

**Table C.1.a. Falls-related Injuries\*: Association between physical activity and falls-related injuries among older adults (in alphabetical order by author)**

[See the Supplementary materials](#) for description of evidence that informed the US PAGAC by outcome

Systematic review evidence Review credibility	No. of studies/ Study design  No. of participants	Quality Assessment					Description of evidence Summary of findings	Certainty
		Risk of bias	Inconsistency	Indirectness †	Imprecision	Other		
de Souto Barreto 2018 (6)  Moderate	12 RCTs N=4,972	No serious risk of bias	No serious inconsistency	No serious indirectness	No serious imprecision	None	Trials evaluated the effect of <u>moderate-intensity, multicomponent balance exercise interventions</u> of at least 1 year in duration vs. non-exercise control groups. Nine trials reported the <b>number of injurious fallers</b> , with 370 of 2,192 (16.9%) and 471 of 2,289 (20.6%) injurious fallers in the exercise and control groups, respectively. A significant reduced risk of becoming an injurious faller was seen among those in the exercise group vs. control group (RR = 0.74 [95% CI, 0.62 to 0.88]), 9 trials, n=4,481, I <sup>2</sup> =40%). Three additional trials reported no cases of injurious falls in either group.	HIGH <sup>a</sup>
	23 RCTs N=9,701	No serious risk of bias	No serious inconsistency	No serious indirectness	No serious imprecision	None	Trials evaluated the effect of <u>moderate-intensity, multicomponent balance exercise interventions</u> of at least 1 year in duration vs. non-exercise control groups. Nineteen trials reported the <b>number of people experiencing a fracture</b> , with 221 of 4,138 (5.3%) and 270 of 4,272 (6.3%) people in the exercise vs. control groups, respectively, experiencing a fracture. The pooled result showed no significant association between the exercise intervention and risk of fracture (RR = 0.84 [95% CI, 0.71 to 1.00], 19 trials, n=8,410, I <sup>2</sup> =0%). Three additional trials reported no cases of fractures in other groups and one trial was not included in the analysis given low compliance to the intervention.	HIGH <sup>a</sup>
Sherrington 2019 (17)  High	11 RCTs 5 RCTs 2 RCTs	No serious risk of bias	No serious inconsistency	No serious indirectness	Serious imprecision	Possible publication bias	Included trials examined the effect of an <u>exercise intervention</u> on the risk of falls or fall-related injuries among adults aged 60 years and older. Exercise may reduce the <b>number of people experiencing one or more fall-related fractures</b> (RR = 0.73 [95% CI 0.56 to 0.95], 10 trials; n=4047) (follow-up range 4 to 42 months) and the <b>number of people experiencing one or more falls requiring medical attention</b> (RR = 0.61, 95% CI 0.47 to 0.79; 5 trials; n=1019 participants) (follow-up range 3 to 42 months). Exercise interventions that were classified as being primarily gait, balance, coordination or functional task training may reduce the number of people experiencing <b>one or more fall-related fractures</b> by 56% compared with control (RR 0.44 [95% CI 0.25 to 0.76]; 7 studies, n=2139) whereas the effect of resistance exercises vs. control was uncertain (RR = 0.97 [95% CI 0.14 to 6.49], 1 trial, n=73). The effect of exercise on the <b>number of people who experience one or more falls requiring hospital admission</b> is unclear (RR = 0.78 [95% CI 0.51 to 1.18], 2 trials; n=1705).	LOW <sup>b</sup>

**Abbreviations:** CI = confidence interval; RCT = randomized clinical trial; RR = risk ratio

\* Outcome limited to fall-related injuries (e.g., number of injurious falls or fallers, number of fractures or people experiencing a fracture); number of falls or fallers not included given separate review being conducted to inform this question

† Serious indirectness indicates measurement of intermediate/indirect outcomes or heterogeneity in exposures and comparisons assessed; certainty of evidence was not always downgraded for indirectness if it was not judged to impact the certainty in the findings for the outcome evaluated in the review

<sup>a</sup> Certainty of evidence not downgraded given no serious limitations

<sup>b</sup> Certainty of evidence assigned by review authors using GRADE criteria. For fall-related fracture: Downgraded by two levels due to imprecision (few events and wide CI due to small sample size), and risk of publication bias (likelihood of reporting fractures only if there was a treatment effect; with some indication on viewing the funnel plot). For the number of people experiencing one or more falls requiring medical attention: Downgraded by two levels due to imprecision and the high probability of publication bias (only 5 of 89 RCTs included in the review reported the outcome). Not downgraded for risk of bias as results were essentially unchanged with removal of the trials at a high risk of bias in one or more items. Evidence on falls requiring hospitalization was downgraded to VERY LOW due to imprecision (low event rate and wide confidence intervals) and because most of the 81 studies included in the review for this comparison do not contribute to the outcome and was further downgraded the evidence by one level for risk of bias because the evidence was dominated by one trial that was at high risk of bias in one or more items.