
Physical exercise after knee arthroplasty: a systematic review of controlled trials

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Source

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ABSTRACT

Total knee arthroplasty (TKA) is the gold standard treatment for end-stage knee osteoarthritis. Most patients report successful long-term outcomes and reduced pain after TKA, but recovery is variable and the majority of patients continue to demonstrate lower extremity muscle weakness and functional deficits compared to age-matched control subjects. Given the potential positive influence of postoperative rehabilitation and the lack of established standards for prescribing exercise paradigms after TKA, the purpose of this study was to systematically review randomized, controlled studies to determine the effectiveness of postoperative outpatient care on short- and long-term functional recovery. Nineteen studies were identified as highly relevant for the review and four categories of postoperative intervention were discussed: 1) strengthening exercises; 2) aquatic therapy; 3) balance training; and 4) clinical environment. Optimal outpatient physical therapy protocols should include: strengthening and intensive functional exercises given through land-based or aquatic programs, the intensity of which is increased based on patient progress. Due to the highly individualized characteristics of these types of exercises, outpatient physical therapy performed in a clinic under the supervision of a trained physical therapist may provide the best long-term outcomes after the surgery. Supervised or remotely supervised therapy may be effective at reducing some of the impairments following TKA, but several studies without direct oversight produced poor results. Most studies did not accurately describe the "usual care" or control groups and information about the dose, frequency, intensity and duration of the rehabilitation protocols were lacking from several studies.

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Placebo and nocebo: how to enhance therapies and avoid unintended sabotage to pain treatment

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SUMMARY

There is good evidence showing that placebo and nocebo responses do not only reflect a psychological reappraisal of an unchanged nociceptive activity. There are several scientific evidences indicating that placebo or nocebo responses trigger changes in the brain that activate descending modulatory mechanisms, affecting the nociceptive signal early in the CNS. Among the psychological factors that trigger a placebo or nocebo response, conditioning and expectation have been demonstrated to greatly affect the outcomes of pain perception, but also the response to treatment. Placebo or nocebo responses can be triggered without the administration of an inert substance in several therapeutic contexts and will affect the treatment outcome. In this article, we will describe different experimental situations where psychological factors produce physiological changes of the nociceptive signal in the brain, and how these changes are reflected in the spinal cord. Finally, we will discuss the importance of better understanding placebo and nocebo mechanisms in clinical contexts for pain treatment.

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Postoperative pain following hospital discharge after knee replacement surgery: a patient survey

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SUMMARY

Aim: To determine patients' pain experience and potential barriers to effective pain relief after discharge.

Materials & methods: Cross-sectional survey at weeks 2 and 4 to consecutive patients after discharge following total knee arthroplasty on pain severity; use of pain medication and nonpharmacological strategies; side effects and perceptions of pain medication; adequacy of information; and patient satisfaction.

Results: We recruited 105 participants (response rate: 94%). During the first 2 weeks at home, 40% of the participants experienced frequent severe–extreme pain and 20% of the participants reported that this was the most painful period. There was no/inadequate information on pain medication for 30% of the participants and nonpharmacological strategies for pain relief for 60% of the participants. Many participants had misconceptions about pain medications. More no to mild pain participants walked or exercised their knees longer daily, or were satisfied with pain relief since returning home, compared with moderate–severe pain participants.

Conclusion: Following discharge for total knee replacement, there was suboptimal use of pain medication and nonpharmacological strategies, probably leading to unnecessary pain, reduced mobility, limited therapeutic exercise and patient dissatisfaction.

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Characterization of patients undergoing total hip arthroplasty in a real-world setting and pain-related medication prescriptions for management of postoperative pain

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ABSTRACT

This observational study characterized medication use in the immediate postoperative period among patients undergoing total hip arthroplasty (THA) at an academic medical center, and evaluated pain (0–10 numerical pain rating scale [NPRS]; 0 = no pain, 10 = worst pain that the patient can imagine), function (Harris Hip Score [HSS] and Lower Extremity Function Scale [LEFS]), and health-related quality of life (SF-36). Study patients (N = 115; 59% female; average age 61.3 ± 12.0 years; mean BMI of 29.9 ± 6.9 kg/m²) who underwent THA between September 1, 2008, and November 30, 2010, and met study inclusion criteria were drawn from the University of Utah Orthopedic Clinic database. The most common comorbidities in these patients were osteoarthritis, hypertension, and chronic back pain. The most frequently prescribed class of pain-related medications in the immediate postoperative period was opioids. The most common nonopioid medications were bupivacaine, celecoxib, and midazolam. Opioids and celecoxib continued to be commonly prescribed at discharge. Pain was improved at a 6-week follow-up (mean change -3.3 ± 3.3 points), as were HSS and LEFS, with mean changes of 19.9 ± 24.2 and 8.7 ± 16.9 points ($P < .01$ for both), respectively. Although SF-36 scores were also improved, these scores were significantly lower relative to normative values for the US general population as well as relative to individuals having both osteoarthritis and hypertension.

