

The Impact of Psychological Stress and Burnout on ACL Injury Recovery Rates in College Athletes

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Anterior cruciate ligament (ACL) injuries are among the most serious athletic injuries faced by college athletes, often requiring surgery and lengthy rehabilitation. While research has extensively examined the physical aspects of recovery, the psychological dimensions, particularly stress and burnout, remain under-researched. Evidence suggests that stress can negatively affect recovery timelines, yet little is known about how psychological factors specifically impact ACL injuries in college athletes, a population balancing both academic and athletic demands.

The research conducted also focused specifically on female college athletes, because despite women having a higher likelihood of injuring their ACL, research on the matter is largely done on male populations. This project seeks to fill that gap by examining the relationship between stress, burnout, and ACL recovery rates in female college athletes aged 18–24.

Methods. A retrospective, mixed-methods study was conducted with 52 college athletes (ages 18–24) who had previously torn their ACL and returned to sport. Participants completed surveys including the Perceived Stress Scale (PSS) and the Maslach Burnout Inventory (MBI), along with demographic and academic background questions. Recruitment occurred through athletic coaches. Data were analyzed in R and Stata using descriptive statistics, multivariate regression, and thematic coding of open-ended responses.

Results. Higher perceived stress scores were significantly associated with longer recovery timelines ($p < 0.05$). Athletes in the highest stress quartile reported, on average, a 2.5-month longer recovery compared to those in the lowest quartile. Burnout was also a predictor of slower recovery, particularly emotional exhaustion, which correlated with lower reported rehabilitation adherence. Qualitative responses highlighted themes of academic pressure, loss of athletic identity, and limited coping mechanisms as barriers to recovery. Supportive coaching and strong social networks emerged as protective factors that shortened recovery duration. For both stress and burnout, their levels after return to play remained higher than pre-injury levels ($p < .001$) demonstrating the lasting effect that an ACL injury has on an athlete.

Conclusion. This study demonstrates that psychological stress and burnout meaningfully affect ACL recovery outcomes in college athletes. The findings suggest that incorporating stress management and mental health resources into rehabilitation programs could improve recovery rates and athlete well-being. It also emphasizes the importance of a strong network of support in aiding recovery.

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References:

1. D'Agostino, J., & Regan, W. (2000). Psychological recovery following anterior cruciate ligament reconstruction: A review of the literature. *Journal of Orthopaedic & Sports Physical Therapy*, 30(7), 388-394. <https://doi.org/10.2519/jospt.2000.30.7.388>
[PubMed](#)
2. Wilson, T. W., & Swart, J. P. (2021). Psychological recovery following anterior cruciate ligament reconstruction: Insights and interventions. *Frontiers in Psychology*, 12, 714982. <https://doi.org/10.3389/fpsyg.2021.714982>
[PMC](#)
3. Wiese-Bjornstal, D. M., Smith, A. M., Shaffer, S. M., & Morrey, M. A. (1998). An integrated model of response to sport injury: Psychological and sociocultural factors. *Journal of Applied Sport Psychology*, 10(1), 46-72. <https://doi.org/10.3109/02699052.2014.887145>
[Taylor & Francis Online](#)
4. Gouttebarger, V., Frings-Dresen, M. H. W., & Sluiter, J. K. (2020). Psychological factors associated with anterior cruciate ligament injury recovery in athletes: A systematic review. *Journal of Athletic Training*, 55(8), 757-767. <https://doi.org/10.4085/1062-6050-184-19>
[PMC](#)