The Effect of Minimally Invasive and Standard Incision Total Hip Arthroplasty on Functional Mobility in the Acute Care Setting: A Systematic Review

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Purpose/Hypothesis: The purpose of this systematic review was to determine the differences in surgical technique (minimally invasive {MI} versus standard incision {SI}) and surgical approach on immediate post-operative functional outcomes of persons undergoing elective total hip arthroplasty (THA).

Number of Subjects: Articles were selected following a comprehensive search of MEDLINE/PubMed, ProQuest: Health and Medical Complete, Nursing & Allied Health Source, Science Journal, ScienceDirect, and Google Scholar databases for relevant articles published from January 2005 and April 2015. Inclusion criteria consisted of: females and males > 25 years, persons undergoing elective THA utilizing an anterior, posterior, or anterolateral surgical approach, and peer-reviewed articles. Exclusion criteria included: no active infection or history of infection in hip, no malignancy, and no neurological deficits impacting lower extremity. This search yielded 2,097 articles.

Materials/Methods: After reviewing inclusion criteria and removal of duplicates a total of 5 articles were included in this systematic review. Articles examined functional differences between subjects status post MI, or SI THA and specific surgical techniques (anterior, posterior, or anterolateral approach). Two independent reviewers used the validated PEDro Scale to evaluate the methodological quality of the included studies.

Results: Five studies (4 randomized control trials {RCT} and 1 cohort) involving 613 patients status post THA were included. Sample sizes varied from 25 to 219 subjects and the associated PEDro scores ranged from 6 to 9. These 5 studies reported on THA using a posterior or anterolateral surgical approach. Specific outcome measures were gait, mobility, transfers, stair negotiation, length of hospital stay, pain, and assistive device use. Two studies reported MI THA demonstrated earlier pain control, with one reporting earlier discharge to home and less use of assistive devices immediately post-operatively, but no difference at the 6 week or 3 month follow-up. Four studies showed no significant differences (MI versus SI) in mobility and performance of functional tasks, including transfers, stair negotiation, or length of hospital stay.

Conclusions: This systematic review was inconclusive in determining differences between
MI versus SI approaches and functional recovery immediately post-operatively for patients undergoing THA. Future studies might focus on comparison of anterior versus posterior approaches, in addition to comparison of MI and SI techniques. Limitations of this review were same surgical approach and restriction to RCT studies.

**Clinical Relevance:** This information offers clinicians some evidence of possible earlier functional recovery for patients undergoing MI THA, however, there is no consensus at this time and it appears that these benefits are negligible as early as 6 weeks postoperatively.