

Staying Active for Joint Health

Overview

- Exercise interventions implemented ≤ 12 weeks after total knee arthroplasty primarily improve functional performance [1].
- Exercise interventions lasting >12 weeks after total knee arthroplasty result in greater gains in muscle strength and joint flexibility [1].
- Total hip arthroplasty outcomes should not be prioritized only for patients with severe hip osteoarthritis symptoms, though confirmation in a trial is required [2].
- Aerobic exercise elicits improvements in cardiopulmonary fitness for people with knee osteoarthritis [3].
- Exercise may improve pain and function in knee osteoarthritis with low to moderate certainty, but it is uncertain whether these differences are clinically important [5].
- Self-monitoring physical activity with wearable activity trackers does not have any effect on perceived joint function or health-related quality of life in people with hip and knee osteoarthritis [7].
- Scapular exercise programs for hand, wrist, or elbow disorders result in functional outcome differences that most often do not reach the minimum threshold to be considered clinically important [8].
- Proximal interphalangeal joint orthosis and therapeutic exercise demonstrate feasibility and short-term clinical improvement for trigger finger, but cannot establish superiority over other conservative treatments due to the absence of a control group [9].
- Neuromuscular exercise therapy contributes to symptom management in wrist osteoarthritis over time, with few participants requiring surgical conversion at 24 months [10].

How It Works

- Exercise interventions implemented ≤ 12 weeks after total knee arthroplasty primarily improve functional performance [1].
- Exercise interventions lasting >12 weeks after total knee arthroplasty result in greater gains in muscle strength and joint flexibility [1].
- Aerobic exercise elicits improvements in cardiopulmonary fitness for people with knee osteoarthritis [3].

- Exercise may improve pain and function in knee osteoarthritis with low to moderate certainty [5].
- It is uncertain whether the improvements in pain and function from exercise for knee osteoarthritis are clinically important [5].
- The addition of wearable activity tracker use did not have any effect on perceived joint function or health-related quality of life in people with hip and knee osteoarthritis [7].
- Most differences in functional outcomes from scapular exercise programs for hand, wrist, or elbow disorders did not reach the minimum threshold to be considered clinically important [8].
- Proximal interphalangeal joint orthosis and therapeutic exercise demonstrate feasibility and short-term clinical improvement for trigger finger management [9].
- Few participants in either group required surgery at 24 months in a trial of neuromuscular exercise therapy for wrist osteoarthritis, indicating that exercise programs may contribute to long-term symptom management [10].
- The addition of whole-body vibration to exercise therapy led to greater improvements in several outcomes for end-stage knee osteoarthritis, suggesting it may optimize the benefits of exercise therapy [12].
- Moderate treadmill exercise following an initial period of short-term immobilization has a positive impact on tendon-bone interface healing after anterior cruciate ligament reconstruction [13].
- Prolonged immobilization has a detrimental effect on physical recovery following anterior cruciate ligament reconstruction [13].
- Pain science education may act as a mechanism of action for exercise interventions in people with knee or hip osteoarthritis [14].
- Pain science education is less successful when delivered standalone compared to when it is part of an exercise intervention [14].
- There is heterogeneity in functional recovery among joint arthroplasty patients, highlighting the importance of a personalised, data-driven approach to post-operative care [15].

What the Evidence Shows

- Exercise interventions implemented ≤ 12 weeks after total knee arthroplasty primarily improve functional performance [1].
- Exercise interventions lasting >12 weeks after total knee arthroplasty result in greater gains in muscle strength and joint flexibility [1].
- Findings question whether total hip arthroplasty should be prioritized only for patients with severe hip osteoarthritis symptoms, though confirmation in a trial is required [2].
- Aerobic exercise elicits improvements in cardiopulmonary fitness for people with knee osteoarthritis [3].
- Exercise may improve pain and function in knee osteoarthritis with low to moderate certainty, but it is uncertain whether these differences are clinically important [5].
- The addition of wearable activity tracker use did not have any effect on perceived joint function or health-related quality of life in people with hip and knee osteoarthritis [7].