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Insufficiency fracture in the para-acetabulum, with features mimicking those of a malignant bone tumor

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ABSTRACT

Para-acetabular insufficiency fractures are rare and exceedingly difficult to diagnose without a high index of suspicion, since the images mimic those of bone tumors. We herein present the case of a 55-year-old woman who suffered from hip pain with subacute onset. She had undergone a hysterectomy-ovariectomy due to endometriosis when she was 41 years old. Her bone mineral density was normal due to supplemental treatment with female hormones. About 3 months after onset, she was referred to our institute with a diagnosis of pelvic bone tumor. Plain radiographs and computed tomography showed irregular osteosclerosis in the para-acetabulum. Bone scintigraphy demonstrated uptake in the para-acetabulum. Magnetic resonance imaging showed abnormal signal with low-signal intensity on T1-weighted images and high-signal intensity on T2-weighted images throughout the entire hemipelvic bone. Since the pain continued for more than 3 months, open biopsy was undertaken and the lesion was found to be non-neoplastic. Six months after onset, the pain disappeared. The clinical course suggested a diagnosis of insufficiency fracture in the para-acetabulum. Para-acetabular insufficiency fractures should always be considered in cases of hip pain, even in patients with prolonged symptoms.

Clin Med Case Rep. 2008 Jun 6;1:73-6.

Knee pain: an unanticipated finding related to a rare genetic disorder-abetalipoproteinemia

Nulty D.

PURPOSE:

The purpose of this case study is to raise awareness about an uncommon cause of knee pain.

DATA SOURCES:

Review of literature was done using PubMed, CINAHL, and Medline. There was no limitation placed on the publication year. Only articles written in English were included.

CONCLUSION:

Knee pain is a common diagnosis that many healthcare providers see on a daily basis in their practice. Musculoskeletal injury or trauma is most commonly identified as the cause of this symptom. However, there are rare instances in which an unexpected finding in a client's history and physical exam lead us to an unexpected cause, such as abetalipoproteinemia. Abetalipoproteinemia is a rare autosomal recessive disorder in which an affected individual does not absorb lipids or the lipid-soluble vitamins A, D, E, and K. Multiple body systems are impacted by this fat malabsorption and resultant vitamin deficiencies. Without corrective supplementation, clinical manifestations which are directly related to the vitamin deficiencies will appear as presented in this case study-knee pain.

IMPLICATIONS FOR PRACTICE:

This case study emphasizes the need for nurse practitioners to seek out opportunities to further our knowledge which will enhance our clinical expertise as well as the quality of the health care we provide to our clients.

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Trunnionosis: a pain in the neck

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ABSTRACT

Metal-on-metal (MoM) hip replacements have proven to be a modern day orthopaedic failure. The early enthusiasm and promise of a hard, durable bearing was quickly quashed following the unanticipated wear rates. The release of metal ions into the blood stream has been shown to lead to surrounding soft tissue complications and early failure. The devastating destruction caused has led to a large number of revision procedures and implant extractions. The resulting research into this field has led to a new area of interest; that of the wear at the trunnion of the prosthesis. It had been previously thought that the metal debris was generated solely from the weight bearing articulation, however with the evolution of modularity to aid surgical options, wear at the trunnion is becoming more apparent. The phenomenon of "trunnionosis" is a rapidly developing area of interest that may contribute to the overall effect of metallosis in MoM replacements but may also lead to the release of metal ions in non MoM hip designs. The aim of this paper is to introduce, explain and summarise the evidence so far in the field of trunnionosis. The evidence for this phenomenon, the type of debris particles generated and a contrast between MoM, non MoM and re-surfacing procedures are also presented.

World J Orthop 013 Oct 18;4(4):161-6. doi: 10.5312/wjo.v4.i4.161.

Should patients with a hip or femur fracture sustained abroad be repatriated for surgery?

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ABSTRACT

OBJECTIVE:

To investigate the clinical outcome of patients with hip or femur fractures sustained while travelling, depending on the place where surgery was performed (abroad or in Switzerland).

METHODS:

This was an ambispective cohort study of 90 patients in two groups. Outcome measures were: number and type of complications, impairment of walking ability at six months compared to the preoperative state, and chronic pain with ongoing use of analgesic medication at six months

RESULTS:

A total of 62 patients were transported to be operated on in Switzerland, and 28 patients received their surgery abroad. Age and gender distribution of the two groups were comparable, as was comorbidity status. A total of 64% of patients operated on abroad suffered one or more complications, as compared with 37% of patients operated on in Switzerland ($p = 0.01$). Logistical regression showed no evidence of an association between the variables investigated as possible confounding factors and the outcome, the place where surgery was performed (abroad or at home), was the only predictor of complications in general and of a reoperation in particular (95% confidence intervals 1.55-13.7 and 1.39-41.25, respectively). When compared with their preoperative state, 89% of patients operated on abroad reported some postoperative walking impairment, compared with 57% of patients operated on in Switzerland ($p = 0.004$). A total of 59% of patients operated on abroad had to use analgesic medication intermittently or regularly six months after surgery, as compared with 35% of patients operated on in Switzerland ($p = 0.03$).

