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What is the impact of the surgical approach on functional recovery after total hip arthroplasty? a narrative review

P. Henry ^{a,b}, M. Blandeau ^a, P. Pudlo ^a, L. Wallard ^a

^a Univ. Polytechnique Hauts-de-France, LAMIH, CNRS, UMR 8201, F-59313 Valenciennes, France

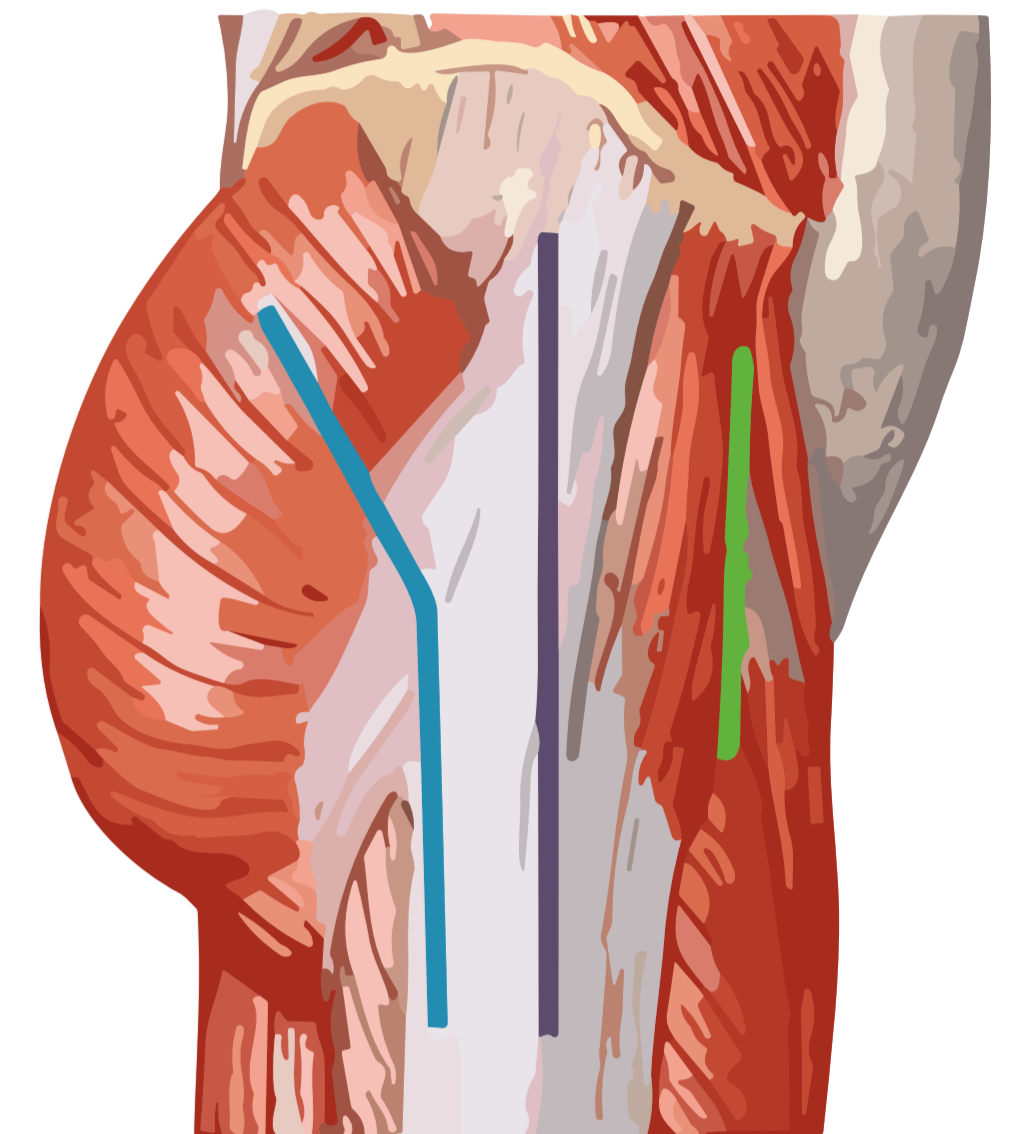
^b Kinik Inc, Boucherville J4B 1S9 Quebec Canada

