



## Questions Vol. 49, No. 6 – December 2013

### Which type of exercise therapy is effective after hip arthroplasty? A systematic review of randomized controlled trials

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Background. Early multidisciplinary rehabilitation can improve the recovery after total hip arthroplasty (THA). However, optimal exercise therapy has not been defined. We aimed to answer the question: “Which type and/or timing of exercise therapy is effective following THA?”. Design. Systematic review. Methods. We searched four databases: MEDLINE, PEDro, Cochrane Library, and Cinahl since January 2008 till December 2012. Literature before 2008 was not searched for, because it was previously analyzed by two systematic reviews. Eligible criteria for studies were: Randomized Controlled Trials (RCTs); English language; interventions on type and/or timing of physical exercise initiating after THA; outcome measures including at least one among impairment, activity, participation, quality of life, or length of stay in hospital. Results. Eleven papers on nine RCTs were identified. Trial quality was mixed. PEDro scores ranged from four to eight. Exercise therapy varied greatly in type and timing. Each of the nine RCTs addressed a specific issue and overall the results were sparse. In the early postoperative phase favorable outcomes were due to ergometer cycling and maximal strength training. Inconclusive results were reported for aquatic exercises, bed exercises without external resistance or without its progressive increase according to the overload principle, and timing. In the late postoperative phase (> 8 weeks postoperatively) advantages were due to weight-bearing exercises. Conclusion. Insufficient evidence exists to build up a detailed evidence-based exercise protocol after THA. Sparse results from few RCTs support specific exercise types which should be added to the usual mobility training in THA patients.

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#### 1. In the early postoperative phase following hip arthroplasty advantages are mostly due to:

- A. Stretching exercises
- B. Resistance strength training
- C. Weight bearing exercises
- D. Physiotherapy given twice daily
- E. Aquatic exercises

#### 2. In the late postoperative phase following hip arthroplasty advantages are mostly due to:

- A. Range of motion exercises
- B. Stretching exercises
- C. Postural exercises iracetam
- D. Isometric strength training
- E. Weight bearing exercises

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**3. What is the minimal clinically relevant change in walking distance?**

- A. 25 m
- B. 50 m
- C. 75 m
- D. 100 m
- E. 125 m

## Neuromuscular electrical stimulation after total joint arthroplasty: a critical review of recent controlled studies

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Since 2009, four randomized controlled trials have investigated the use of Neuromuscular Electrical Stimulation (NMES) as a treatment modality following total knee arthroplasty (TKA). Two of these studies demonstrated a treatment effect of NMES for improving physical function, while another study failed to find additional benefit of NMES relative to a progressive exercise intervention. The fourth study demonstrated non-inferiority of NMES compared supervised physical therapy. These studies differed substantially in their methodology, including the timing, duration, treatment volume and intensity of NMES interventions. The purpose of this review is to examine and discuss variations between these recent trials to synthesize the current state of evidence for NMES in post-TKA rehabilitation. When comparing intervention parameters across recent studies, it appears that high intensity NMES performed regularly during the immediate postoperative phase helped to attenuate dramatic losses in quadriceps strength following TKA, thereby resulting in overall improvements in strength and function.

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**4. Early quadriceps weakness following total joint arthroplasty results from:**

- A. Activation deficits
- B. Inability to walk early after surgery
- C. Post-surgical knee pain
- D. Restrictions in range of motion of the knee
- E. Rapid atrophy of muscle fibers

**5. In end-stage knee osteoarthritis to what extent do activation deficits contribute to the quadriceps muscle weakness?**

- A. Less than 15%
- B. 16-39%
- C. 40-70%
- D. 71-84%
- E. 85% or more

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**6. In which case should neuromuscular electrical stimulation of the lower limb be avoided?**

- A. Central venous catheter with implanted port
- B. Metallic bone implants on pelvis
- C. Tissue edema
- D. Implanted cardiac defibrillator
- E. Poorly controlled arterial hypertension

See answers on page 923.



**CONTINUING MEDICAL EDUCATION SELF-ASSESSMENT - ANSWERS**

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|------|------|
| 1. B | 4. A |
| 2. E | 5. C |
| 3. B | 6. D |