Table C-1. Overview of systematic reviews for falls

| **Title, Author, Year of publication****ROBIS score** | **Population, Setting, Search Dates, Included study type/counts** | **Interventions Included** | **Outcomes Assessed** | **Conclusions Reported in the Review**  |
| --- | --- | --- | --- | --- |
| Characteristics and effectiveness of fall prevention programs in nursing homes: a systematic review and meta-analysis of randomized controlled trials(Vlaeyen et al. 2015)1ROBIS: Low | Population: Nursing home residentsSetting: Nursing homeSearch dates: Up to September 2013Included study type/ counts: 13 RCTs (2 individual RCTs; 12 cluster RCTs) | Single intervention:1. Staff training2. Staff Knowledge3. Medication Informatics tool to analyze and review medication use 4. Assessment of medication needs5. Vitamin D supplementation6. Exercise 7.Environmental:Furnishings and Adaptations Body-worn aids; protection Aids for personal mobility8.Other: Management of urinary incontinence; Fluid or nutrition therapy; Advice on correction of orthostatic hypotension; Optician referralMultiple interventions:Incontinence care and a low-intensity,functionally oriented exercise programMultifactorial intervention: | Number of falls, fallers and recurrent fallers | Fall prevention programs did not reduce the number of falls or fallers, but significantly reduced the number of recurrent fallers by 21%. |
| Hip protectors for preventing hip fractures in older people(Santesso et al. 2014)2ROBIS: Low | Population: older age (>65) Setting: Living in community or residential careSearch Dates: Up to 2012Included study type/counts: 19 RCTs and non-randomized comparative trials | Hip protector | Risk of hip or pelvic fracture; Rate of fracture; Rate of falls  | For nursing home resident hip protectors were associated with a small reduction in hip fracture risk and a slight increase in pelvic fracture risk. There was no significant effect on other fracture or falls. The strength of evidence was moderate quality. |
| Interventions for preventing falls in older people in care facilities and hospitals(Cameron et al. 2012)3ROBIS: Low | Population: Older patientsSetting: Long-term care and hospitalsSearch dates: 1946 to August 2012Included study type/ counts: 60 RCTs | 1. Exercises2. Physiotherapy3. Medication review by a pharmacist4. Vitamin D supplementation5.Environment/assistive technology6. Social environment (staff training and service model change)7. Resident education | Rate of falls; Number of fallers; Number of participants sustaining fall-related fractures; Complications of the interventions; Economic outcomes | Vitamin D supplements reduced the rate of falls. Exercise interventions showed inconsistent results. The evidence for multifactorial interventions was also inconclusive. |
| Interventions designed to prevent healthcare bed-related injuries in patients(Anderson et al. 2011)4ROBIS: Low | Population: Patients in residential healthcareSetting: Residential healthcare settingSearch dates: Up to December 2010Included study type/ counts: 2 RCTs | 1.Low height beds2.Bed exit alarms | Frequency of patient injuries from their beds; Frequency of patient falls out of bedFrequency of patient injuries due to falls out of bed Frequency of patient injuries due to the intervention; Frequency of all falls Frequency of patient injuries due to all falls | No effectiveness of low height beds or bed alarms in reducing injuries or falls from beds. Evidence was limited. |
| Exercise for improving balance in older people(Howe et al. 2011)5ROBIS: Low | Population: Adults age 60 or olderSetting: Community or institutional settingsSearch dates: Up to 2011Included study type/counts: 94 RCTs | Exercise programs, including gait and balance, strengthening exercises, 3 dimensional exercise programs, general physical activity, computerized balance training, vibration platform | Balance | Limited evidence that exercise programs are effective in improving balance outcomes. |
| A scoping review of strategies for the prevention of hip fracture in elderly nursing home residents(Sawka et al.2010)6ROBIS: Low | Population: Elderly (≥ 65 years) nursing home residents Setting: Long-term care settingSearch dates: 1975 to 2009)Included study type/ counts: 20 RCTs | 1.Vitamin D or calcium2. Non-hormonalpharmacologic therapies for osteoporosis3. Hormonal therapies(or hormone analogues)4. Oral or parenteral alternativemedicines5. Exercise, behavioral interventions, physiotherapy,education, or multimodal interventions6.Hip protectors | Number of hip fractures; Fracture risk | Vitamin D supplementation reduced hip fracture risk. More research is needed on other interventions including pharmacologic treatment, exercise, multi-modal strategies and hip protectors. |
