NIHR | Policy Research Unit Older People and Frailty

Strength and balance exercises for falls prevention and musculoskeletal health

Briefing Paper

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STRENGTH AND BALANCE EXERCISES FOR FALLS PREVENTION AND MUSCULOSKELETAL HEALTH

Overall there is strong evidence for the general health benefits of exercise across the lifespan[1 2]. There is strong specific evidence, from up-to-date reviews, that strength and balance functional exercises prevent falls in community dwelling older people, (reducing both rate of falls and number of fallers)[3 4 5 6] and that there are generalised benefits of exercise, especially strength and balance on musculoskeletal health[7 8 9] (see Box). Strength and balance exercises also have psychological benefits including reducing fear of falling[10] and are cost effective in fall prevention[11 12].

- Consistent review level evidence that strength/resistance training as a single intervention or in combination with other activities, two/three occasions per week, effective for muscular strength, with higher intensities of training producing greater gains.
- Consistent review level evidence that strength training as a single intervention or in combination with high impact loading activities taken at least 3 times per week were effective for bone health.
- Physical activities with a high challenge to balance done in standing three times per week were beneficial for balance training and falls reduction.
- The UK 2011 Chief Medical Officers' physical activity guidelines remain consistent with the most up to date review level evidence for muscle and balance health.

(Foster & Armstrong 2018[13])

Strength and balance functional exercises need to follow evidence-based programmes. They need to be of sufficient dose, intensity, and be challenging and progressive. To be effective, falls prevention programmes should comprise a minimum of 50 hours, delivered by an appropriately qualified instructor, with 3 hours/week exercise over 6 months. Since benefits are progressively lost once exercise ceases, activity must be maintained long term. There is no evidence that sport, dance, or general activity, including walking, as part of daily living prevent falls. There is good evidence that programmes such as Falls Management Exercise* (FaME aka PSI)[14] can be used with lower risk (younger) groups with similar effect as with high risk groups[15 16] making it potentially suitable as population based exercise programme. There is emerging evidence that the Lifestyle integrated Functional Exercise* (LiFE) approach[17] is effective in activity promotion and fall prevention[3].

Whilst the evidence is strong, the challenge is to ensure uptake and adherence, since exercise does not work if it is not undertaken. Many older people are reticent to take up activities. Activities have to be presented in ways that are attractive to older people[18]. Currently services are not set up to provide integrated services across the health, social care, local authority and leisure services[19 20]. The move from rehabilitation to community is not seamless (resulting in discontinuation of exercise and loss of benefit). Preventive provision aimed at maintaining or improving function is not adequate. More work is required to address health inequalities.

Much of the effort aims to reduce falls amongst higher risk groups. This approach is unsustainable given the increasing size of the ageing population[21]. A population shift* approach[22] needs to be tested using evidence based interventions to shift population risk by intervening at scale with younger, lower risk older people (60-70 years). Much of the physical infrastructure exists to provide programmes; fitness club membership is around 9 million. However, accessing 2-3 hours/week of personal training for all eligible adults represents a substantial public health challenge with major resource implications[23]. Promising interventions include the FaME and LiFE approaches, which could be delivered using digital technology with young older people[24].

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*GLOSSARY

FaME: Falls Management Exercise Programme is a strength and balance exercise programme including various components of fitness and activities delivered by Postural Stability Instructors. Suitable for a wide range of older people.

LiFE: The Lifestyle-integrated Functional Exercise programme focuses on integrating strength, balance and physical activities into everyday life and was originally developed as a fall prevention intervention for adults 75 years and over.

Population shift: This strategy posits shifting the population distribution of a risk factor prevents more burden of disease than targeting people at high risk.

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