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)1  ROBIS: Low | Population: Nursing home residents  Setting: Nursing home  Search dates: Up to September 2013  Included study type/ counts: 13 RCTs (2 individual RCTs; 12 cluster RCTs) | Single intervention:  1. Staff training  2. Staff Knowledge  3. Medication Informatics tool to analyze and review medication use  4. Assessment of medication needs  5. Vitamin D supplementation  6. Exercise 7.Environmental:  Furnishings and Adaptations Body-worn aids; protection Aids for personal mobility  8.Other: Management of urinary incontinence; Fluid or nutrition therapy; Advice on correction of orthostatic hypotension; Optician referral  Multiple interventions:  Incontinence care and a low-intensity,  functionally oriented exercise program  Multifactorial 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)2  ROBIS: Low | Population: older age (>65)  Setting: Living in community or residential care  Search Dates: Up to 2012  Included 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)3  ROBIS: Low | Population: Older patients  Setting: Long-term care and hospitals  Search dates: 1946 to August 2012  Included study type/ counts: 60 RCTs | 1. Exercises  2. Physiotherapy  3. Medication review by a pharmacist  4. Vitamin D supplementation  5.Environment/assistive technology  6. 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)4  ROBIS: Low | Population: Patients in residential healthcare  Setting: Residential healthcare setting  Search dates: Up to December 2010  Included study type/ counts: 2 RCTs | 1.Low height beds  2.Bed exit alarms | Frequency of patient injuries from their beds; Frequency of patient falls out of bed  Frequency 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)5  ROBIS: Low | Population: Adults age 60 or older  Setting: Community or institutional settings  Search dates: Up to 2011  Included 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)6  ROBIS: Low | Population: Elderly (≥ 65 years) nursing home residents  Setting: Long-term care setting  Search dates: 1975 to 2009)  Included study type/ counts: 20 RCTs | 1.Vitamin D or calcium  2. Non-hormonal  pharmacologic therapies for osteoporosis  3. Hormonal therapies  (or hormone analogues)  4. Oral or parenteral alternative  medicines  5. Exercise, behavioral interventions, physiotherapy,  education, or multimodal interventions  6.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)7  ROBIS: Low | Population: Elderly (≥ 65 years) nursing home residents  Setting: Nursing home  Search dates: 1996 to 2006  Included 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)8  ROBIS: Low | Population: Elderly (≥ 50 years)  Setting: Institutional  and community-dwelling  Search dates: 1998 to 2004  Included study type/ counts: 7 RCTs | Hip protectors  Educational 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)9  ROBIS: High | Population: Older adults  Setting: Long-term care  Search dates: January 1974 to June 2012  Included 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)10  ROBIS: High | Population: 60 years or older  Setting: Home or long-term care settings  Search dates: January 2003 to January 2010  Included 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)11  ROBIS: High | Population: Older adults  Setting: Nursing home and community settings  Search Dates:  2000 to 2009  Included study type/counts: 17 RCTs | Interventions with a goal of Ffall prevention including components such as comprehensive medical exam, occupational  therapy assessment, home environmental  and 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)12  ROBIS: High | Population: 75 years or older  Setting: Long-term care settings  Search dates: 2000 to 2010  Included 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)13  ROBIS: High | Population: 60 and older  Setting: Residential care  Search dates: Up to 2007  Included study type/ counts: 5 RCTs | Multifaceted fall programs (included more than 1 intervention such as staff/resident education on falls prevention, environmental  modification, 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 homes  and effect of cognitive impairment: systematic review and  meta-analyses  (Oliver et al. 2007)14  ROBIS: Unclear | Population: Nursing home patients with cognitive impairment and depression  Setting: Nursing home  Search dates: Up to January 2005  Included study type/ counts: 16 RCTs; 12 cluster RCTs; 2 prospective; 2 retrospective observational  cohort; 2 prospective observational cohort; 1 prospective case-control study; 1 quasi-experimental | Single interventions:  1.Hip protectors  2.Removal of physical restraint  3.Fall alarm devices  4.Exercise  5.Environment  6.Calcium and Vitamin D  7.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