Preface

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Editor

It has been nearly a decade since Drs Meehan and Micheli were guest editors of an issue of *Clinics in Sports Medicine* dedicated entirely to sport-related concussion (SRC). It is an honor to follow these giants in their respective fields and provide an update on a condition that continues to impact millions of athletes annually in the United States. Recent data utilizing emergency department visits estimate that 1.0 to 1.8 million SRCs occur each year in individuals 18 years old and younger, with approximately 400,000 of these injuries occurring in high-school athletes. Over this time frame, there has been an increase in recognition of the injury and improved symptom reporting, due at least in part to national education efforts. There has also been a parallel and exponential increase in the number of clinical studies dedicated to SRC. A quick PubMed query using the search terms “sport + concussion” demonstrates an annual publication count of 211 in 2011 increasing to 713 in 2019. Well-designed clinical studies have enhanced our understanding of SRC, spawned emerging and promising diagnostic tools and rehabilitative programs, and furthered the evolution of concussion care.

While the decade has seen significant strides in SRC management, there are still no readily available objective tests to confirm diagnosis. A quest for the “ideal” biomarker for SRC, a point-of-care serologic or salivary test that can be performed easily with high sensitivity and reasonable specificity within hours of a head injury, remains elusive. Similarly, while advanced neuroimaging studies, including functional MRI and diffusion tensor imaging, show promise in detecting subtle, clinically relevant brain activation patterns and white matter changes, respectively, following a traumatic brain injury, these studies remain research tools and likely cost-prohibitive options for routine neuroimaging in the setting of SRC.

There have admittedly been setbacks over this decade. The public perception of SRC and its potential complications has been influenced less by the research than the media’s interpretation of the scientific findings. Hollywood has even weighed in on the subject with the movie, *Concussion*. Despite no evidence supporting the association between suicide and brain pathologies in former athletes, societal fears remain pervasive that collision sport participation, even in small participation doses, markedly

increases an athlete's risk of chronic traumatic encephalopathy (CTE). As of 2020, standardized criteria for CTE have yet to be adopted by neuropathologists, and emerging evidence demonstrates that unique CTE neuropathology may continue to be elusive, as CTE pathology has been identified in individuals with no known contact/collision sport participation or known exposure to repetitive neurotrauma.

It is our hope that the ensuing decade provides additional answers regarding the risks and benefits of contact and collision sport participation, which continue to contribute to SRC incidence in our youth and adult populations. We are grateful to the contributing authors of this issue of *Clinics in Sports Medicine*, a diverse group of expert clinicians and researchers from across North America, who have volunteered their time and effort to contribute to this comprehensive resource and update on SRC.

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