

## Review Article

# Enablers and barriers to older people's participation in strength and balance activities: A review of reviews

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**Abstract**

**Objectives:** This review sought to investigate the question: *what are the key barriers to, and enablers for, older adults undertaking muscle strengthening and balance activities, and how can these be addressed by individuals and practitioners?* **Methods:** A search of PubMed for review-level evidence on professional and personal barriers and motivators for strength and balance activities among older people. **Results:** The search and expert consultation found 46 studies; after screening, twelve papers were included. Many of the barriers and motivators to strength and balance activities are familiar ones that can also apply to physical activity more generally, such as not having the time. More specific barriers to strength and balance activities for older people were perceived risk of a heart attack, stroke, or death, and fear of looking too muscular; with motivators being improved ability to complete daily activities, preventing deterioration and disability, and decreasing the risk or fear of falling. **Conclusions:** This review of reviews has found a small but consistent body of literature describing the motivators and barriers to older adults taking part in strength and balance activities. This may be used as the basis for planning and delivering physical activity programmes for older adults.

**Keywords:** Exercise, Physical activity, Strength, Balance, Barriers, Enablers

**Introduction**

Encouraging physical activity is a key aspect of public health, with links to significant health benefits, including reducing the risk of a range of diseases, e.g. coronary heart disease, stroke, type 2 diabetes, and helping to maintain a healthy weight<sup>1,2</sup>.

The UK Chief Medical Officers' (CMOs) guidelines for physical activity present evidence-based, age-specific recommendation for physical activity to improve public health<sup>3</sup>. Alongside recommendations for aerobic physical activity (150 minutes per week of at least moderate intensity physical activity, or 75 minutes per week of vigorous intensity physical activity) are specific recommendations for enhancing strength and balance (Table 1):

Mainstream planning and delivery on physical activity typically focusses on the general physical activity guideline, with the strength and balance aspect largely considered for specific populations and outcomes, such as programmes aimed at older adults, or programmes aiming to prevent falls.

It is unclear whether this lack of focus on the strength and balance aspect of the recommendations is driven by a professional bias (e.g. if the public health community was

**Adults and older adults** should also undertake physical activity to improve muscle strength on at least two days a week.

**Older adults at risk of falls** should incorporate physical activity to improve balance and co-ordination on at least two days a week.

**Table 1.** Chief Medical Officers' recommendations for strength and balance physical activity for adults<sup>3</sup>.

uncertain of the importance of the recommendations or unsure how to implement them) or barriers to implementation faced by older adults themselves<sup>4</sup>. This review therefore

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sought to investigate the literature describing the enablers and barriers to taking part in strength and balance activities among key population groups (e.g. people aged 40-64 and older adults).

The review set out to answer the following question:

*what are the key barriers to, and enablers for, older adults undertaking muscle strengthening and balance activities, and how can these be addressed by individuals and practitioners?*

The aim was to review the literature on both professional and personal barriers to implementing the strength and balance recommendations.

## Methods

We conducted a search of Pubmed to identify review-level relevant literature on the professional and personal barriers to implementing the strength and balance recommendations. We used a set of broad MeSH terms (Medical Subject Headings) to capture the most relevant studies. For example, “resistance training”, “strength training” AND “qualitative” AND “adults”. We also searched for international evidence reviews of physical activity, used to construct national physical activity guidelines and recommendations (published since 2010) using Google, targeting public health bodies (i.e. National Centre for Health and Clinical Excellence, Centre for Disease Control). We also contacted international experts to identify further examples of relevant reviews. We included studies that directly addressed the issue of barriers and enablers to older adults’ participation in muscle and strengthening activities, published since 2004. We focused on reviews, but also included some primary studies where they added substantial context - primarily in the form of qualitative studies with older people, which provided a level of detail that might be lost within reviews. Similarly, with geographical focus: we focused on UK studies (as motivators and barriers may be specific to the country due to cultural or organisational issues) but included studies from other countries where they were seen as likely to add context that was not specific to the country in which the study took place.

