Effects of Preoperative or Postoperative Exercise Interventions on Physical Function and Activity in Patients with Hip Osteoarthritis Undergoing Total Hip Arthroplasty: A Systematic Review and Meta-analysis of Randomized Controlled Trials

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Purpose: We performed a systematic review and meta-analysis of randomized controlled trials (RCTs) to examine the effects of preoperative or postoperative exercise interventions on physical function and activity in patients with hip osteoarthritis (OA) undergoing total hip arthroplasty (THA).

Subjects and Methods: This search was applied to Medline, Cochrane Central Register of Controlled Trials, the Physiotherapy Evidence Database, and the Cumulative Index to Nursing and Allied Health Literature. We generated data comparing the effect of exercise intervention on physical function or activity in the experimental group and control group through this search. The Grading of Recommendations Assessment, Development, and Evaluation system was used to determine the quality of the evidence.

Results: Thirteen RCTs were identified. Meta-analysis indicated that preoperative exercises were effective for improving physical function, as assessed by the Harris Hip score (HHIS) and the first days of re-starting activities (walking, walking up and down stairs, using the toilet, sitting on the chair). Furthermore, the effect of postoperative exercises, especially that of exercises performed in addition to the standard rehabilitation program, on hip abductor muscle strength, maximal oxygen uptake, and cadence was also observed. The quality of evidence for most outcomes was moderate, except that for the outcome assessed by the HHIS (high) and the first days of re-starting walking (low).

Conclusion: We confirmed that physical function and activity improved in patients with hip OA undergoing THA by preoperative or post-operative exercise interventions.