



TITLE: Whole Body Vibration Trainers for Adults who have Undergone Hip or Knee Arthroplasty: Safety and Cost-Effectiveness

DATE: 29 November 2012

RESEARCH QUESTIONS

1. What is the clinical evidence regarding safety when using whole body vibration trainers in adult patients who have undergone total, partial, or revision hip or knee arthroplasty?
2. What is the cost-effectiveness of using whole body vibration trainers in adult patients who have undergone total, partial, or revision hip or knee arthroplasty?

KEY MESSAGE

One non-randomized study was identified regarding the use of whole body vibration trainers following total knee arthroplasty; no economic studies for either indication, or studies regarding the use of whole body vibration trainers following hip arthroplasty were identified.

METHODS

A limited literature search was conducted on key resources including PubMed, EBSCO CINAHL, The Cochrane Library (2012, Issue 11), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2002 and November 20, 2012. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and economic evaluations.

One non-randomized study regarding the safety and clinical effectiveness of using whole body vibration trainers in adult patients who have undergone total knee arthroplasty was identified by the literature search. No health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or economic studies were identified. No studies were identified regarding the safety or cost-effectiveness of whole body vibration trainers for adult patients following hip arthroplasty.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The non-randomized study¹ compared the use of whole body vibration with traditional progressive resistance exercise for patients, following total knee arthroplasty. After four weeks of therapy, no safety issues were identified, and both patient groups showed improved health and function.

No studies were identified regarding the use of whole body vibration trainers following hip arthroplasty and no economic studies for either indication were identified; therefore, no summary can be provided for these questions.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Johnson AW, Myrer JW, Hunter I, Feland JB, Hopkins JT, Draper DO, et al. Whole-body vibration strengthening compared to traditional strengthening during physical therapy in individuals with total knee arthroplasty. *Physiother Theory Pract.* 2010 May;26(4):215-25.
[PubMed: PM20397856](#)

Economic Evaluations

No literature identified.

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APPENDIX – FURTHER INFORMATION:

Systematic Reviews – Clinical Effectiveness in any Population

2. Rehn B, Nilsson P, Norgren M. Effects of whole-body vibration exercise on human bone density: systematic review. *Physical Therapy Reviews* 2008; 13(6): 427-433. Structured abstract available from:
<http://www.crd.york.ac.uk/crdweb/ShowRecord.asp?LinkFrom=OAI&ID=12009104082>
[cited 2012 Nov 20]

Randomized Controlled Trials – Clinical Effectiveness in any Population

3. Roelants M, Delecluse C, Verschueren SM. Whole-body-vibration training increases knee-extension strength and speed of movement in older women. *J Am Geriatr Soc.* 2004 Jun;52(6):901-8.
[PubMed: PM15161453](#)

Additional References

4. Evidence-based practice center: technical brief: whole-body vibration therapy for osteoporosis [Internet]. Rockville (MD): Agency for Healthcare Research and Quality; 2010 Dec [cited 2012 Nov 20]. Available from:
<http://effectivehealthcare.ahrq.gov/ehc/products/268/594/Vibration%20technical%20brief%20protocol.pdf>
5. Canadian Agency for Drugs and Technologies in Health. Vibration therapy for adults: clinical effectiveness [Internet]. Ottawa (ON): The Agency; 2010 Apr 6. (Rapid response report: reference list). [cited 2012 Nov 20]. Available from:
<http://www.cadth.ca/media/pdf/htis-L1/J0412%20Vibration%20Therapy%20final.pdf>
6. Canadian Agency for Drugs and Technologies in Health. Vibration platform equipment for osteoporosis: clinical effectiveness [Internet]. Ottawa (ON): The Agency; 2008 Sep 8. (Rapid response report: summary of abstracts). [cited 2012 Nov 20]. Available from:
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