Preventing hospital-associated disability in older adults: a living systematic review (SHADE)

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Background

- Hospital-associated disability (HAD) affects **37% of older patients** during hospitalisation.
- With an aging population, this problem is expected to grow.

Aim

- To assess the effectiveness of **single- or multi-component exercises** programmes in preventing HAD in adults aged 65+ hospitalised in an acute care setting measured at hospital discharge.

Method

- Living systematic review with network meta-analysis
- Continuous updates as new studies emerge
- Databases: PubMed, Embase, CENTRAL, CINAHL Ultimate
- Last update: **December 2025**
- Risk of bias using ROBUST-RCT framework

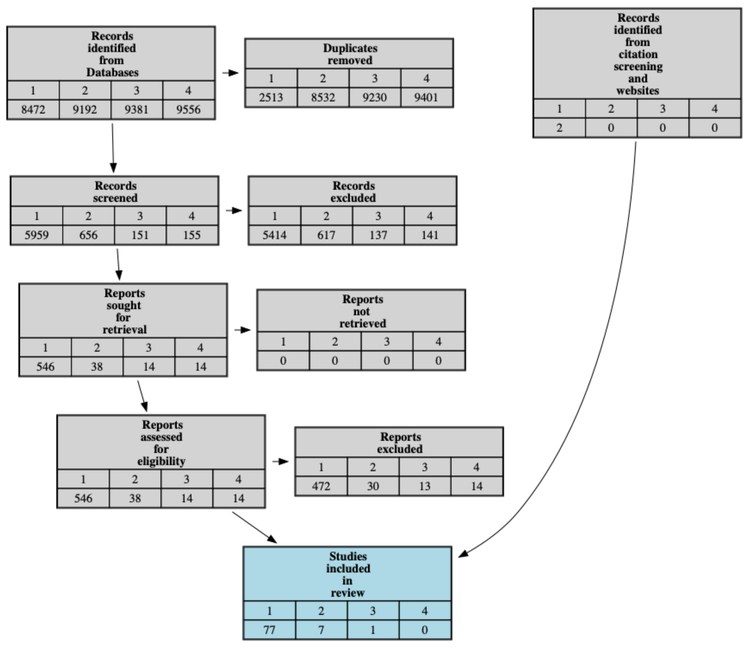

Figure 1 : Flow diagram

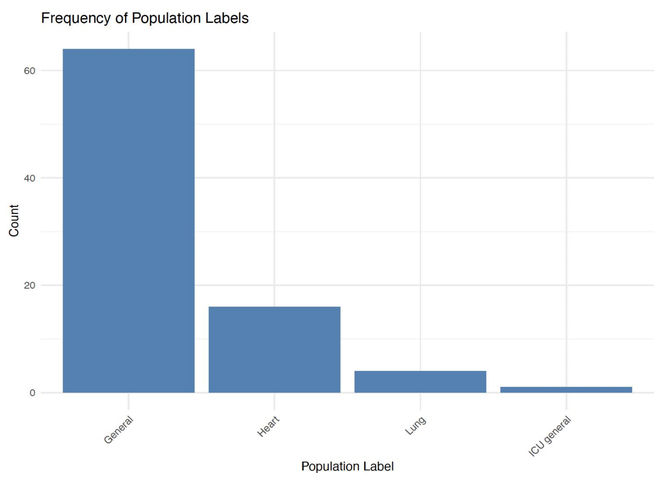

Figure 2 : Type of population

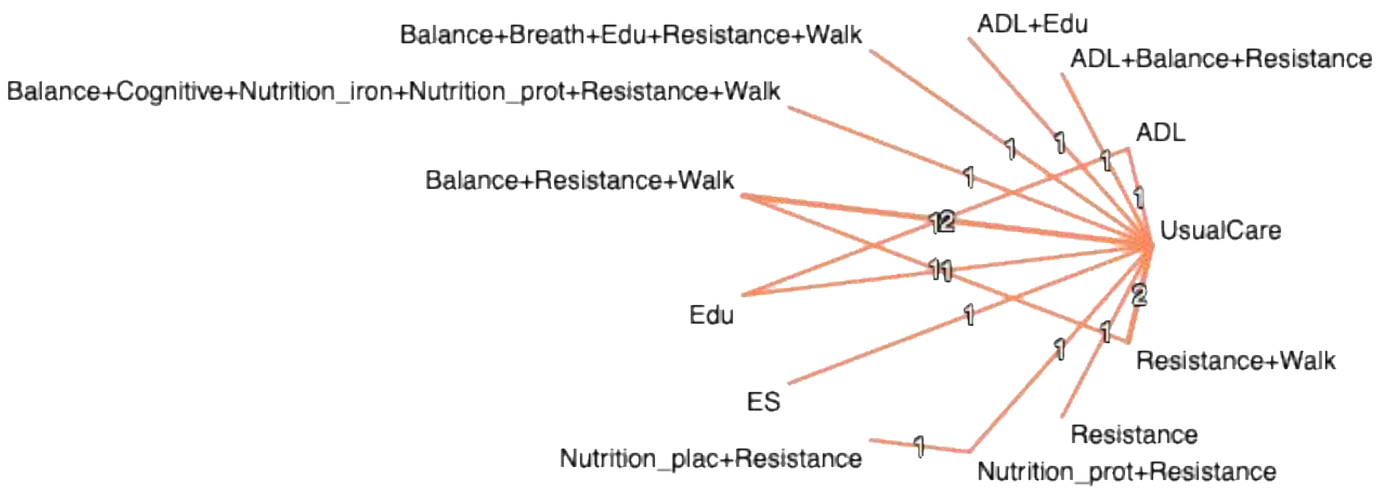

Figure 3: Network meta-analysis ADL at hospital discharge

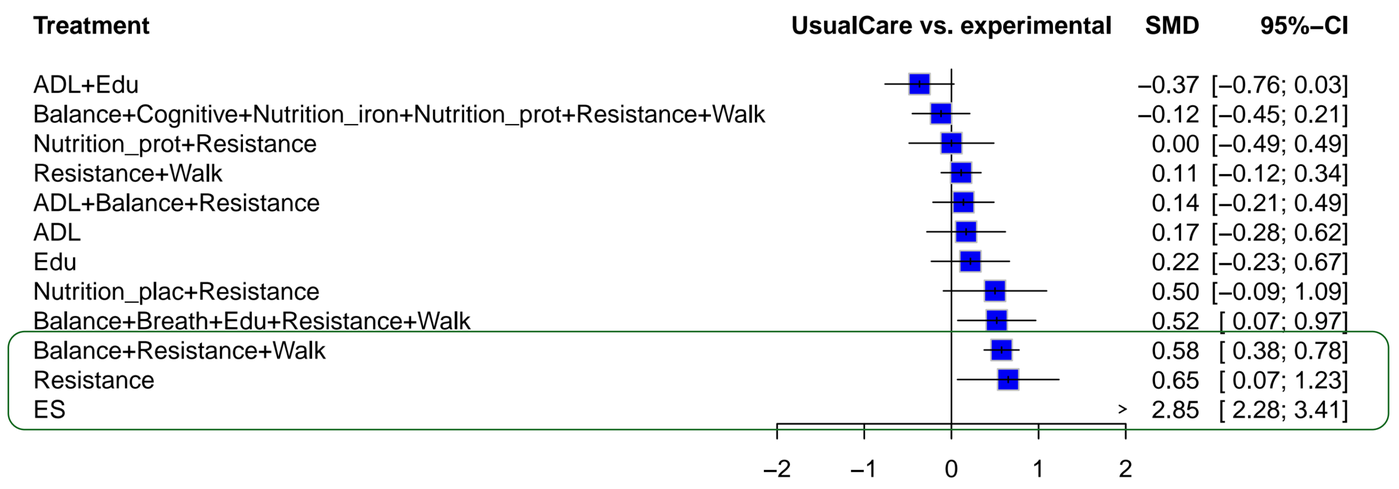

Figure 4: Forest plot ADL at hospital discharge, direction of effectiveness: higher values are better

Results

- **9,556 records screened, 85 studies included**
- 21 pair-wise comparisons at hospital discharge analysed
- Inconsistency in the network-analysis was low with I^2=0%.
- **Electro-stimulation** was most effective programme vs usual care (SMD: 2.85; 95%CI: 2.28; 3.41).
- **Balance + Strength + Walking** showed highest precision (SMD: 0.58; 95% CI: 0.38–0.78)

Discussion

- This work provides clear insights into which exercise components best prevent HAD in older adults.
- This living systematic review enables clinicians to stay current by rapidly integrating new findings into the evidence synthesis of HAD prevention.

Rank	ADL - discharge	Length of stay - discharge	Mortality - discharge	Mortality – follow-up
1	ES	ADL+Cognitive+ Edu+Relaxation	Balance+Breath+Edu+ Resistance+Walk	Resistance + Walk
2	Resistance	Resistance+Walk	ADL+Edu	ADL+Edu
3	Balance+ Resistance+ Walk	Breath+ES_hi+ Relaxation+ Resistance	Balance+Resistance+ Walk	Balance+Cognitive+ Nutrition_iron+ Nutrition_prot+ Resistance+Walk

Figure 5: Top-ranked exercise interventions across four clinical endpoints based on network meta-analyses

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Take home message

A **multi-component program** combining **balance, strength, and walking** is the most precise approach to prevent HAD in acute care.