A large number of studies have identified motivators and barriers to being physically active in general, but these were excluded from this review, as this review aimed to find the barriers and motivators that were specific to participation in strength and balance activities. There is evidence that these forms of exercise may have specific motivators and barriers that are different to those reported for physical activity in general<sup>5</sup>. It is also interesting to note that we did not search deliberately for papers concerned with falls prevention, as reduction in falls is the intended outcome of strength and balance activities, rather than the description of the activity itself. However as noted below, a number of papers concerned with falls prevention were included as they identified clear motivators and barriers that could be applied to more general strength and balance programmes.

## Results

The search found 43 studies, shown in Table 2. These were screened for relevance (by NC, checked by CF), and 23 papers were excluded. Experts on the group were also asked for papers and this resulted in eight additional papers of which six were included. Twenty-six papers were read in full, which led to the exclusion of an additional 13 papers: two that did not focus on strength or balance or older adults; and 11 that reviewed older adults’ views of general physical activity and had no analysis specific to strength or balance activities. Review of the references of one paper led to the discovery of additional papers on older adults’ attitudes to falls prevention programmes, which were included<sup>6-8</sup> to present views specific to falls prevention activities. So in total, seventeen papers were included: five systematic reviews<sup>5,7,9,10,11</sup>; three reviews<sup>6,12,13</sup>; and nine primary studies for context<sup>8,14-18,19-21</sup>.

## Description of studies: strength and balance

**Burton et al**<sup>5</sup> conducted a high-quality systematic review of quantitative, qualitative, and mixed-method studies. The authors directly addressed the question of interest: the review aimed to identify motivators and barriers to older adults participating in resistance training. The authors assessed study quality using standardised quality assessment tools. They included 14 studies covering a total of 1,937 participants with an average age of 69 years. The authors’ analysis resulted in a total of 92 motivators and 24 barriers to resistance exercise described from the studies. This higher quality review will form the backbone of our analysis as it directly addresses the review question; is systematic and high quality; and summarises the evidence up to 2017.

**Franco et al**<sup>10</sup> conducted a systematic review and thematic synthesis of the quantitative evidence for older people’s perspectives on participation in physical activity. While this was a higher quality review (which assessed study quality using standardised tools) it is not directly relevant as it included perspectives on any type of physical activity. However, the authors presented a stratified analysis according to type of physical activity. This looked at three types of activity: structured exercise programmes, other forms of physical activity or combination of both. It was noted that ‘Exercise programmes for falls prevention, yoga, Tai Chi, line dancing, walking groups and programmes that incorporated different types of training such as strength, balance, aerobic and/or flexibility were considered as structured exercise programmes.’ Therefore this review will present only the results from the structured exercise analysis, with the caveat that this may include perspectives from older adults on their views of structured aerobic or other exercise programmes that may not include strength or balance activities.

