The modern neurological sports medicine physician—the neurosurgeon

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The care of the athlete with central or peripheral nervous system or spinal injuries has undergone a revolution in our generation. Regardless of a relative lack of interest or involvement by our neurosurgical colleagues at times, we should embrace the significant improvements in our understanding of sports-related neurological clinical syndromes and in our ability to make diagnoses by using neuroimaging and other ancillary testing. Consider the advanced concept in understanding that a more severe concussion may not involve a brief period of loss of consciousness, but instead may be determined subsequently by identifying ongoing symptoms such as amnesia, deficits in concentration, and headaches. Neuropsychological testing, advanced magnetic resonance imaging techniques, and other ancillary modalities have all enhanced our ability to determine who has suffered a cerebral concussion. In addition, in recent publications the question has been posed whether, in common with boxing, prolonged exposure to football may lead to chronic brain effects in a small minority.^{2,3,5}

Neurosurgeons are often asked to consult and offer their expert opinion concerning vertebral column injury presenting either with pain syndromes or with spinal cord or peripheral nerve involvement. There are numerous issues and factors that often intersect with the clinical picture, creating a difficult management decision for the athlete, especially for one who aspires to return to contact or collision sports. Emerging concepts and research are welcomed to assist us in formulating the correct advice for all of those who are involved.

In this issue of *Neurosurgical Focus*, Dr. Nugent reflects on his 40 years as a sideline physician, and offers us key pearls of wisdom from this unprecedented experience. In his 2006 Schneider lecture for the American Association of Neurological Surgeons, Dr. Day recounts the milestones in the field and contributions from several neurosurgeons who have been leaders in neurological sports medicine. Contributors to this issue have focused on important and esoteric aspects of neurological decision making, including return to sports following spinal surgery, craniotomy, or discovery of other brain abnormalities; issues related to pediatric sports injuries; spinal problems particular to triathletes; and lumbar spine injury management. There has been much confusion surrounding the numerous concussion classification guidelines, and Dr. Cantu summarizes the consensus of the most recent international sports concussion conferences.

New data are presented describing the spectrum of presentation, consequences, and implications of brain injuries, particularly subdural hematomas, in boxers. Current management protocols from the perspective of the sideline and ringside physician and the athletic trainer are provided by authors with professional, National Collegiate Athletic Association, and Olympic experience. Drs. Pellman and Viano summarize the extensive findings of the NFL Committee on Mild Traumatic Brain Injury concerning the multiple aspects of clinical and laboratory research in professional football players. Maroon, et al., eloquently discuss the emerging interest in and knowledge of the use of alternatives to pharmaceutical intervention in the athlete, by using omega-3 fatty acids and compounds of natural or botanical origin. Because of recent scandals in sports related to doping, cheating, and drug abuse, this will continue to be an important area of awareness for all of those involved in the care of the athlete.^{1,4}

Sports medicine is one of the most individualized, esoteric, and experiential aspects of the practice of neurological surgery. As neurosurgeons, we need to be aware of the emerging knowledge and evolution in our understanding of the syndromes that amateur, collegiate, and professional athletes face. We will continue to be called on to answer difficult management questions and to make complex return-to-play recommendations. I hope that the contributions herein will further the reader's knowledge and appreciation of some of these aspects of sports medicine with which we have the opportunity to be involved, and hopefully we can continue to be leaders in this field.

References

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Abbreviations used in this paper: