Preventing Falls in Adults with Mild to Moderate Cognitive Impairment

A systematic review and meta-analysis



MEGAN RACEY, MAUREEN MARKLE-REID, DONNA FITZPATRICK-LEWIS, MUHAMMAD USMAN ALI, HÉLÈNE GAGNÉ, SUSAN HUNTER, JENNY PLOEG, RICHARD SZTRAMKO, LISA HARRISON, & DIANA SHERIFALI.

FUNDED BY: ONTARIO NEUROTRAUMA FOUNDATION

DID YOU KNOW?

- Older adults with cognitive impairment fall 2-3 times more than cognitively healthy adults.
- Falls cost our public health system as they are the leading cause of injury-related admissions to acute care hospitals and in-hospital deaths.
- With an aging population the cost of fall injuries to seniors in Canada is estimated to rise from \$2.4 billion a year in 2021 in direct healthcare costs to \$240 billion by 2040.



Practitioners and clinicians asked, What evidence is available to guide decision-making about how to prevent falls in cognitively impaired adults?

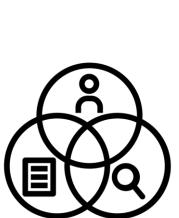


AIM

To identify the effectiveness of primary and secondary fall prevention interventions in community-dwelling adults with mild to moderate cognitive impairment.

METHODS

1. Define search strategy and PICO criteria



P: 50+ years old w/
mild or moderate Cl
l: primary or secondary
fall prevention

C: treatment as usual
O: See step #2

2. Rank outcomes selected by interdisciplinary research team based on anonymized voting process



Falls
Fear of Falls
Balance
Gait speed & control
Functional Mobility
Mortality

3. Searched 7 databases in April 2020 and screened 42,147 articles based on eligibility criteria



4. Data extraction, risk of bias, certainty of evidence (GRADE), and statistical analysis of 12 included studies



RESULTS

H-8 exercise interventions



1 medication intervention

>50% unclear risk of bias

509 adults aged 67.5 to 84 yrs

Fall prevention interventions had significant effects on...

	Outcome	# studies N	SMD (95% Confidence interval)	GRADE rating
X	Falls (# events)	4 224	RR 0.99 (0.60, 1.65)	LOW
X	Falls (incidence)	4 209	IR 0.90 (0.47, 1.71)	LOW
\checkmark	Fear of Falls	8 263	Medium; -0.73 (-1.10, -0.36)	MODERATE
✓	Balance	9 318	Medium; 0.66 (0.19, 1.12)	MODERATE
✓	Gait speed and control	6 194	Small; 0.26 (0.08, 0.43)	MODERATE
✓	Timed up and go test	5 151	Medium; -0.56 (-0.94, -0.17)	MODERATE
×	Chair sit stand test	2 70	No effect; 0.34 (-1.73, 1.06)	VERY LOW

Sub-analysis: Exercise and LOW Risk of Bias remained significant for fear of falls and balance

KEY MESSAGES

• There **remains a gap** in terms of effective fall prevention interventions for older adults with cognitive impairment; **High quality studies** with **longer** follow-up and adequate **sample sizes** are needed to determine their effectiveness on falls directly.