic training education in the area of neuroanatomy/neuroscience content. The BRAIN (Brain Research through Advancing Innovative Neurotechnologies[®]) Initiative is new federal research and healthcare taskforce aimed at revolutionizing the understanding of the human brain. The Sports and Health Research Program is a partnership between the National Institutes of Health and the National Football League to fund sport concussion research. With the future professional degree change eminent, professional and post-professional athletic training education must seriously consider the inclusion of neuroanatomy content. We present several wet-brain specimen and active learning laboratory options that educators may adopt to provide added depth to neuroscience/neuroanatomy knowledge base.

Key words: brain, anatomy, education, and neuroscience