

CADTH Reference List

Post-Operative Care for Knee Arthroplasty

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Key Messages

- We found 1 non-randomized study about the clinical effectiveness of enhanced care programs for adult patients with unilateral total knee arthroplasty.
- We did not find any evidence-based guidelines on the use of enhanced care programs for adult patients with unilateral total knee arthroplasty.
- We identified other references on this topic that may be of interest, which are listed in the appendix.

Research Questions

1. What is the clinical effectiveness of enhanced care programs for adult patients with unilateral total knee arthroplasty?
2. What are the evidence-based guidelines regarding the use of enhanced care programs for adult patients with unilateral total knee arthroplasty?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, Cochrane Library, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were total knee arthroplasty and enhanced recovery after surgery. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses or network meta-analyses, guidelines, randomized controlled trials, controlled clinical trials, and non-randomized studies. Comments, newspaper articles, editorials, and letters were excluded. Where possible, retrieval was limited to humans. The search was also limited to English-language documents published between January 1, 2017, and November 10, 2022. Internet links were provided, where available.

Selection Criteria

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. Open access full-text versions of evidence-based guidelines were reviewed when available.

Table 1: Selection Criteria

Criteria	Description
Population	Adult surgical patients with primary unilateral total knee arthroplasty
Intervention	Enhanced or rapid care programs
Comparator	Q1: Standard care or alternative care programs Q2: Not applicable
Outcomes	Q1: Clinical benefits (e.g., hospital length of stay, pain, hemoglobin, knee range of motion, physical function, mobility, quality of life, patient satisfaction) and harms (e.g., complications, blood transfusion, readmission, adverse events) Q2: Recommendations regarding care options for knee replacement procedures
Study designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, evidence-based guidelines

Results

One non-randomized study¹ was identified regarding the clinical effectiveness of enhanced care programs for adult patients with unilateral total knee arthroplasty. No relevant health technology assessments, systematic reviews, or randomized controlled trials were identified regarding the clinical effectiveness of enhanced care programs for adult patients with unilateral total knee arthroplasty. No evidence-based guidelines were identified about the use of enhanced care programs for adult patients with unilateral total knee arthroplasty.

Additional references of potential interest that did not meet the inclusion criteria are provided in [Appendix 1](#).

References

Health Technology Assessments

No literature identified.

Systematic Reviews

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Zhao L, Su W, Huang Z, Zeng Z, Di Z, Tao K. The impact of novel anchored barbed suture for capsular closure on hospital length of stay after total knee arthroplasty: a retrospective cohort study. *BMC Musculoskelet Disord*. Apr 11 2022; 23(1): 349. [PubMed](#)

Guidelines and Recommendations

No literature identified.

Appendix 1: References of Potential Interest

Systematic Reviews

Primary Total Knee Arthroplasty Not Specified

Konnyu KJ, Thoma LM, Cao W, et al. Prehabilitation for total knee or total hip arthroplasty: a systematic review. *Am J Phys Med Rehabil*. Mar 12 2022; 12: 12. [PubMed](#)

Primary Unilateral Total Knee Arthroplasty Not Specified

Su W, Zhou Y, Qiu H, Wu H. The effects of preoperative rehabilitation on pain and functional outcome after total knee arthroplasty: a meta-analysis of randomized controlled trials. *J Orthopaed Sur*. Mar 21 2022; 17(1): 175. [PubMed](#)

Vasileiadis D, Drosos G, Charitoudis G, Dontas I, Vlamis J. Does preoperative physiotherapy improve outcomes in patients undergoing total knee arthroplasty? A systematic review. *Musculoskelet Care*. 09 2022; 20(3): 487-502. [PubMed](#)

Konnyu KJ, Thoma LM, Bhuma MR, et al. Prehabilitation and rehabilitation for major joint replacement. (*Comparative effectiveness review, no. 248*). Rockville (MD): Agency for Healthcare Research and Quality (US); 2021: <https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/ceer-248-rehab-major-joint-replacement.pdf>. Accessed 2022 Nov 17. [PubMed](#)

Vasta S, Papalia R, Torre G, et al. The influence of preoperative physical activity on postoperative outcomes of knee and hip arthroplasty surgery in the elderly: a systematic review. *J Clin Med*. Mar 31 2020; 9(4): 31. [PubMed](#)