**Freiberger et al**<sup>12</sup> conducted a review of reviews of

**Table 2.** Details of included studies.

Author, date	Aim of study	Study design	Participants	Context	Relevance 1-3 *	Size	Enablers	Barriers
<b>Reviews: strength and balance activities</b>								
Burton 2017	To identify motivators and barriers to older people participating in resistance training.	Systematic review	Older people (Mean age 69.9)	Resistance training	3	14 studies	<b>92 motivators</b> including: - preventing deterioration (disability), - reducing risk of falls, - building (toning) muscles, - feeling more alert - better concentration.	<b>24 barriers</b> including - Looking too muscular -thinking participation increased the risk of having a heart attack, stroke, or death
Franco 2015	To identify and synthesise the range of barriers and facilitators to physical activity participation	Systematic review of qualitative	Older people (60-89 years)	General PA (including structured exercise programmes which contain strength and balance activity )	2	132 studies	- social influences - valuing interaction with peers - encouragement from others - personal benefits of physical activity - strength, balance and flexibility - self-confidence - independence - improved health and mental well-being - motivation and beliefs - maintaining habits	- social awkwardness - dependence on professional instruction - physical limitations - pain or discomfort - concerns about falling - comorbidities - competing priorities - access difficulties - environmental barriers,- affordability - apathy- irrelevance - inefficacy
Freiberger 2016	To give recommendations to overcome barriers in the recruitment process and how to increase adherence of frail older persons in exercise programmes.	Ad hoc review of reviews	Frail older people (age not stated)	Exercise programmes for frailty including professional barriers	2	Not clear	- attitude, expectations and - expectation fulfilment	- Older people do not consider themselves at risk of falling - overestimation of the effort required - fear of falling - recruitment poor due to low GP understanding - lack of GP funding and involvement in studies - challenges of recruitment
<b>Reviews: falls prevention</b>								
Bunn 2008	To investigate perceptions of facilitators and barriers to participation in falls-prevention interventions	Systematic review	Older people 55+ in falls prevention programmes	Falls prevention programmes	3	24 studies	- social support - low intensity exercise, - greater education, - involvement in decision-making - perception of the programmes as relevant and life-enhancing	- fatalism - denial - under-estimation of the risk of falling - poor self-efficacy - no previous history of exercise - fear of falling - poor health and functional ability - low health expectations - stigma
McInnes 2004	To review older people's views and experiences of falls prevention	Systematic review	Older people (age 50-97)	falls prevention programmes	3	24 studies	- appropriate information - social aspects - peer support/partnering - identified change characteristics - countering negative beliefs - low-moderate intensity	- lack of non-English information - unfamiliar with 'falls prevention' - inaccessible information - social stigma - low health expectations/confidence - differing personal/professional agendas - pain effort and age - emphasis on balance and strength aspects of the programme rather than social - fear of falling
Sandlund et al 2017	To systematically review the literature to explore any underlying gender perspectives or gender interpretations on older people's views or preferences regarding uptake and adherence to exercise to prevent falls.	Systematic mixed studies review	Older people	Exercise to prevent falls	3	25 studies	- support from professionals or family -social interaction -perceived benefits -a supportive exercise context - feelings of commitment - having fun.	practical issues concerns about exercise - unawareness -reduced health status - lack of support -lack of interest.
Yardley et al 2007	To develop recommendations for promoting uptake of and adherence to falls-prevention interventions among older people	Expert consensus based on reviews	Falls prevention experts	Generation of expert recommendations based on review level evidence	2	>100 experts	- perception of benefits - general health mobility and independence - invitation from a health professional - practical support	- falls seen as inevitable consequence of ageing - belief that falls prevention involves unwanted activity restriction to reduce risk- low awareness of benefits - belief suitable only for old, frail or anxious people at high risk of falling- concern about social disapproval
Stevens 2010	To provide information about older adults' perceptions and beliefs about falls and fall prevention	Qualitative review	Older people (65+)	General review of falls prevention strategies including views	1	Not stated	- Belief programme will improve quality of life - relevance - low-intensity exercise - invitation from health professional - involvement in decision making - social support	- fatalism - denial of fall risk - poor self-efficacy - no history of exercise - fear of falling - poor health/function- low health expectations - stigma of programmes for older adults
<b>Primary studies: strength and balance</b>								
Bethancourt 2013	To better understand the barriers to and facilitators of PA and participation in PA programmes among older adults	Qualitative	Random adults aged 66-78	Medicare members who use a specific PA programme including strength and balance	1	N=52	- motivation to maintain physical and mental health - access to affordable, convenient, and stimulating PA options	- physical limitations due to health or age; - lack of professional guidance - inadequate information

Table 2. (cont. from previous page)

Author, date	Aim of study	Study design	Participants	Context	Relevance 1-3 *	Size	Enablers	Barriers
Guess 2012	To examine the views and attitudes towards aerobic and resistance exercise amongst overweight and obese individuals engaged in a weight management clinic.	Qualitative	Obese adults age mean 40.7	Weight management clinic	1	N=30	- weight loss	- failure to lose weight reduces motivation to continue - resistance exercise as a masculine activity
Halvarsson 2016	To explore how older women with osteoporosis perceive fall-related concerns and balance in daily life after having participated in balance training	Qualitative	19 women (66-84 years), with osteoporosis		1	N=19	- Empowerment - Self-efficacy - Daily independence	- Internalized risk perception related to experience of bodily fragility - safety - feeling at risk
Petrescu-Prahova 2016	To examine facilitators and barriers to the implementation and maintenance of Enhance®Fitness (EF), a group exercise programme for older adults	Qualitative	Instructors, staff members, and master trainers NB. these are intermediaries not the target audience	YMCA group exercise programme	1	N=32	- identifying parts of the programme that can be adapted - hiring staff and instructors that understand and support the -educating staff and instructors about the importance of evidence-based programmes and of data collection for programme evaluation	- support and infrastructure - champions, and funding to cover the costs of programme delivery
Simmonds 2015	To explore the acceptability of high-impact physical activity for increasing bone strength in later life.	Qualitative	Active men and women 50+	Community, SW England	1	N=31	- the need to understand clear tangible benefits - incorporation of activity into everyday habits. - Older adults were interested how high-impact physical activity would help to maintain their mobility, independence or social relationships. - Some wanted tangible feedback from accelerometers, health care professionals and/ or bone scans in order to develop a more intimate knowledge of their bone health.	- conceptualising bone, - damage to joints falling/safety concerns.
Meyer et al 2016	To identify barriers and opportunities facing community health physiotherapists in delivering a home-based balance exercise programme to address mild balance dysfunction; to understand the perspectives of older people in adopting this programme.	Qualitative	9 older people and 5 physiotherapists aged 73-86	community health physiotherapists delivering a home-based balance exercise program	2	N=9	- understanding benefits of specific exercises - enhancing independence - home setting - acceptable design and implementation feasibility - convenience, practicality, and safety - programme design - use of proactive health messages - solid evidence base	- recruitment of people with specific need for balance exercises
Lindelof et al 2017	To describe the views and experiences of participation in a high-intensity functional exercise (HIFE) programme among older people with dementia in nursing homes.	Qualitative	people aged 71-96	older people with dementia in nursing homes.	2	N=21	- Exercise is challenging but achievable; -Exercise gives pleasure and strength; - Exercise evokes body memories; - Togetherness gives comfort, joy, and encouragement	- not studied
<b>Primary studies: Falls prevention</b>								
Yardley 2006	To identify factors common to a variety of populations and settings that may promote or inhibit uptake and adherence to falls-related interventions.	Qualitative interviews	Older people in 6 European countries	Falls prevention	2	N=69	-interest and enjoyment -improved health, mood, and independence - personal invitation from a health practitioner -social approval from family and friends.	- denial of falling risk -the belief that no additional falls prevention measures were necessary -practical barriers to attendance at groups (e.g., transport, effort, and cost) - a dislike of group activities
Home et al 2014	To explore the beliefs of community-dwelling South Asian and White British older adults aged 60 to 70 about falls and exercise for fall prevention	Qualitative	South Asian and White British older adults aged 60 to 70	Community	2	15 focus groups (n = 87) and 40 in-depth interviews.	- belief that exercise offered actual and potential benefits to the older adult's personal health - 'use it or lose it' - experience of falls (acting as a motivator)	- not considering falls as a serious health issue - belief in need for cautiousness when being active rather than about exercising to prevent falls - belief that exercise was only needed after a fall - experience of falls (acting as a barrier) - lack of knowledge and understanding of the potential benefits of exercise for preventing falls - belief falls were outside their control

\* This a subjective score combining the quality and scope of the study with its likely ability to help answer the review question

	Motivating factor	No. of studies
<b>Individual-level</b>		
<b>Physical</b>	Physical fitness benefits including strength, endurance, flexibility, balance, and coordination	7
	Health benefits including revitalization (feel younger), improved energy, sleep, appetite, pleasurable body sensations, increased longevity	6
	Physical functioning benefits including walking ability, ease of daily activities, independence, prevent deterioration, disability prevention, decreased risk/fear of falling	5
	Reduce and/or control pain/injury/illness including arthritis, preventing osteoporosis, strengthening the heart, no pain/limitations	3
	Weight management, and build/tone muscles	2
	Good health	1
	Health scare	1
	Appearance benefits	1
<b>Psychological</b>	Mental function benefits including improved alertness, concentration, stimulates the mind, and relieves stress/relaxing	5
	Mental health benefits including mood, positive outlook, confidence, self-esteem, 'feel good', sense of accomplishment/satisfaction, reduced feeling of isolation, emotional problems not interfering with daily activities, maintaining independence, and ability to maintain relationships	4
	Exercise self-efficacy	2
	Enjoy exercising	2
	Increased knowledge, awareness and efficacy using gym equipment	1
	Improved wellbeing	1
	Readiness for exercise	1
<b>Other</b>	Scheduled time for exercise; creates routine; means of getting out; level of prior exercise; past experience with exercise (lengthy history); suitable when unable to do other forms of exercise; learn more about strength training; challenge to improve; aid in research; inancial reimbursement; given incentive gift; enough time; right time/time to focus on self; improved spirituality.	1-2 per factor
<b>Social</b>		
	Social benefits including social support and encouragement from peers and staff, spouse, family, friends, and health professional	6
	Sense of belonging	4
	Increase social activity	2
	Observing others being active	1
<b>Environmental</b>		
	Exercise matches/tailored to individual needs	12
	Staff/instructor characteristics including access to staff; staff knowledge; interaction; competence; supervision; attention	6
	Access to exercise facility and/or equipment/convenient location	5
	Organized exercise opportunity	4

**Table 3.** Motivators for older adults participating in resistance training (Adapted from Burton et al.<sup>5</sup>).

evidence and barriers for exercise programmes among frail older adults. The authors aimed to 'give recommendations to overcome barriers in the recruitment process and how to increase adherence of frail older persons in exercise programmes'. The review is relatively lower quality as it is not systematic and does not assess the quality of the included studies. However, it is included here as it provides additional information not available from other sources on the potential professional or institutional barriers to physical activity among frail older adults.

### Description of studies: falls prevention

Bunn et al<sup>9</sup> conducted a systematic review of perceptions of facilitators and barriers to participation in falls-prevention interventions. This included quantitative and qualitative studies and assessed the quality of the studies using appropriate quality assessment tools. The review included 24 studies; although the review did not appear to be explicitly aimed at evidence for older adults, the vast majority of included studies were aimed at people aged 65+ taking part

	Barriers	No. of studies
<b>Individual-level</b>		
<b>Physical</b>	Poor health, risk of injury, pain, tired/fatigue	1-2 per factor
<b>Psychological</b>	Lack of willpower; lack of positive attitude; low self-efficacy; lack of enjoyment; too old; fear of looking too muscular; risk of heart attack/stroke/death; emotional; problems that interfere with daily living (work, social, etc.); nervous/depressed	1-2 per factor
<b>Other</b>	Lack of time; lack of knowledge; inconvenience; cost; low priority	1-2 per factor
<b>Social</b>		
	Family and/or work obligations/responsibilities; lack of social support	1-2 per factor
<b>Environmental</b>		
	Lack of exercise facilities; moved away; geographical location; lack of age-appropriate programmes	1-2 per factor

**Table 4.** Barriers to older adults participating in resistance training (Adapted from Burton et al.<sup>5</sup>).

Motivators/enablers	Barriers
<ul style="list-style-type: none"> <li>- appropriate information provided</li> <li>- social support</li> <li>- belief programme is relevant and will improve quality of life</li> <li>- low-moderate intensity activity</li> <li>- identified characteristics to change</li> <li>- invitation from health professional</li> <li>- involvement in decision making</li> </ul>	<ul style="list-style-type: none"> <li>- social stigma</li> <li>- fear of falling</li> <li>- unfamiliar with 'falls prevention'</li> <li>- denial/under-estimation of the risk of falling</li> <li>- fatalism</li> <li>- inaccessible information</li> <li>- low health expectations/confidence</li> <li>- pain, effort and age</li> <li>- emphasis on balance and strength rather than social benefits</li> <li>- poor self-efficacy</li> <li>- poor health/function</li> <li>- no history of exercise</li> <li>- lack of non-English information</li> <li>- differing personal/professional agendas</li> </ul>

