



Effectiveness of dance interventions on falls prevention in older adults: a rapid review

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Executive Summary

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The Older People and Frailty Policy Research Unit was requested by DHSC to examine whether, dance-based interventions are effective in preventing falls, reducing risk of falls, or preventing fear of falls in older adults and to provide an overview of the evidence for cost-effectiveness of dance-based interventions for falls prevention amongst older people. This evidence could then be used to indicate whether the NHS and social/leisure care services should be advised to invest in dance-based interventions rather than traditional strength and balance interventions.

To answer these questions we undertook a systematic scoping review of the literature in late 2022/ early 2023. We focused on primary studies of people aged ≥ 50 years that investigated dance intervention aimed at fall prevention, and/or reduction of risk of falls. We also considered evidence from previous reviews in this topic area.

There is a strong evidence base that strength and balance exercise programmes are effective at reducing falls. The most recent Cochrane review of exercise for falls prevention in the community reports falls reduction of 23% to 31% depending in part on who delivers the strength and balance programme; but that the one dance programme investigated in the review may increase falls¹.

A number of systematic reviews report physical and mental health benefits of different forms of dance, but such dance programmes do not usually focus on the types of exercises known to prevent falls, nor do they focus on falls as the primary outcome, normally focusing on proxy measures such as balance and lower limb strength. It is clear that proxy markers of falls risk may improve without actual falls rate or number of fallers being reduced. Thus these reviews whilst indicative of the promise of dance interventions, do not directly address the question of reducing falls incidence.

We included 48 primary studies, 23 randomised controlled trials (RCTs), and 25 non-randomised studies (NRSs). We identified one NRS reporting on cost-effectiveness. As with previous reviews the majority of the papers focus on proxy outcomes, but a minority of papers do report falls outcomes. We categorised the different types of dances as: Ballroom and Latin (15 studies), cultural (folk dances) (8 studies), dance-based exercises (11 studies), dance-based therapy (2 studies), dance-based exergames (7 studies), low impact dances (5 studies).

We assessed the quality of the evidence using Cochrane risk of bias tools as appropriate. Of the 23 RCTs only four were rated as at consistently low risk of bias; 11 were at high risk of bias, and 8 had unclear risk of bias, of which all but one was at high risk of bias in at least one key domain. For the 25 NRSs none were assessed as being at low risk of bias, the majority were assessed to be at critical (7 studies) or serious (8 studies) risk of bias, and only 10 were assessed as at moderate risk of bias overall. Considerable caution must therefore be taken when drawing conclusions on the basis of these studies, especially when considering the poorer quality studies.

¹ Sherrington C, et al. Exercise for preventing falls in older people living in the community. Cochrane Database Syst Rev. 2019;40

None of the four high quality RCTs demonstrate any significant positive effect on fall rates. However, only one actually reports falls data. The other three RCTs all report significant improvements in proxies or fall risk factors (Timed-Up-and-Go, Sit-to-Stand, muscle power and balance). The evidence from the other lower quality studies was variable, and although inconsistent could be interpreted to suggest general physical and mental health benefits of dance, but not that dance prevents falls. We found no robust evidence that dance interventions are cost-effective, the one cost-effectiveness study identified was rated as having critical/serious risk of bias and thus it would not be justified to draw strong conclusions based on this study.

In conclusion dance may provide benefits to older people who take part, but at present there is insufficient evidence to recommend any form of dance as an alternative to strength and balance training, if the aim is to prevent falls. There is no robust evidence on the cost-effectiveness of dance interventions for the prevention of falls. Similarly, the World Guidelines for Falls Prevention assess evidence for dance as very low certainty and dance is not a recommended intervention². Further research is nonetheless warranted, especially in terms of RCTs putting dance interventions head to head with interventions known to be effective at preventing falls, such as FaME or Otago exercises.

² Montero-Odasso M, et al. World Guidelines for Falls Prevention and Management for Older Adults: A Global Initiative. *Age and Ageing* 2022, 51 (9), afac205.

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