

Falls and fall-related injuries among older people are major issues for health and social care providers in Europe and indeed the world, because of the rapid increases in life expectancy. In the UK there are 11 million over 65s and nearly 100,000 people aged over 90. One in three over 65s falls every year and the acute sector costs of fractures to the NHS is estimated at over £1 billion. Trying to prevent falls in older people is therefore an important goal. This article initially looks at the guidelines and policy initiatives on falls prevention and the second part of the article illustrates how one primary care trust have put these into practice



EXERCISE AND FALLS

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GUIDELINES

There is plenty of information on the whys and wherefores of falls prevention. Joint guidelines by UK and USA geriatrics societies for falls prevention have been published (1) and updated (2). A framework for the prevention of falls and fractures in community health programmes has been published (3) as well as guidance on successful implementation of community based exercise and physical activity interventions (4). The National Service Framework for Older People (Standard 6: Falls) proposes that integrated Falls Services must be set up by April 2005 (5).

There are documents on implementing a falls and fracture prevention strategy within a primary health care setting though currently there is only a fragmented service evaluation of the implementation of these guidelines. An interactive training programme exists for geriatricians and other medical staff assessing 'fallers' ("Off His Legs" - www.medicaleducation.co.uk). There is also an exercise-specific national qualification, for physiotherapists, occupational therapists and advanced exercise instructors, which exists to ensure a safer, more effective continuum of falls specific prevention groups (rehabilitation into community-based) (www.laterlifetraining.co.uk).

RESEARCH

Along with the guidelines there is increasingly strong evidence for exercise as part of an integrated care plan for frailer older people. Community dwelling older people have been the focus for most of the exercise only interventions. In over 65s, with poor strength and balance, modified Tai Chi appears effective as a preventative group exercise (6,7). Modified Tai Chi over a 48 week period, however, was not beneficial to reducing falls in an older (70+) group with signs of frailty (8). In over 70s, a 15 week group-based exercise programme had a more significant effect on falls risk than a vision check or home safety check (9). However, the effect was

even more impressive in the the same research group's next trial lasting one year (10). This found that people aged over 65, with impairments in lower limb strength, poor balance or slow reaction time, had a 40% lower rate of falls than those not taking part in a group-based exercise and home exercise plan lasting one year (11). FaME, a nine-month balance and strength specific programme of group and home exercise in over 65 year old frequent fallers, halved the rate of falls after the intervention compared to controls (12,13). Even though it would be expected that home exercise alone may not be adhered to as well as group exercise, a year long, partially supervised, home exercise programme was highly effective at reducing falls (14,15).

There are concerns when increasing physical activity and exercise in older people who have poor balance. It is likely that preparatory strength and flexibility training is needed before balance-challenging exercise commences. An effective duration of exercise is also necessary to see physiological training changes to match improvements in confidence. For example, the successful FaME group exercise programme did show a slightly higher risk of a fall within the intervention period in the exercisers compared to the controls but this was not matched with an increase in injurious falls. Specialist professional training is likely to improve effectiveness and reduce likelihood of inappropriate exercise.

The evidence is now mounting for prevention strategies within residential settings, with exercise, balance training (16) and environment modification being key. Education of staff in multifactorial risk assessment alone appears unfavourable but in conjunction with other interventions (such as exercise) it appears beneficial. Yet, despite all this, there is still scant community provision for people at high risk of falls, although it is anticipated that the NSF Standards will result in increased provision. We hope this article will help guide the UK implementation of the provision of community based exercise and falls prevention strategies.

FALLS PREVENTION



BOX 1: WHAT CLIENTS HAVE SAID AFTER THE PROGRAMME

- "I take more care now when I'm out and about and take my time"
- "I have more confidence in walking"
- "I can go out now without my shopping trolley for support"
- "The classes are fun and there's always something different"
- "I know that if I fall I can get up again"

FALLS PROGRAMME

The Kensington and Chelsea Falls and Injury Prevention Exercise Service provides a good example of the practical implementation of policy. It was set up in January 2002. Referral is open, with allied health professionals, GPs, voluntary agencies and the clients themselves referring into it. Clients need to be independently mobile with or without a walking aid, be at risk of falls, have no unstable medical condition and be motivated to commit to a programme that may last for up to nine months.

HOW IT WORKS

When a client starts the programme, baseline function is measured at the first session and again at six months, or sooner depending on the client's progress. The first 12 weeks of the programme is called 'skilling up' when the exercises are learned. Following this period, clients receive a home exercise programme and are encouraged to do two additional sessions at home in conjunction with the weekly exercise class. During follow up of functional testing, if clients have improved to the extent that the classes will no longer challenge them, they are discharged and introduced to other seniors' exercise opportunities in the community. Likewise, if a client's condition deteriorates during the programme, they are either referred back to their GP for further intervention or direct to the Falls Clinic at the hospital.

Frailer clients with therapy needs may not be able to access the programme at first. They can be referred to the Community Rehabilitation Service or to the hospital's outpatient falls exercise group with the eventual goal of being able to access the community groups. If clients don't meet the criteria for inclusion in the programme (for example they may have a medical condition which excludes them) they can be referred to other services such as day centres that run their own activities groups. If a client appears interested in the Falls Service, but is unsure about starting, their name is placed in a follow-up file and is contacted again at a later date to ascertain if their motivation has altered. Clients who are unable to access the service due to their unsuitability or their physical frailty, are made as safe as possible in their own homes through a multidisciplinary approach. Home safety checks and/or specialist occupational therapy equipment may be required; walking aids, gait re-education and balance exercises can be recommended by the physiotherapist, calcium and vitamin D can be prescribed by the GP, and hip protectors are discussed, although these are usually the clients' least favourite option!

Potential referrers are asked to visit the exercise classes prior to referring clients. This has been successful because when a referrer knows what to expect, the referrals are more appropriate for the service. Outcome measures used, for the community based exercise

programme, are the 'Timed Up and Go' test, 'Functional Reach', '180 degree turn', 'Floor Transfer', 'Confidence in Balance' questionnaire and number of falls (self reported). Finally, clients complete a satisfaction survey at the end of the programme.

An information pack is sent to all clients prior to their attendance at the sessions. This explains the reason they have been referred to the class, what they can expect from the class, what they will be doing, how they might feel afterwards, what to wear, how often they should attend and emphasises the importance of commitment.

MOTIVATION

An appropriate fall prevention exercise programme should be one that is not only safe, applicable to the client's health status, and agreed with the client, but such a programme must ultimately match the client's wishes and realistic expectations for regular participation in the programme. As such, the client's motivation level may not be strong enough to manifest in actual participation. This is often the case with referred clients where the referring professional has adopted an "expert" role when dealing with the client and has underestimated the ambivalence felt by anyone considering a change of behaviour, such as taking more exercise. In some cases the client may simply agree to participate in order to keep the professional happy, but have no intention of following up the proposed change in behaviour. From January 2004 the Primary Care Trust is including regular training courses on brief motivational interviewing for health professionals to assist them in negotiating with clients around behaviour change. The referrer information pack also contains some advice on motivating clients.

Lack of motivation can stem from low self-esteem, low self-confidence and altered perceptions of ability to exercise. The client may even be in blatant denial of the need to participate in physical activity, preferring to ignore the possibility of worsening any existing medical complications or ignore any concern about potential risk of first or further falls. Finally, there are numerous barriers to participation, such as lack of time, too many other commitments, perceived inability to use community transport and financial constraints. Whatever the underlying reasons, it is the job of the referring professional to firstly identify and secondly deal with any such misconceptions and tainted perceptions concerning the need to exercise and barriers to participation. In short, the referrer must attempt to lay the foundations to behaviour change by utilising a motivational interviewing approach in their initial dealings with clients. For example, referrers can positively influence a client's perception of their ability; highlight realistic goals of regular participation; and to pander to, or indeed instil, any basic physical wishes such as increase mobility, increase strength, walk to the shops and play with the grandchildren.

Potential referrers to the programme should be prepared to “kick-start” the process of behaviour change by addressing lack of desire and in turn, cultivating motivation by assisting clients to change their perceptions of exercise/ability, boosting confidence, overcoming barriers to participation and providing motivational and supportive influences.

SUPPORT

Once clients are involved in the exercise sessions the specialist falls exercise instructor will continue to emphasise the sources of support available for the duration of the sessions by providing regular feedback, evaluation and modification of the tailored exercise programme.

THE RESULTS

We consider falls exercise classes to have been a success with 48 out of 60 attendees having completed the programme and either moved on to regular home exercise or community based exercise sessions. We have had many positive comments on the evaluation forms (see Box 1). The main reasons for dropping out included:

- moved away from the area
- medical condition worsened
- had an injurious fall
- other commitments precluded attendance.

None of them dropped out because they didn't like the class.