**Table 5.** Motivators and barriers to older adults taking part in falls prevention activities.

in falls prevention programmes (or discussing their views of such programmes). The authors found a number of enablers and barriers to such programmes which will provide useful evidence specific to falls prevention programmes

**McInnes**<sup>7</sup> conducted a systematic review of older adults' views and experiences of falls prevention. The review was conducted to provide views and context for a Cochrane review on falls prevention. They found 24 studies which were assessed for quality using standardised tools.

**Sandlund et al**<sup>11</sup> conducted a systematic review of the falls prevention literature to explore underlying gender perspectives or gender interpretations on older people's views or preferences regarding uptake and adherence to exercise to prevent falls. They found 25 studies, of which 5 contained a gender analysis. They did not conduct a quality appraisal of studies as they aimed to include a wide variety of study types.

The study by **Yardley et al**<sup>13</sup> is not strictly a review of literature, but is a review of expert opinions based on reviews of literature - hence its inclusion here. Expert

recommendations were developed from literature review and expert opinion, and refined through a consultation process drawing on Delphi survey and nominal group techniques. Over 100 experts were involved in the process.

**Stevens et al**<sup>6</sup> conducted a general review to describe older adults' perceptions and beliefs about falls and fall prevention. Their search strategy and quality assessment procedures were unclear.

The remaining primary studies<sup>14-18,20,21</sup> were all qualitative studies that set out to explore attitudes towards different types of strength and balance activities. The study participants were mainly people taking part in specific programmes of resistance exercise; falls prevention programmes; bone strength programmes or general activity programmes with a specific component targeting strength. Of particular interest is the study by **Yardley et al**<sup>8</sup> which conducted qualitative interviews in six European countries to identify factors common to a variety of populations and settings that may promote or inhibit uptake and adherence to falls-related interventions. Also **Horne et al**<sup>19</sup> provided an



interesting perspective in studying and comparing the beliefs of South Asian and White British older adults.

### Motivators: strength and balance activity

Burton et al<sup>5</sup> identified 92 factors that had been reported as motivating or enabling people to take part in resistance training. These are helpfully categorised as individual, social or environmental factors. The disparate designs of the studies meant that they were not able to provide any quantitative weighting to the factors, although the number of studies that mentions each factor can provide some indication of its relative importance. These are shown in Tables 3 and 4.

There were 64 individual-level motivators reported in 14 studies. The most common motivator was the physical health benefit of experiencing an increase in strength, endurance, flexibility balance and coordination. The next most frequently reported motivators were general health benefits including feeling younger, improved energy sleep and appetite. The most commonly reported mental health benefits included increased alertness, concentration, and greater mental stimulation. The next most common category of benefits were general mental health benefits including mood, positive outlook, confidence, and self-esteem. Social benefits reported included social support (from family, spouse, friends, and health professionals) and feeling a sense of belonging. Environmental motivators were centred around the exercise opportunity being appropriate for the individual concerned (matched to their needs; in many cases specifically for older adults) and being run by appropriate staff (who were knowledgeable and attentive).

Franco et al<sup>10</sup> reported a similar range of motivators with the addition of feeling greater confidence specifically to preventing falls; and maintaining active habits built up over a lifetime. These were reported in 12 and 8 studies of structure exercise respectively.

Motivators for balance activities were reported by Meyer et al<sup>21</sup>: programmes were more acceptable if they promoted understanding of specific exercises; enhanced independence; were able to be done in-home, and were convenient practical and safe.

