



**Cochrane**  
**Library**

Cochrane Database of Systematic Reviews

## Modification of the home environment for the reduction of injuries (Review)

Turner S, Arthur G, Lyons RA, Weightman AL, Mann MK, Jones SJ, John A, Lannon S

Turner S, Arthur G, Lyons RA, Weightman AL, Mann MK, Jones SJ, John A, Lannon S.  
Modification of the home environment for the reduction of injuries.  
*Cochrane Database of Systematic Reviews* 2011, Issue 2. Art. No.: CD003600.  
DOI: [10.1002/14651858.CD003600.pub3](https://doi.org/10.1002/14651858.CD003600.pub3).

[www.cochranelibrary.com](http://www.cochranelibrary.com)

[Intervention Review]

# Modification of the home environment for the reduction of injuries

Samantha Turner<sup>1</sup>, Geri Arthur<sup>2</sup>, Ronan A Lyons<sup>1</sup>, Alison L Weightman<sup>3</sup>, Mala K Mann<sup>3</sup>, Sarah J Jones<sup>4</sup>, Ann John<sup>2</sup>, Simon Lannon<sup>5</sup><sup>1</sup>School of Medicine, Swansea University, Swansea, UK. <sup>2</sup>Public Health Wales; Swansea University, School of Medicine, Swansea, UK.<sup>3</sup>Support Unit for Research Evidence (SURE), Information Services, Cardiff University, Cardiff, UK. <sup>4</sup>Public Health Wales; Department of Primary Care and Public Health, Cardiff University, Cardiff, UK. <sup>5</sup>Welsh School of Architecture, Cardiff University, Cardiff, UK**Contact address:** Samantha Turner, School of Medicine, Swansea University, Grove Building, Singleton Park, Swansea, SA2 8PP, UK.  
[s.turner@swansea.ac.uk](mailto:s.turner@swansea.ac.uk).**Editorial group:** Cochrane Injuries Group.**Publication status and date:** Edited (no change to conclusions), published in Issue 11, 2011.**Citation:** Turner S, Arthur G, Lyons RA, Weightman AL, Mann MK, Jones SJ, John A, Lannon S. Modification of the home environment for the reduction of injuries. *Cochrane Database of Systematic Reviews* 2011, Issue 2. Art. No.: CD003600. DOI: [10.1002/14651858.CD003600.pub3](https://doi.org/10.1002/14651858.CD003600.pub3).

Copyright © 2011 The Cochrane Collaboration. Published by John Wiley &amp; Sons, Ltd.

## ABSTRACT

### Background

Injury in the home is common, accounting for approximately a third of all injuries. The majority of injuries to children under five and people aged 75 and older occur at home. Multifactorial injury prevention interventions have been shown to reduce injuries in the home. However, few studies have focused specifically on the impact of physical adaptations to the home environment and the effectiveness of such interventions needs to be ascertained.

### Objectives

To determine the effect of modifications to the home environment on the reduction of injuries due to environmental hazards.

### Search methods

We searched *The Cochrane Library*, MEDLINE, EMBASE and other specialised databases. We also scanned conference proceedings and reference lists. We contacted the first author of all included randomised controlled trials. The searches were last updated to the end of December 2009, and were not restricted by language or publication status.

### Selection criteria

Randomised controlled trials.

### Data collection and analysis

Two authors screened all abstracts for relevance, outcome and design. Two authors independently assessed methodological quality and extracted data from each eligible study. We performed meta-analysis to combine effect measures, using a random-effects model. We assessed heterogeneity using an  $I^2$  statistic and a  $\text{Chi}^2$  test.

### Main results

We found 28 published studies and one unpublished study. Only two studies were sufficiently similar to allow pooling of data for statistical analyses. Studies were divided into three groups; children, older people and the general population/mixed age group. None of the studies focusing on children or older people demonstrated a reduction in injuries that were a direct result of environmental modification in the home. One study in older people demonstrated a reduction in falls and one a reduction in falls and injurious falls that may have been due to hazard reduction. One meta-analysis was performed which examined the effects on falls of multifactorial interventions consisting of home hazard assessment and modification, medication review, health and bone assessment and exercise (RR 1.09, 95% CI 0.97 to 1.23).

---

**Authors' conclusions**

There is insufficient evidence to determine whether interventions focused on modifying environmental home hazards reduce injuries. Further interventions to reduce hazards in the home should be evaluated by adequately designed randomised controlled trials measuring injury outcomes. Recruitment of large study samples to measure effect must be a major consideration for future trials. Researchers should also consider using factorial designs to allow the evaluation of individual components of multifactorial interventions.

**PLAIN LANGUAGE SUMMARY****More evidence is needed to show whether or not altering the physical home environment by removing potential hazards reduces injuries**

Injuries in the home are very common. Most of the injuries to older people and children under five occur at home. Many people are encouraged to alter their home to try and reduce injury and injury risk. Common alterations include the fitting of locks on cupboards, installing stair gates, improvement of lighting in halls and stairways, and the removal of trip hazards. The review found that there is insufficient evidence from studies to show that such changes reduce the number of injuries in the home but does not conclude that these interventions are ineffective. Home alterations need to be evaluated by larger and better designed studies which include injuries in their outcomes.