Moyer R, Ikert K, Long K, Marsh J. The value of preoperative exercise and education for patients undergoing total hip and knee arthroplasty: a systematic review and meta-analysis. *JBJS Rev*. Dec 2017; 5(12): e2. [PubMed](#)

Mixed Population – Hip and Knee Arthroplasty

Heymans MJ, Kort NP, Snoeker BA, Schotanus MG. Impact of enhanced recovery pathways on safety and efficacy of hip and knee arthroplasty: A systematic review and meta-analysis. *World J Orthoped*. Mar 18 2022; 13(3): 307-328. [PubMed](#)

Unilateral Total Knee Arthroplasty Not Specified

Beswick AD, Dennis J, Goberman-Hill R, Blom AW, Wylde V. Are perioperative interventions effective in preventing chronic pain after primary total knee replacement? A systematic review. *BMJ Open*. 09 06 2019; 9(9): e028093. [PubMed](#)

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Population Age Not Specified

Sharma R, Ardebili MA, Abdulla IN. Does rehabilitation before total knee arthroplasty benefit postoperative recovery? A systematic review. *Indian J Orthop*. Jan-Feb 2019; 53(1): 138-147. [PubMed](#)

Randomized Controlled Trials

Primary Unilateral Total Knee Arthroplasty Not Specified

Aguado-Maestro I, Cebrian-Rodriguez E, Fraile-Castelao O, et al. Implementation of a rapid recovery protocol in total knee arthroplasty. A randomized controlled trial. *Rev Esp Cir Ortop Traumatol (Engl Ed)*. Sep-Oct 2022; 66(5): 380-388. [PubMed](#)

Cao Q, He Z, Fan Y, et al. Effects of tourniquet application on enhanced recovery after surgery (ERAS) and ischemia-reperfusion post-total knee arthroplasty: full- versus second half-course application. *J Orthop Surgery*. Jan-Apr 2020; 28(1): 2309499019896026. [PubMed](#)

Li D, Zhao J, Yang Z, Kang P, Shen B, Pei F. Multiple low doses of intravenous corticosteroids to improve early rehabilitation in total knee arthroplasty: a randomized clinical trial. *J Knee Surg*. Feb 2019; 32(2): 171-179. [PubMed](#)

Sattler LN, Hing WA, Vertullo CJ. Pedaling-based protocol superior to a 10-exercise, non-pedaling protocol for postoperative rehabilitation after total knee replacement: a randomized controlled trial. *J Bone & Joint Surgery - American Volume*. Apr 17 2019; 101(8): 688-695. [PubMed](#)

Tan Z, Kang P, Pei F, Shen B, Zhou Z, Yang J. A comparison of adductor canal block and femoral nerve block after total-knee arthroplasty regarding analgesic effect, effectiveness of early rehabilitation, and lateral knee pain relief in the early stage. *Medicine (Baltimore)*. Nov 2018; 97(48): e13391. [PubMed](#)

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Primary Total Knee Arthroplasty Not Specified

El-Boghdady K, Short AJ, Gandhi R, Chan V. Addition of dexamethasone to local infiltration analgesia in elective total knee arthroplasty: double-blind, randomized control trial. *Reg Anesth Pain Med*. 02 2021; 46(2): 130-136. [PubMed](#)

Calatayud J, Casana J, Ezzatvar Y, Jakobsen MD, Sundstrup E, Andersen LL. High-intensity preoperative training improves physical and functional recovery in the early post-operative periods after total knee arthroplasty: a randomized controlled trial. *Knee Surg Sports Traumatol Arthrosc.* Sep 2017; 25(9): 2864-2872. [PubMed](#)

Population Age Not Specified

Kulkarni MM, Dadheech AN, Wakankar HM, Ganjewar NV, Hedgire SS, Pandit HG. Randomized prospective comparative study of adductor canal block vs periarticular infiltration on early functional outcome after unilateral total knee arthroplasty. *J Arthroplasty.* 10 2019; 34(10): 2360-2364. [PubMed](#)

Alternative Comparator – Adductor Canal Block versus Placebo

Rousseau-Saine N, Williams SR, Girard F, et al. The Effect of adductor canal block on knee extensor muscle strength 6 weeks after total knee arthroplasty: a randomized, controlled trial. *Anesth Analg.* 03 2018; 126(3): 1019-1027. [PubMed](#)