The follow up showed 30% of clients reported no falls during the programme and at 6 months follow up, 10% had further falls and were subsequently treated and referred back to an earlier phase of the falls programme. The remainder of clients had “slips” or “trips” but were able to correct these and prevent a fall from occurring.

References

1. American Geriatrics Society, British Geriatrics Society and American Academy of Orthopaedic Surgeons Panel on Falls Prevention. Guidelines for the prevention of falls in older persons. **Journal of American Geriatric Society** 2001;49:664-672
2. Rubenstein LZ, Kenny RA et al. Preventing falls in older people: new advances and the development of clinical practice guidelines. **Journal Royal College of Physicians Edinburgh** 2003;33:262-272.
3. Moreland J, Richardson J et al. Evidence-based guidelines for the secondary prevention of falls in older adults. **Gerontol** 2003;49(2):93-116.
4. Simey P, Pennington B. Physical activity in the prevention of fractures. **Health Education Authority** 1999: London
5. National Service Framework for Older People: Modern Standards and Service Models. **Department of Health**. 2001
6. Province MA, Hadley EC et al. The effects of exercise on falls in elderly patients. A preplanned meta-analysis of the FICSIT Trials. **Journal of American Medical Association** 1995;273:1341-1347
7. Wolf SL, Barnhart HX et al. Reducing frailty and falls in older persons: An investigation of Tai Chi and computerized balance training. Atlanta FICSIT Group. **Journal of American Geriatric Society** 1996;44:489-497
8. Wolf SL, Sattin RW et al. Intense Tai Chi exercise training and fall occurrences in older, transitionally frail adults: A randomized, controlled trial. **Journal of American Geriatric Society** 2003;51(12):1693-1701
9. Day L, Fildes B et al. Randomised factorial trial of falls prevention among older people living in their own homes. **British Medical Journal** 2002;325:128-132
10. Lord SR, Castell S et al. The effect of group exercise on physical functioning and falls in frail older people living in retirement villages: A randomized, controlled trial. **Journal of American Geriatric Society** 2003;51(12):1685-1692
11. Barnett A, Smith B et al. Community-based group exercise improves balance and reduces falls in at-risk older people: A randomized controlled trial. **Age Ageing** 2003;32:407-414.
12. Skelton DA, Dinan SM. Exercise for falls management: Rationale for an

ELEMENTS OF A SUCCESSFUL FALLS EXERCISE PROGRAMME

- Exercise is specifically tailored to meet the needs of each individual in the class
- Instructor should have the appropriate training in exercise for the prevention of falls and injuries
- Exercise should be supplemented by education
- Follow up telephone support is vital, both during the programme and after completion.
- Clients should be able to return to an earlier phase of the falls exercise programme if their condition worsens
- Medical assessment mandatory before client embarks on falls exercise programme
- All clients encouraged to perform and record home exercise to nurture their ability to take regular exercise alone
- Clients should be able to “graduate” to appropriate, safe and effective community based exercise opportunities.

exercise programme aimed at reducing postural instability. **Physiotherapy Theory Practice** 1999;15(2):105-120

13. Skelton DA, Dinan SM et al. 2003 FaME (Falls Management Exercise): A RCT on the effects of a nine month group exercise programme in frequently falling community dwelling women aged 65 and over. **Abstract presented to EU Working Party on Effective Falls Prevention**.

14. Robertson MC, Devlin N et al. Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. **British Medical Journal** 2001;322:697-701.

15. Robertson MC, Gardner MM et al. Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 2: Controlled trial in multiple centres. **British Medical Journal** 2001;322:701-704

16. Becker C, Kron M et al. Effectiveness of a multifaceted intervention on falls in nursing home residents. **Journal of American Geriatric Society** 2003;51(3):306-13

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FURTHER READING

■ Campbell AJ, Robertson MC, Gardner MM et al. Randomised controlled trial of a general practice programme of home based exercise to prevent falls in elderly women. **British Medical Journal** 1997;315:1065-69

■ Gardner MM, Buchner DM et al. Practical implementation of an exercise-based falls prevention programme. **Age Ageing** 2001;30:77-83.

www.ageing.oupjournals.org/cgi/content/abstract/30/1/77

■ Robertson MC, Devlin N, Gardner MM et al. Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 1: Randomised controlled trial. **British Medical Journal** 2001;322:697-701
www.bmj.com/cgi/content/full/322/7288/697

■ Robertson MC, Gardner MM, Devlin N et al. Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 2: Controlled trial in multiple centres. **British Medical Journal** 2001;322:701-704
www.bmj.com/cgi/content/full/322/7288/701