### Barriers

Burton et al<sup>5</sup> found 24 barriers to older people taking part in resistance training. At an individual level the most commonly reported barriers included poor health, pain, tiredness/fatigue, and lack of willpower. Two barriers: fear of looking too muscular and perceived risk of having a heart attack, stroke, or death while undertaking resistance training may well be of specific interest as they appear to be relevant specifically to resistance training. Social barriers included competing family and/or work obligations/responsibilities (linked to 'lack of time', above) and lack of social support. Environmental barriers focused around lack of appropriate facilities and/or programmes.

Franco et al<sup>10</sup> reported a similar range of barriers with the

addition of 'social awkwardness' which they found reported in 13 studies of structured exercise. This refers to people feeling out of place in group-based exercise programmes, especially if the other participants were younger fitter or stronger than them. However, this evidence may refer mainly to general physical activity rather than specifically from strength activities. They also emphasised 'fear of falling' as a barrier (reported in 11 studies of structured exercise); complications from co-morbidities (mentioned in 29 studies of structured exercise) and affordability (mentioned in 15 studies of structured exercise). An additional barrier not emphasised by Burton et al was that participants in 15 studies of structured exercise believed that exercise was unnecessary for older adults and may even be harmful. Others considered that they were too young to fall, and thus, exercise to prevent falls was irrelevant. For balance activities, Meyer et al<sup>21</sup> highlighted the specific challenge of recruiting people to programmes who actually had a specific need to enhance their balance.

### Falls Prevention activity: enablers and barriers

Reviews of attitudes among older adults taking part in falls prevention programmes<sup>9</sup> provides some key insights into this population group (and this type of physical activity). Although this is a specific activity with a clear outcome, the content nearly always involves strength and balance activity. The motivators and barriers to falls prevention activity may therefore be applicable to more general strength and balance activity among older adults. Findings from the reviews<sup>6,7,9,11,13</sup> are presented in Table 5. Motivators that are specific to people undertaking falls prevention activities included: information that falls can be prevented; belief that the programme is relevant; an invitation from a health professional and involvement in the programme and its design. Specific barriers include: social stigma (of being in an old person's or 'faller's' programme); fear of falling; unfamiliarity with the concept of falls prevention; fatalism and denial ('it won't happen to me') and under-estimation of the risk of falling. While health professionals may promote 'falls prevention programmes' with a focus on balance and strength, the evidence appears to show that older people would prefer the focus to be on general exercise and health and social benefits. These were also supported by the key primary study in six countries<sup>8</sup>, with this study particularly highlighting the importance of older adults denying that they were at risk of falling; and holding beliefs that no additional falls prevention measures were necessary. Additional strong insights were provided by the expert consensus paper from Yardley et al<sup>13</sup> which gave clear recommendations for engaging older people in falls prevention programmes, notably promoting the benefits of the programme rather than labelling it as falls prevention. As guidance from Age UK says: 'Don't mention the F word'<sup>22</sup>.

## Organisational/institutional barriers

Only one review<sup>12</sup> included barriers to strength and balance exercise that may be presented by health (or other) professionals. These included low levels of recruitment to exercise opportunities due to low understanding among health professionals; a lack of funding; and general challenges in recruitment. One study<sup>17</sup> looked at the issue of professional barriers to implementation and mentioned challenges of finding staff and instructors that understand and support the programme; and funding to cover the cost of programme delivery.

## Discussion

This review of reviews has found a small but consistent body of literature describing the motivators and barriers to older adults taking part in strength and balance activities, and an associated literature applied specifically to falls prevention programmes.

Many of the barriers and motivators to strength and balance activities are familiar ones that can also apply to physical activity more generally. Many people would like to be more physically active, to benefit their health and well-being, but find it hard to find the time<sup>23</sup>. Similarly, studies of older people show that they are motivated to do strength and balance activities by potential fitness and health benefits, but face barriers of time, lack of motivation or lack of access to appropriate facilities or programmes<sup>5</sup>. However, it is of greater interest here to focus on the motivators and barriers that apply specifically to older adults wanting to enhance their strength and balance.