Unilateral Total Knee Arthroplasty Not Specified

Zhou K, Ling T, Wang H, et al. Influence of tourniquet use in primary total knee arthroplasty with drainage: a prospective randomised controlled trial. *J Orthop Surgery.* Nov 14 2017; 12(1): 172. [PubMed](#)

Non-Randomized Studies

Primary Unilateral Total Knee Arthroplasty Not Specified

Jones ED, Davidson LJ, Cline TW. The Effect of preoperative education prior to hip or knee arthroplasty on immediate postoperative outcomes. *Orthop Nurs.* Jan-Feb 01 2022; 41(1): 4-12. [PubMed](#)

Paulsen A, Djuv A, Ludvigsen J, Dalen I. Excellent PROM results after fast-track hip and knee arthroplasty with no postoperative restrictions: a cohort study validation of fast-track surgery without postoperative restrictions. *BMC Musculoskelet Disord.* Apr 05 2022; 23(1): 324. [PubMed](#)

Somoza-Fernandez B, Ribed-Sanchez A, Martin-Lozano S, et al. Implementation of an enhanced recovery after surgery program including a patient school: Impact on quality of life results. *Injury.* Oct 02 2022; 02(): 02. [PubMed](#)

Collett G, Insley AP, Michaelis S, Shaji S, Feierstein B, Martell JR, Jr. Reduction of opioid use with enhanced recovery program for total knee arthroplasty. *Fed Pract.* May 2021; 38(5): 212-219. [PubMed](#)

Hamilton DA, Ononuju U, Nowak C, Chen C, Darwiche H. Differences in immediate postoperative outcomes between robotic-assisted TKA and conventional TKA. *Arthroplasty Today.* Apr 2021; 8(): 57-62. [PubMed](#)

Harkouk H, Capmas P, Derridj N, et al. Limited impact of a top-down approach to improve enhanced recovery programme in French university hospitals: a before-after retrospective survey. *Perioper Med (Lond).* Sep 06 2021; 10(1): 29. [PubMed](#)

Li R, Hu B, Liu Z, et al. Insight Into the Effect of hospital-based prehabilitation on postoperative outcomes in patients with total knee arthroplasty: a retrospective comparative study. *Arthroplasty Today.* Aug 2021; 10(): 93-98. [PubMed](#)

Picart B, Lecoer B, Rochcongar G, Dunet J, Pegoix M, Hulet C. Implementation and results of an enhanced recovery (fast-track) program in total knee replacement patients at a French university hospital. *Orthop Traumatol Surg Res.* 05 2021; 107(3): 102851. [PubMed](#)

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Marsh J, Somerville L, Howard JL, Lanting BA. Significant cost savings and similar patient outcomes associated with early discharge following total knee arthroplasty. *Can J Surg.* 02 01 2019; 62(1): 20-24. [PubMed](#)

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- Wilches C, Sulbaran JD, Fernandez JE, Gisbert JM, Bausili JM, Pelfort X. Fast-track recovery technique applied to primary total hip and knee replacement surgery. Analysis of costs and complications. *Rev Esp Cir Ortop Traumatol (Engl Ed).* Mar - Apr 2017; 61(2): 111-116. [PubMed](#)

Population Age Not Specified

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Unilateral Total Knee Arthroplasty Not Specified

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Mixed Population — Patients undergoing Total Knee or Hip Joint Arthroplasty

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Primary Total Knee Arthroplasty Not Specified

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Alternative Comparator

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Guidelines and Recommendations

Implementation Recommendations

- Wainwright TW, Gill M, McDonald DA, et al. Consensus statement for perioperative care in total hip replacement and total knee replacement surgery: Enhanced Recovery After Surgery (ERAS) Society recommendations. *Acta Orthop.* 02 2020; 91(1): 3-19. [PubMed](#)
- See Table 3: Summary of recommended interventions for the perioperative care of hip and knee replacement
- Orseka L, Pecka S. Anesthetic management in early recovery after surgery protocols for total knee and total hip arthroplasty. *AANA J.* 02 2018; 86(1): 32-39. [PubMed](#)

Review Articles

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