CONCLUSIONS:

Swiss patients with hip or femoral fractures sustained while travelling in a foreign country had fewer complications and a better functional outcome if repatriated and operated on in Switzerland than if operated on abroad. The reasons for this unexpected result remain unclear. Medical, ethnic and psychological factors could well play a part. These results need further clarification and should be tested in larger studies with different pathologies.

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Intraarticular Analgesia Versus Epidural Plus Femoral Nerve Block After TKA: A Randomized, Double-blind Trial

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ABSTRACT

BACKGROUND:

Pain management after TKA remains challenging and the efficacy of continuously infused intra-articular anesthetics remains a controversial topic.

QUESTIONS/PURPOSES:

We compared the side effect profile, analgesic efficacy, and functional recovery between patients receiving a continuous intraarticular infusion of ropivacaine and patients receiving an epidural plus femoral nerve block (FNB) after TKA.

METHODS:

Ninety-four patients undergoing unilateral TKA were prospectively randomized to receive a spinal-epidural analgesic infusion plus a single-injection FNB or a spinal anesthetic plus a continuous postoperative intraarticular infusion of 0.2% ropivacaine. All patients were blinded to their treatment with placebo saline catheters. Blinded coinvestigators collected data concerning side effect profiles (nausea, hypotension), analgesic efficacy (VAS pain scores, narcotic usage), and functional recovery (timed up and go test, quadriceps strength, WOMAC scores, Knee Society scores, early postoperative ambulatory ability, in-hospital falls). All complications and adverse events were recorded.

RESULTS:

The frequency of nausea and hypertension was not different between the study groups. During the first 12 and 24 postoperative hours, the mean maximum VAS pain scores were higher in the ropivacaine group than in the epidural group (first 12 hours: 3.93 versus 1.14, respectively, $p < 0.0001$; 12-24 hours: 3.52 versus 1.93, respectively, $p = 0.008$). After 24 hours, pain scores were similar between groups. Narcotic consumption was significantly higher in the ropivacaine group on the day of surgery, but overall in-hospital narcotic usage was similar between groups. There were no clinically important differences in functional recovery between groups at any time point, but patients in the epidural group were more likely to have knee buckling (32.7% versus 6.7%, $p = 0.002$) and delayed ambulation (16.3% versus 0.0%, $p = 0.006$) than patients in the ropivacaine group, though not in-hospital falls. No infections occurred in either group, and the frequency of complications was not different between groups.

CONCLUSIONS:

A continuous intraarticular infusion of ropivacaine can be recommended as a safe, effective alternative to epidural analgesia plus single-injection FNB after TKA. Improved analgesic efficacy in the group that received epidural analgesia plus single-injection FNB must be weighed against the disadvantage of a higher likelihood of knee buckling and delayed ambulation with that treatment approach.

LEVEL OF EVIDENCE:

Level I, therapeutic study. See Instructions for Authors for a complete description of levels of evidence.

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Persistent post-surgical pain and experimental pain sensitivity in the Tromsø study: comorbid pain matters

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Source

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ABSTRACT

In a large survey incorporating medical examination (N = 12,981), information on chronic pain and surgery was collected, and sensitivity to different pain modalities was tested. Tolerance to the cold pressor test was analysed with survival statistics for 10,486 individuals, perceived cold pressor pain intensity was calculated for 10,367 individuals, heat pain threshold was assessed for 4,054 individuals and pressure pain sensitivity for 4,689 individuals. Persistent post-surgical pain, defined by self-report, was associated with lower cold pressor tolerance (sex-adjusted hazard ratio 1.34, 95% CI 1.08-1.66), but not when adjusting for other chronic pain. Other experimental pain modalities did not differentiate between individuals with or without post-surgical pain. Of individuals with chronic pain (N = 3,352), 6.2% indicated surgery as a cause, while only 0.5% indicated surgery as the only cause. The associations found between persistent post-surgical pain and cold pressor tolerance is largely explained by the co-existence of chronic pain from other causes. We conclude that 1) most cases of persistent post-surgical pain are coexistent with other chronic pain; 2) in an unselected post-surgical population, persistent post-surgical pain is not significantly associated with pain sensitivity when controlling for comorbid pain from other causes. A low prevalence of self-reported persistent pain from surgery attenuates statistical significant associations. We hypothesize that general chronic pain is associated with central changes in pain processing as expressed by reduced tolerance for the cold pressor test.

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