The perceived risk of a heart attack, stroke, or death, and fear of looking too muscular were identified as specific barriers to participation in resistance training. Motivating factors relevant to strength training included improved ability to complete daily activities, preventing deterioration and disability, and decreasing the risk or fear of falling. Other factors motivating older people were building and toning muscles, reducing the feeling of isolation, and assisting in maintaining relationships and commitments. Also of importance were mental health benefits, including being more alert, having better concentration, and stimulating the mind. It was also found that people recognised that resistance training could be done by people unable to do other forms of exercise.

The literature on falls prevention programmes brings this issue into sharp focus, as these programmes are aimed specifically at older people, in many cases people whose frailty or lack of strength puts them at increased risk of falls. Specific barriers to falls prevention programmes included: social stigma (being seen as 'old' or a 'faller'); a fear of falling (during the actual programme); an unfamiliarity of the concept of falls prevention; a denial or under-estimate of personal risk of falling; and fatalism ('I'm getting old, there's nothing I can do about it'). Many of the motivators

### Messages for individuals

- Maintaining muscle strength is important as you age: to keep you strong, flexible, agile and independent
- Aim to do some strength and balance activities twice a week. Build them into your life
- Strength activities can help you feel younger; have improved energy; sleep better and look fitter
- Balance activities can help reduce your risk of falling
- They can also make you feel better about yourself, and help you feel you have accomplished something
- Exercise in groups or gyms is a great way to meet people and have fun
- You are never too old to start
- If you are an older person, and not feeling too strong, you may be at risk of a fall, which can lead to other problems. Activities to build strength and balance help reduce risk of falls. Find out from a health professional if you are at risk of falling, and join a group or class to reduce your risk, meet people and have fun

### Messages for practitioners

- Plan programmes and sessions that older people want to come to (and keep coming to)
- Emphasise the benefits that older people identify themselves
- Explain and communicate the importance of strength and balance activity (especially for older people)
- Be aware that many older people do not want to be categorised as such and market your programmes appropriately
- Adapt the level and intensity of the programme to the needs of the participants
- For falls prevention, explain carefully the risk of falls and how strength and balance activity can reduce falls (but without necessarily selling a 'falls programme')

mentioned in the falls literature were about programme design and implementation: making sure the programme is marketed and explained well; focuses on social and health aspects rather than being 'falls prevention'; is relevant to the participants; is participative and co-designed with participants.

## How can the barriers to strength and balance activity be addressed by individuals and practitioners?

Overcoming the barriers identified in this review is not straightforward, as they are a complex mix of personal, social and environmental factors. For the individual, the recommendation from the CMOs is relatively clear on paper but hard to put into practice in real life. In particular, it is challenging to do strength activities without attending a gym or taking part in a planned exercise programme. The key (as with aerobic exercise) is to start gently and find a way to incorporate strength activities into daily routines, until



it becomes a habit. This is likely to become easier if people experience the benefits of activity without being put off by pain or strains of doing 'too much too soon'.

Given the demonstrated importance of regular strength and balance training for good health, there are many things that exercise and health professionals can do to increase participation in strength and balance activity.

Exercise providers should consider providing targeted (age-appropriate) services for older adults; ensure staff are appropriately trained and have knowledge of normal changes in performance of resistance training by older adults and appropriate prescription and progression of exercise based on assessment and health status. Services and programmes need to be marketed by focusing on the positive attributes of strength training that have been identified as motivators by older people. This could include such factors as increasing muscle strength to improve health and physical functioning, preventing functional decline or deterioration and disability, providing a sense of belonging, feeling more alert, and having better concentration and stimulating the mind.

## Conclusion

The CMOs' recommendation for twice-weekly strength activity (and balance activities for older people) is important for older adults' health but appears to be largely forgotten compared to the guidelines for moderate to vigorous intensity physical activity. This review has shown that older people identify many positive facets of strength and balance activity, but also face significant barriers to taking part. However, none of these are insurmountable: what is required is increased emphasis by the health and exercise community to stress the importance of strength activities and plan appropriate programmes and interventions, based on strong education and training. This can help to ensure that more people go on to reap the benefits of an active and healthy lifestyle.

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