

# Management of Sport-Related Concussion: Bridging the Evidence From 2014 to 2023

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Concussions, once regarded as minor injuries, have gained increased attention due to their short-term and potentially long-term consequences. The National Athletic Trainers' Association (NATA) has published 2 position statements (2004 and 2014) to guide the practicing athletic trainer (AT) in the care of patients.<sup>1,2</sup> Since the publication of the most recent document in 2014, several advances have occurred in concussion assessment, treatment, and management. Researchers, medical professionals (often spearheaded by ATs), and sports organizations have collaborated on innovative protocols to protect the health and well-being of active individuals. These advances have not only improved our understanding of concussion but also enhanced the safety and well-being of individuals, particularly athletes.

The “National Athletic Trainers' Association Bridge Statement: Management of Sport-Related Concussion” statement published in this edition of the *Journal of Athletic Training* is intended to update the practicing AT on the evidence advances that inform the clinical care of individuals after a sport-related concussion. This document includes more than 25 new or updated recommendations in key areas reflecting the current best available evidence to complement the 2014 position statement. Research advances related to education; assessment; prognostic recovery indicators; mental health considerations; academic considerations; and exercise, activity, and rehabilitation management strategies are all addressed in this bridge statement. This document is intended to provide updated recommendations to the 2014 position statement until a new full position statement is published. The recommendations update areas of the 2014 statement that are no longer supported by evidence, and new recommendations have been added in areas not previously addressed that have become notable elements of concussion management. The updated and new recommendations are also in line with the most recent international consensus statement,<sup>3</sup> which should reduce discrepancies among various concussion statements. Another aim for this bridge statement was to address several important considerations of concussion care that were not covered in the international statement or in prior NATA statements, including the biopsychosocial model of concussion care, mental health considerations, social determinants of health, and return to driving.

Interdisciplinary collaboration among medical and nonmedical professionals and sports organizations is key to providing optimal concussion care. Athletic trainers are in the unique

position of often knowing their patients preinjury, and we can evaluate patients almost daily. As such, we can serve as case managers, working closely with the directing physician, while collaborating with other health care providers to engage in a comprehensive approach to concussion assessment and management. We should serve as the hub that ensures the best possible care for individuals with concussions by coordinating the care supplied by neurologists, neuropsychologists, education and rehabilitation specialists, and others. Advances in concussion assessment and management have revolutionized the approach toward patients with these brain injuries, ensuring better outcomes, increased safety, and improved quality of life for all affected individuals.

Notably, the bridge statement empowers ATs to exercise their clinical judgement on which domains are assessed, the tools used to evaluate those domains, and how to weigh the clinical importance of the findings in the best interest of the patient. Simply stated, the AT is not bound to complete all assessments at all time points. The choice and use of various assessment tools at each time point should be considered in the context of “What will I do with this information?” and “How will these assessment findings dictate my plan of care?” For example, the goals of the sideline assessment and need to make a play or no-play decision may demand a different approach from that in an office visit days after a suspected injury. Further, appropriate return-to-learn and return-to-sport strategies may be developed using adjunct tools that assess motor control (eg, tandem gait), oculomotor activity (eg, Vestibular/Ocular Motor Screening), and cognition while accounting for the patient's mental health. The best tools for making informed decisions regarding a patient's status and plan of care may vary during recovery, and concussion management plans may need to be modified accordingly.

One important area of change in the evidence and direction in clinical practice is the use of exercise and rehabilitation protocols postconcussion, particularly in a more acute manner. Recent evidence<sup>4,5</sup> and the current international consensus statement<sup>3</sup> highlighted the benefits of early, directed exercise and rehabilitation that do not exacerbate symptoms more than mildly. These documents provided a framework and evidence set that empower ATs to integrate exercise and rehabilitation earlier in the management process for improved recovery and outcomes for patients.

Concussion management guidelines have become a cornerstone of concussion management across many health

professions. The NATA has led in the concussion space, promoting consistent evaluation methods across various health care settings and reducing the risk of misdiagnosis or premature return to play. By adhering to these recommendations, ATs can better identify patients with concussions, tailor treatment plans, and track recovery progress, enhancing the overall care provided. The “National Athletic Trainers’ Association Bridge Statement: Management of Sport-Related Concussion” distills what we have learned in the previous decade and refines our approach to concussion care.

## REFERENCES

1. Guskiewicz KM, Bruce SL, Cantu RC, et al. National Athletic Trainers’ Association position statement: management of sport-related concussion. *J Athl Train*. 2004;39(3):280–297.
2. Broglio SP, Cantu RC, Gioia GA, et al; National Athletic Trainers’ Association. National Athletic Trainers’ Association position statement: management of sport concussion. *J Athl Train*. 2014;49(2):245–265. doi:10.4085/1062-6050-49.1.07
3. Patricios JS, Schneider KJ, Dvorak J, et al. Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport—Amsterdam, October 2022. *Br J Sports Med*. 2023;57(11):695–711. doi:10.1136/bjsports-2023-106898
4. Leddy JJ, Burma JS, Toomey CM, et al. Rest and exercise early after sport-related concussion: a systematic review and meta-analysis. *Br J Sports Med*. 2023;57(12):762–770. doi:10.1136/bjsports-2022-106676
5. Carter KM, Pahl AN, Christie AD. The role of active rehabilitation in concussion management: a systematic review and meta-analysis. *Med Sci Sports Exerc*. 2021;53(9):1835–1845. doi:10.1249/MSS.0000000000002663

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