How is the Rate of Total Knee Arthroplasty Influenced by ACL Injury Treated by ACL Reconstruction Versus Non-Operative Treatment and How Does Prior ACL Reconstruction Compromise Outcomes: A Systematic Review

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Introduction. Anterior cruciate ligament (ACL) injuries are common among athletes and are primarily managed with operative reconstruction, though non-operative management is sometimes appropriate. ACL injuries are associated with a substantial risk of developing post-traumatic osteoarthritis (PTOA), which can result in the need for subsequent total knee arthroplasty (TKA). The rate of TKA following ACL reconstruction (ACLR) versus non-operative management remains poorly defined.

Methods. A systematic review was conducted in PubMed, Cochrane, and Embase databases following PRISMA 2020 guidelines. Broad search terms related to ACL injury management and TKA captured studies focused on patients who underwent ACL injury treatment and were analyzed for conversion to TKA.

Results. A total of 15 studies were included in this review. Eleven of the 15 studies explicitly stated a conversion rate to TKA following ACLR, with an average of 2.07% of patients converting to TKA. Only two studies explicitly stated a conversion rate to TKA following non-operative management, with an average of 6.95% of patients converting to TKA. However, vastly different time frames of follow-up and study designs make direct comparison amongst the studies in this review difficult.

Conclusions. It remains unknown whether there is a significant difference in the conversion to TKA following ACLR compared to non-operative management of ACL injuries. This review highlights the need for more robust comparative studies on TKA rates following different ACL treatment strategies that could guide evidence-based management of ACL injuries, with the goal of preventing the development of PTOA and the need for subsequent TKA.