

Return to Sports After Major Trauma—Fact or Fiction?**A Series of 465 Cases with a Minimum Follow-up of 10 Years**

Christian D. Weber, MD¹; Thomas Dienstknecht, MD¹; Klemens Horst, MD¹; Magdalena J. Bader¹; Boris A. Zelle, MD²; Hans-Christoph Pape, MD, PhD, FACS¹;
¹RWTH Aachen University Medical Center, Department of Orthopedic Trauma, Aachen, Germany;

²University of Texas, Health Science Center, San Antonio, Texas, USA

Purpose: The aim of this study was to compare the long-term outcome after major trauma in athletes and nonathletic individuals. We hypothesized that athletes outperform non-athletes regarding rehabilitation and analyzed which injuries might impair athletes when returning to sport.

Methods: We conducted a cohort study with 637 patients at a Level I trauma center to assess the long-term outcome after severe trauma. The minimum follow-up period was 10 years. Only patients with multiple injuries and complete data sets concerning injury characteristics, treatment protocol, documented preinjury physical activity, standardized outcome scores including the Glasgow Outcome Scale (GOS), Short-Form 12-Item Health Survey (SF-12), Hannover Score for Polytrauma Outcome (HASPOC), and clinical follow-up examination were included. The population was separated into athletic (TAS ≥ 5) and non-athletic individuals (TAS < 5) by means of Tegner Activity Scale (TAS). The return to preinjury sports participation was considered as the primary outcome parameter.

Results: The average duration of follow-up was 17 ± 5 years. We finally studied 465 trauma victims, including 207 (44.5%) athletic individuals. The average ISS was 21 points. The long-term outcome regarding quality of life measured with objective score systems was comparable for both groups (SF-12: 43.9 vs. 42.8, $P = 0.153$; HASPOC: 66.7 vs. 67, $P = 0.40$). The number of activities declined significantly in athletes. In particular knee injuries (23.9%) were identified as career-ending.

Conclusion: Decades after severe trauma, patients experience a poor outcome independent from their preinjury sporting activity. Our results demonstrate a significant posttraumatic shift from high-impact and team sports to low-impact activities. Injuries of the lower extremities, especially around the knee joint, seem to have the highest life-changing potential preventing individuals to return to their previous sporting activities.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.