- Most differences in functional outcomes for patients with hand, wrist, or elbow disorders following a scapular exercise program did not reach the minimum threshold to be considered clinically important [8].
- Proximal interphalangeal joint orthosis and therapeutic exercise demonstrate feasibility and short-term clinical improvement for trigger finger management, but cannot establish superiority over other conservative treatments due to the absence of a control group [9].
- Few participants in either group required surgery at 24 months in a randomized controlled trial of neuromuscular exercise therapy for wrist osteoarthritis, indicating that exercise programs may contribute to long-term symptom management [10].
- The document for Fu's subcutaneous needling versus bracing combined with exercise therapy is a study protocol and does not report results or conclusions [11].
- The addition of whole-body vibration to exercise therapy led to greater improvements in several outcomes for end-stage knee osteoarthritis, suggesting it may be a valuable adjunct to optimize exercise benefits [12].
- Moderate treadmill exercise following an initial period of short-term immobilization has a positive impact on tendon-bone interface healing after anterior cruciate ligament reconstruction in a murine model [13].
- Prolonged immobilization has a detrimental effect on physical recovery following anterior cruciate ligament reconstruction in a murine model [13].
- Pain science education may act as a mechanism of action for exercise interventions in people with knee or hip osteoarthritis, and is less successful when delivered standalone [14].
- An individually tailored, supervised prehabilitation program resulted in superior improvements in perceived knee function compared to a self-administered program before anterior cruciate ligament reconstruction [16].
- Both combined mode kinetic chain exercises with core strengthening and combined kinetic chain exercise only reduced pain, improved knee flexion and extension, and improved overall quality of life in patients with knee osteoarthritis [17].
- Progressive tendon-loading eccentric exercise therapy in athletes with patellar tendinopathy resulted in statistically significant decreases in center of pressure velocity and increases in Y-Balance Test reach distances compared to baseline [18].
- Mobile game-based home exercise programs may be a potentially effective option for thumb rehabilitation, with significantly higher adherence observed compared to standard home exercise programs [19].
- Ankle pump exercises significantly reduce the incidence of deep vein thrombosis and increase venous haemodynamic parameters—specifically maximum venous outflow and maximum venous capacity—in patients undergoing lower limb orthopaedic surgery [20].
- There is moderate-certainty evidence that Pilates and Tai Chi may be the most effective mind–body exercises for improving pain and physical function in knee osteoarthritis [21].
- Tai Chi may be the best mind–body exercise for improving quality of life in knee osteoarthritis [21].

Practical Considerations

- Exercise interventions implemented ≤ 12 weeks after total knee arthroplasty primarily improve functional performance [1].
- Exercise interventions lasting >12 weeks after total knee arthroplasty result in greater gains in muscle strength and joint flexibility [1].
- Total hip arthroplasty should not necessarily be prioritized only for patients with severe hip osteoarthritis symptoms, although this requires confirmation in a trial [2].
- Aerobic exercise elicits improvements in cardiopulmonary fitness for people with knee osteoarthritis [3].
- Exercise may improve pain and function in knee osteoarthritis with low to moderate certainty, but it is uncertain whether these differences are clinically important [5].
- Self-monitoring physical activity with wearable activity trackers does not have any effect on perceived joint function or health-related quality of life in people with hip and knee osteoarthritis [7].
- Most differences in functional outcomes from scapular exercise programs for hand, wrist, or elbow disorders did not reach the minimum threshold to be considered clinically important [8].
- Proximal interphalangeal joint orthosis and therapeutic exercise demonstrate feasibility and short-term clinical improvement for trigger finger, but cannot establish superiority over other conservative treatments due to the absence of a control group [9].
- Few participants in either group required surgery at 24 months in a randomized controlled trial of neuromuscular exercise therapy for wrist osteoarthritis, indicating that exercise programs may contribute to symptom management over time [10].
- The addition of whole-body vibration to exercise therapy led to greater improvements in several outcomes for end-stage knee osteoarthritis, suggesting it may be a valuable adjunct to optimize the benefits of exercise therapy [12].
- Heterogeneity in functional recovery among joint arthroplasty patients underscores the importance of a personalized, data-driven approach to post-operative care to optimize long-term outcomes [15].