Highlights

1. The surgical approach for total hip replacement can be performed using three main methods
2. 30 articles compared the effects of the anterior versus posterior approach, 11 compared the anterior versus lateral approach and 1 compared the lateral versus posterior approach. 8 studied all 3 approaches.
3. Most studies suggest that the direct anterior approach may be associated with greater early postoperative improvements than lateral and posterior approaches.

INTRODUCTION

- Osteoarthritis (OA) is the most common degenerative joint disease in the elderly, becoming a major public health problem [1].
- Hip OA is characterized by severe musculoskeletal pain and limitation of joint movements that progressively decrease the autonomy and quality of life of these patients [2]
- The surgeon approaching a hip faces a dilemma: expose himself extensively to implant a biarticular prosthesis and preserve the gluteal musculature to avoid instability of his arthroplasty.
- The surgical approach for total hip replacement can be performed using three main methods: the **anterior approach**, the **lateral approach** and the **posterior approach** [3].
- The aim of this narrative review is to quantify the different consequences of these approaches on the functional and motor capacities of patients.
- We hypothesize that the anterior approach allowed a better recovery of functional ability, in particular thanks to a better preservation of muscles and surrounding tissues during the operation.



METHODOLOGY

Research Strategy

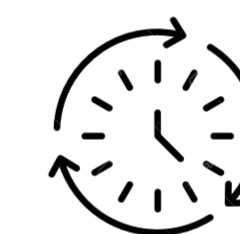
The search strategy focused on articles published between the years 2010 and 2023.

- The search was carried out using the following electronic databases: PubMed and ScienceDirect.
- Keywords combination: “(‘total hip arthroplasty’ OR ‘total hip replacement’ OR ‘Primary hip replacement’) AND (‘gait’ OR ‘locomotion’ OR ‘walk’ OR ‘functional recovery’ OR ‘functional capacity’) AND (‘approach’ OR ‘surgery approach’) NOT (‘fracture’)”.
- Articles published in English and experimental studies (i.e. RCT, CS, CR ...) were included
- Only publications in which participants were adults who had undergone primary hip arthroplasty were included
- Publications were excluded if they were not available in full text.

Variables analyzed

For each of the three surgical approaches (anterior, lateral, posterior), the following variables were extracted for objective clinical measurements:

