

Quality of life in adolescents recovering from sports-related concussion or fracture

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When we think of the recovery period in adolescents with a sports injury, we tend to focus on milestones marking relief from symptoms, restoration of strength, and perhaps return to play. But what about the effects of sports injury on other aspects of the young athlete's life? How is the young athlete's quality of life (QOL) affected following injury and throughout the recovery process?

In a new article in the *Journal of Neurosurgery: Pediatrics* ("Health-related quality of life following [adolescent](#) sports-related concussion or fracture: a [prospective cohort study](#)" by Kelly Russell, Ph.D., Erin Selci, BSc, Brian Black, MD, FRCSC, and Michael J. Ellis, MD, FRCSC), the authors define health-related QOL as "the 'hidden morbidity' or more subtle consequences of medical conditions or injuries on patient functioning that may not be captured by more traditional clinical outcome measures." These researchers from Winnipeg conducted a prospective study of health-related QOL in young athletes who experienced a sports-related concussion or sports-related extremity fracture. The aim was twofold: 1) compare the effects of these sports-related concussions and extremity fractures on health-related QOL in adolescents during the recovery period and 2) identify what clinical variables are associated with worse QOL in [adolescent patients](#) with sports-related concussion.

In general, the study period extended from the date of the initial clinical assessment until physician-verified clinical recovery—a median of 26 days in the 135 patients with a concussion (60% male, mean age 14.7

years) and a median of 31 days in the 96 patients with a fractured extremity (59% male, mean age 14.1 years). Only three patients with a concussion did not attain verified clinical recovery during the study period.

At the time of the first clinical assessment, patients with a concussion were asked to rate their symptoms on a standard questionnaire (Post-Concussion Symptom Scale).

To evaluate all of the patients' health-related QOL, the researchers relied on patient responses to self-assessment questionnaires covering cognitive functioning (Pediatric Quality of Life Inventory [PedsQL] Cognitive Functioning Scale) as well as physical, emotional, social, and school functioning, and also overall QOL (PedsQL Generic Core Scale). The questionnaires were completed at the time of the initial clinical assessment and again at each follow-up clinical appointment until physicians documented clinical recovery.

At the time of the initial clinical assessment (about 1 week postinjury), responses to the QOL questionnaires from the adolescents with a concussion demonstrated clinically meaningful impairments in physical, school, and overall health-related QOL when compared to healthy adolescent norms. The responses also demonstrated significantly worse cognitive QOL as well as greater impairments in school and overall health-related QOL when compared to responses from patients with a fractured extremity.

Patients with a concussion who attained clinical recovery within 28 days reported greater weekly improvements in QOL post-injury than those with delayed recovery times (median 51 days in this study). However, there was no evidence of persistent impairments in health-related QOL in the patients with a sports-related concussion or fracture who attained physician-documented clinical recovery during the study period.

In adolescent patients with a sports-related concussion, the authors found greater impairments in the initial health-related QOL in those [patients](#) with a history of previous concussion, higher initial symptom score, and/or length of clinical recovery.

To aid in the recovery process, the authors suggest that management of sports-related concussion in adolescents should be supplemented with early interventions to optimize cognitive, physical, and school QOL.

When asked about the study, Dr. Russell stated, "The results of this study indicate that adolescents who report lower health-related QOL after their concussion will likely take longer to recover. Even though adolescents can experience temporary impairments in health-related QOL after a sport-related [concussion](#) or fracture, these deficits generally do not persist past clinical recovery."

More information: Russell K, Selci E, Black B, Ellis MJ: Health-related quality of life following adolescent sports-related concussion or fracture: a prospective cohort study. *Journal of Neurosurgery: Pediatrics*, published online, ahead of print, January 15, 2019; [DOI: 10.3171/2018.8.PEDS18356](#)

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