Key Evidence

- [L1] The interventions implemented at ≤ 12 weeks primarily improved the functional performance, whereas those lasting >12 weeks resulted in greater gains in the muscle strength and joint flexibility. [1] ([10.1186/s13018-025-06430-7](#))
- [L3] These findings question whether THA should be prioritized only for those patients who have severe hip OA symptoms, but require confirmation in a trial. [2] ([10.1016/j.arth.2025.04.032](#))
- [L1] These results support the hypothesis that aerobic exercise can elicit improvements in cardiopulmonary fitness for people with knee OA. [3] ([10.1186/s12891-025-08746-1](#))
- [L1] Exercise may improve pain and function with low to moderate certainty, but it is uncertain whether differences are clinically important. [5] ([10.1097/corr.0000000000003476](#))

- [L1] The addition of WAT-use did not have any effect on perceived joint function or HRQoL. [7] ([10.1186/s12891-024-08238-8](#))
- [L1] However, most of these differences did not reach the minimum threshold to be considered clinically important. [8] ([10.1016/j.jht.2024.07.006](#))
- [L4] Because of the absence of a control group, these findings demonstrate feasibility and short-term clinical improvement but cannot establish superiority over other conservative treatments. [9] ([10.1016/j.jhsg.2026.101038](#))
- [L1] Nevertheless, few participants in either group required surgery at 24 months, indicating that both exercise programs may contribute to symptom management over time. [10] ([10.1186/s12891-025-09463-5](#))
- [Paper] This document is a study protocol outlining the design of a randomized controlled trial to compare Fu's subcutaneous needling with bracing combined with exercise therapy; it does not report results or conclusions. [11] ([10.1186/s13018-026-06719-1](#))
- [L3] The addition of WBV to exercise therapy led to greater improvements in several outcomes, suggesting that WBV may be a valuable adjunct to optimize the benefits of exercise therapy. [12] ([10.1186/s42836-025-00301-6](#))
- [L5] Moderate treadmill exercise following an initial period of short-term immobilization has a positive impact on tendon-bone interface healing, whereas prolonged immobilization has a detrimental effect on physical recovery. [13] ([10.1177/2325967125s00320](#))
- [L1] PSE may act as a mechanism of action for exercise interventions, and is less successful delivered standalone. [14] ([10.1186/s12891-025-09313-4](#))
- [L3] The findings highlight heterogeneity in functional recovery and underscore the importance of a personalised, data-driven approach to post-operative care to optimise long-term outcomes. [15] ([10.1186/s42836-025-00339-6](#))
- [L1] An individually tailored, supervised prehabilitation program resulted in superior improvements in perceived knee function compared to a self-administered program. [16] ([10.1177/2325967126s00041](#))
- [L2] The study concluded that both the experimental group receiving core strengthening exercises with combined mode kinetic chain exercises and the control group receiving combined kinetic chain exercise only reduced pain, improved knee flexion and extension, and improved the overall quality of life of patients with knee Osteoarthritis. [17] ([10.1186/s12891-026-09531-4](#))
- [L2] The intervention group showed statistically significant decreases in center of pressure velocity and increases in Y-Balance Test reach distances compared to baseline. [18] ([10.1016/j.jisako.2026.101105](#))
- [L2] Mobile game-based home exercise programs may be considered a potentially effective option in thumb rehabilitation and, at the very least, not inferior to standard home exercise programs, with significantly higher adherence to home exercises observed in the mobile game group. [19] ([10.1177/17589983251387079](#))
- [L1] This meta-analysis provides Level I evidence that ankle pump exercises significantly reduce the incidence of deep vein thrombosis (DVT) and increase venous haemodynamic parameters—specifically

maximum venous outflow (MVO) and maximum venous capacity (MVC)—in patients undergoing lower limb orthopaedic surgery. [20] ([10.1186/s13018-025-06236-7](https://doi.org/10.1186/s13018-025-06236-7))

- [L1] There is moderate-certainty evidence that Pilates and Tai Chi may be the most effective mind-body exercises for improving pain and physical function in knee osteoarthritis, while Tai Chi may be the best for improving quality of life. [21] ([10.1186/s13018-025-05682-7](https://doi.org/10.1186/s13018-025-05682-7))

References

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