| Hip protectors decrease hip fracture risk in elderly nursing home residents: a Bayesian meta-analysis(Sawka et al. 2007)7ROBIS: Low | Population: Elderly (≥ 65 years) nursing home residents Setting: Nursing homeSearch dates: 1996 to 2006Included study type/ counts: 4 RCTs (including 3 cluster RCTs) | Hip protectors | Hip fractures | Hip protectors decreased the risk of hip fractures. |
| Do hip protectors decrease the risk of hip fracture in institutional and community-dwelling elderly? A systematic review and meta-analysis of randomized controlled trials(Sawka et al, 2005)8ROBIS: Low | Population: Elderly (≥ 50 years)Setting: Institutionaland community-dwellingSearch dates: 1998 to 2004Included study type/ counts: 7 RCTs | Hip protectorsEducational co-interventions | Hip fractures | More research needed to assess effectiveness of hip protectors in reducing hip fractures in nursing home residents. |
| Exercise for falls and fracture prevention in long term care facilities: a systematic review and meta-analysis(Silva et al. 2013)9ROBIS: High | Population: Older adultsSetting: Long-term careSearch dates: January 1974 to June 2012Included study type/ counts: RCTs = 12 | Physical exercise regime: Balance and resistance training exercises | Falls and fracture prevention | Exercise programs work for fall prevention but were not effective in preventing fractures. |
| Falls prevention for the elderly(Balzer et al. 2012)10ROBIS: High | Population: 60 years or olderSetting: Home or long-term care settingsSearch dates: January 2003 to January 2010Included study type/ counts: 184 studies | Exercise, instruments and assessments for fall risk, assessment and correction of visual acuity, surgical interventions, educational, hip protectors, gait stabilizing footwear, Vitamin D, dietary supplements, multiple and multifactorial interventions | Prevention of falls and fall-related injuries | Lack of evidence to support fall prevention recommendations. |
| Effectiveness of intervention programs in preventing falls: a systematic review of recent 10 years and meta-analysis(Choi et al. 2012)11ROBIS: High | Population: Older adultsSetting: Nursing home and community settingsSearch Dates:2000 to 2009Included study type/counts: 17 RCTs | Interventions with a goal of Ffall prevention including components such as comprehensive medical exam, occupationaltherapy assessment, home environmentaland behavioral assessment, cognition assessment, gait stability,medication review, staff training, and education for residents | Number of falls and fall rate | Fall-prevention programs effective in reducing fall rates by 14%. There was a 54% fall reduction in nursing homes (3 studies) |
| Association Between Vitamin D Dosing Regimen and Fall Prevention in Long-term Care Seniors(Chua et al. 2011)12ROBIS: High | Population: 75 years or olderSetting: Long-term care settingsSearch dates: 2000 to 2010Included study type/ counts: 4 RCTs | Vitamin D | Rate of falls and number of fallers | Vitamin D supplementation reduced the rate of falls but not the number of fallers. |
| Effectiveness of multifaceted fall-prevention programs for the elderly in residential care(Cusimano et al. 2008)13ROBIS: High | Population: 60 and older Setting: Residential careSearch dates: Up to 2007Included study type/ counts: 5 RCTs | Multifaceted fall programs (included more than 1 intervention such as staff/resident education on falls prevention, environmentalmodification, exercise programs, medication review, hip protectors, and mobility-related aids such as wheelchairs) with at least 6 month follow-up | Number of residents sustaining a fall; Number of falls; Number of injuries resulting from falls; Number of recurrent fallers | Multifaceted programs have shown some evidence of efficacy (three studies report significant reductions in number of recurrent fallers, two reported significant reductions in number of falls) |
| Strategies to prevent falls and fractures in hospitals and care homesand effect of cognitive impairment: systematic review andmeta-analyses(Oliver et al. 2007)14ROBIS: Unclear | Population: Nursing home patients with cognitive impairment and depressionSetting: Nursing homeSearch dates: Up to January 2005Included study type/ counts: 16 RCTs; 12 cluster RCTs; 2 prospective; 2 retrospective observationalcohort; 2 prospective observational cohort; 1 prospective case-control study; 1 quasi-experimental | Single interventions:1.Hip protectors2.Removal of physical restraint3.Fall alarm devices4.Exercise5.Environment6.Calcium and Vitamin D7.Medication review | Number or rate of falls; Number or rate of fallers; Number or rate of fractures | Hip protectors in care homes reduced hip fractures. There was insufficient evidence to evaluate other single or multifaceted interventions. |

ROBIS=Risk of Bias in Systematic Reviews; RCT=Randomized controlled trial