



TITLE: Hip Protectors: Clinical Effectiveness

DATE: 21 October 2016

RESEARCH QUESTION

What is the clinical effectiveness of hip protectors to prevent injuries for residents in long-term care facilities, assisted or supervised care, or community-dwelling older adults?

KEY FINDINGS

Two systematic reviews, one systematic review with meta-analysis, one meta-analysis, two randomized controlled trials, and three non-randomized studies were identified on the use of hip protectors and their effectiveness to prevent injury.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, 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. The search was also limited to English language documents published between January 1, 2006 and October 18, 2016. Internet links were provided, where available.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	<ul style="list-style-type: none"> • Elderly residents at risk of a hip fracture residing in long term care; • Elderly residents at risk of a hip fracture residing in assisted living or supervised care settings; • Community-dwelling older adults at risk of a hip fracture
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Table 1: Selection Criteria

Intervention	Use of hip protectors
Comparator	No hip protectors
Outcomes	Clinical effectiveness (clinical benefit or harm to reduce fractures)
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies

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 and non-randomized studies.

Two systematic reviews, one systematic review with meta-analysis, one meta-analysis, two randomized controlled trials, and three non-randomized studies were identified on the use of hip protectors and prevention of fractures.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Gillespie WJ, Gillespie LD, Parker MJ. Hip protectors for preventing hip fractures in older people. *Cochrane Database Syst Rev.* 2010 Oct 6;(10):CD001255.
[PubMed: PM20927724](#)
2. Michael YL, Lin JS, Whitlock EP, Gold R, Fu R, O'Connor EA, et al. Interventions to prevent falls in older adults: an updated systematic review [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2010 Dec. [cited 2016 Oct 20]. (U.S. Preventive Services Task Force Evidence Syntheses, formerly Systematic Evidence Reviews). Available from: https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0009511/pdf/PubMedHealth_PMH0009511.pdf
3. Oliver D, Connelly JB, Victor CR, Shaw FE, Whitehead A, Genc Y, et al. Strategies to prevent falls and fractures in hospitals and care homes and effect of cognitive impairment: systematic review and meta-analyses. *BMJ* [Internet]. 2007 Jan 13 [cited 2016 Oct 20];334(7584):82. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1767306>
[PubMed: PM17158580](#)
4. Sawka AM, Boulos P, Beattie K, Papaioannou A, Gafni A, Cranney A, et al. Hip protectors decrease hip fracture risk in elderly nursing home residents: a Bayesian meta-analysis. *J Clin Epidemiol.* 2007 Apr;60(4):336-44.
[PubMed: PM17346606](#)

Randomized Controlled Trials

5. Koike T, Orito Y, Toyoda H, Tada M, Sugama R, Hoshino M, et al. External hip protectors are effective for the elderly with higher-than-average risk factors for hip fractures. *Osteoporos Int.* 2009 Sep;20(9):1613-20.
[PubMed: PM19137351](#)
6. Kiel DP, Magaziner J, Zimmerman S, Ball L, Barton BA, Brown KM, et al. Efficacy of a hip protector to prevent hip fracture in nursing home residents: the HIP PRO randomized controlled trial. *JAMA.* 2007 Jul 25;298(4):413-22.
[PubMed: PM17652295](#)

Non-Randomized Studies

7. Bentzen H, Bergland A, Forsen L. Risk of hip fractures in soft protected, hard protected, and unprotected falls. *Inj Prev.* 2008 Oct;14(5):306-10.
[PubMed: PM18836047](#)
8. Garfinkel D, Radomislky Z, Jamal S, Ben-Israel J. High efficacy for hip protectors in the prevention of hip fractures among elderly people with dementia. *J Am Med Dir Assoc.* 2008 Jun;9(5):313-8.
[PubMed: PM18519111](#)
9. Huang HC, Lee CH, Wu SL. Hip protectors: a pilot study of older people in Taiwan. *J Clin Nurs.* 2006 Apr;15(4):436-43.
[PubMed: PM16553757](#)

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APPENDIX – FURTHER INFORMATION:

Previous CADTH Reports

11. Hip protectors in long-term care: a review of the comparative clinical and cost-effectiveness [Internet]. Ottawa (ON): CADTH; 2010 Aug 31. [cited 2016 Oct 20]. Available from:
https://www.cadth.ca/sites/default/files/pdf/I0208_hip_protectors_ltc_final.pdf
12. Brown A, Coyle D, Cimon K, Farrah K. Hip protectors in long-term care: a clinical and cost-effectiveness review and primary economic evaluation [Internet]. Ottawa (ON): CADTH; 2008 May. [cited 2016 Oct 20]. Available from:
https://www.cadth.ca/sites/default/files/pdf/I3015_Hip_Protectors_Long_Term_Care_tr_e.pdf

Systematic Reviews – Participants *provided* hip protectors, but unclear if participants *wearing* hip protectors

13. Santesso N, Carrasco-Labra A, Brignardello-Petersen R. Hip protectors for preventing hip fractures in older people. Cochrane Database Syst Rev. 2014 Mar 31;(3):CD001255.
[PubMed: PM24687239](#)
14. Health Quality Ontario. Prevention of falls and fall-related injuries in community-dwelling seniors: an evidence-based analysis. Ont Health Technol Assess Ser [Internet]. 2008 [cited 2016 Oct 20];8(2):1-78. Available from:
http://www.hqontario.ca/Portals/0/Documents/evidence/reports/rev_aic_falls_20081002.pdf
[PubMed: PM23074507](#)
15. Parker MJ, Gillespie WJ, Gillespie LD. Effectiveness of hip protectors for preventing hip fractures in elderly people: systematic review. BMJ [Internet]. 2006 Mar 11 [cited 2016 Oct 20];332(7541):571-4. Available from:
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1397761>
[PubMed: PM16513687](#)

Guidelines and Recommendations

16. Scott V, Bornstein S, Kean R, O'Brien S, Gillam S. Fall prevention for seniors in institutional healthcare settings in Newfoundland and Labrador [Internet]. St. John's (NL): Newfoundland & Labrador Centre for Applied Health Research, Memorial University; 2014 Apr. [cited 2016 Oct 20]. Available from:
http://www.nlcahr.mun.ca/CHRSP/Fall_Prevention_Full_Report.pdf