- Operation Time



- Risk of operation



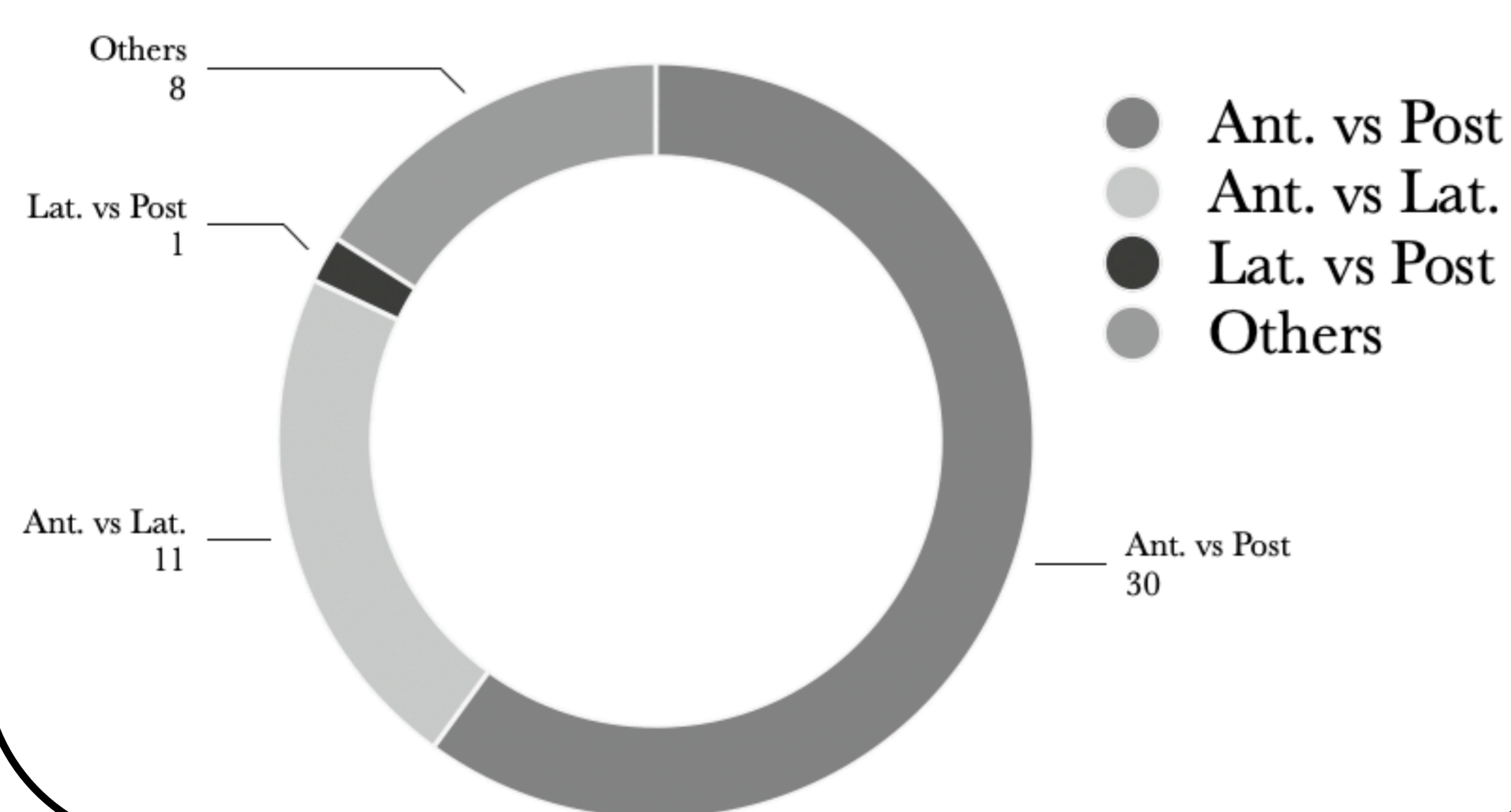
- Functional recovery



RESULTS & CONCLUSIONS

- Full-text search identified 72 studies
- All three approaches are widely used and all have their advantages and disadvantages
- Most studies suggest that the direct anterior approach may be associated with greater early postoperative improvements than lateral and posterior approaches
- These results confirm that the direct anterior approach allows for more rapid restoration of function after arthroplasty
- Future works would be dedicated to the evaluation of rehabilitation efficiency depending on the surgical approach.

Studies Characteristics



Outcomes

	Anterior approach	Lateral approach	Posterior approach
Operation time	● (Yellow)	● (Yellow)	● (Green)
Risk (Dislocation, fracture, neurapraxia)	● (Green)	● (Yellow)	● (Red)
Functional recovery	● (Green)	● (Green)	● (Red)

[1] Musculoskeletal health status in Europe. http://www.eumusc.networkpackages_wp4.cfm.

[2] Wallard, L., Cornu, O., Dubuc, J.-E., Mahaudens, P., Postlethwaite, D., Vancauter, M. & Detrembleur, C. 2017. Does the quantitative functional assessment allow to better guide the treatment of the patient with severe hip osteoarthritis? *Computer Methods in Biomechanics and Biomedical Engineering*, 20 (1), 207-9.

[3] Petis, S., Howard, J. L., Lanting, B. L., & Vasarhelyi, E. M. (2015). Surgical approach in primary total hip arthroplasty: anatomy, technique and clinical outcomes. *Canadian Journal of Surgery*, 58(2), 128.