

Prevention of falls in older people: time to act

Recommendations for promoting the prevention of falls in community-dwelling older people

- ***Consider the issue of falls when planning interventions aimed at improving the health of older people.***
- ***Promote physical activity interventions that include exercises to improve muscle strength and balance***
- ***Promote large scale randomized controlled trials on multi-modal physical exercise interventions evaluating simultaneously the effects on falls and injuries, cardiovascular disease and risk factors, physical functioning, mental well-being and quality of life.***
- ***Take into account the needs and attitudes of the target population and of other stakeholders when planning an intervention, and consider communication and motivation of participants an integral component of the intervention.***
- ***Promote additional/alternative fall prevention strategies for frail high-risk older people, like home hazard assessment and modification.***
- ***Promote research on neglected potentially relevant factors like malnutrition and anemia, and harmonization of outcome measures throughout the EU.***

Working package 4 (WP4) *“Development and assessment of strategic materials for implementation of recommendations for preventing falls among older people in the EU”*

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The burden of falls

In the European Union, about 40,000 citizens aged 65 years or more die each year as a consequence of a fall (Petridou 2008)

Every year, 1 out of 3 citizens of the European Union aged 65 years or more, and 1 out of 2 of those aged 80 years or more, falls at least once .

About 1 in 5 falls among senior citizens requires medical attention, and about 1 in 20 results in a fracture. Falls cause a huge amount of disease and disability among senior citizens and are a heavy economic burden on health services. In the year 2000 the total estimated cost of unintentional falls in older people in the UK was about 1 billion British pounds (Scuffham 2003).

Among community-dwelling older people, falls are a strong predictor of subsequent nursing home admission (Tinetti 1997).

KEY MESSAGE: *Falls are frequent above age 65 years, they are the major cause of injury in this age group, and they exact a high toll in terms of deaths, fractures and other injuries, disability, loss of independence, psychological distress and health and social care costs.*

Causes of falls

The majority of falls in older people are not due to a single cause, but rather to the combination of several interacting factors . Risk factors for falls have been broadly classified in intrinsic, i.e. patient-related, like advanced age, chronic diseases (including stroke, diabetes, urinary incontinence, rheumatic disease and depression),, muscle weakness, gait and balance disorders, cognitive impairment etc. and extrinsic factors (e.g. medication use, environmental hazards or hazardous activities) (Lord 2007).

Why is it important to identify risk factors for falls?

- it can help identify subjects who are at high risk of falling and thus are most in need of preventive actions*
- by acting on the risk factors, the frequency of falls and of their deleterious consequences can be reduced*

In order to estimate how many falls could in principle be prevented by eliminating a given factor (the “population attributable fraction”) one must know i) what is the strength of the association between that factor and the risk of falling, and ii) the prevalence of the risk factor in the target population

A systematic review of risk factors for falls in community-dwelling elderly people, based on explicit quantitative meta-analysis and using an objective and transparent approach, conducted within workpackage 4 of the Apollo project, has provided quantitative estimates of the strength of the association between each factor and the risk of falling (Apollo WP4 2009).

The prevalence of the risk factor is population specific, and must be evaluated for each population in order to optimize preventive strategies. For example, in a population where the use of sedatives, antiepileptics or other drugs that increase the risk of falls is widespread, an intervention aiming at reducing and better customizing their use will affect the risk of more people than in a population where these drugs are less commonly used.

There is a need to improve comparability of measurements of some important factors for falls. For example, over 30 different ways of measuring balance used within the EU have been identified by the Prevention of Falls Network Europe (PROFANE WP2), and the evaluation of interventions based on exercise to improve balance was hampered by the heterogeneity of measures used (Howe 2007). Working Package 3 of the PROFANE project aims at producing recommendations about balance assessment in the context of fall interventions for older people (PROFANE WP3).

KEY MESSAGE: Several factors, both intrinsic and extrinsic, affect the probability of a fall. Appropriate management and control of these factors is needed to decrease the probability of falling. Some factors that may be important for fall risk, like anemia and malnutrition, have so far been neglected by research, or their evaluation has been hampered by lack of harmonization between studies, like for balance and muscle strength.

What works in preventing falls

The recognition of the importance of fall prevention on the well-being of older people has triggered an ever growing scientific interest in developing ways to prevent falls. Since many factors affect the risk of falling, many different interventions for fall prevention have been designed. Several high quality studies conducted in the EU and in other areas of the world have evaluated their efficacy/effectiveness. Systematic reviews and meta-analyses

of these interventions have provided an evidence-based assessment of what works in falls prevention

Exercise for strength and balance training, Tai Chi and home hazard assessment and modification have proven to be effective in reducing falls in older people (Gillespie 2003; Apollo WP4 2008, Clemson 2008, Gates 2008).

Given the multifactorial nature of fall risk, interventions aimed at eliminating several risk factors together should theoretically be more effective. In practice, however, it has been shown that multiple risk factor assessment with referral to healthcare providers or existing community programs alone is not enough. It is important to implement an intervention that provides an active management of the identified risk factors in order to attain success. (Gates 2008; Robitaille 2008; Tinetti 2008). Focus should be on the major, more easily manageable risk factors.

KEY MESSAGE: Many interventions have demonstrated measurable improvements in the health and quality of life of senior people, showing that exercise to improve balance and muscle strengths, assessment and modification of home hazards, or multifactorial interventions directed at controlling several risk factors simultaneously can reduce the risk of falling by 20-40%.

Facilitating and monitoring the success of the proposed intervention

To propose an intervention that has shown to be effective is not enough to achieve an actual reduction of falls in the population. If the target population does not actually engage in the proposed activities the implementation will fail its purpose. It is thus important to take into account the attitudes and belief of the target population and to take steps to promote participation. Lack of willingness of older people to engage in fall prevention activities has been identified as an important barrier (NICE 2004). In recent years the attitudes and beliefs of older people have been investigated, and recommendations to promote the uptake and adherence of older people to fall prevention activities have been developed (Yardley 2007). The awareness of the general population as concerns the health benefits of fall prevention must be raised, underlining the positive effects that fit with a positive self-identity (Yardley 2007).

Senior EU citizen are not a homogeneous groups, and differences in the acceptability of fall prevention strategies have been observed between countries, age groups, socioeconomic status and indicators of frailty (Apollo WP4 2009). In designing and

implementing an intervention, the needs, capabilities and preferences of the target population must be taken into account (Yardley 2007), and the proposed intervention should be flexible enough to meet the needs and expectations of different groups of the population (Apollo WP4 2009).

The beliefs and attitudes of other stakeholders, besides that of older people are also important. These stakeholder include the relatives, peers and health care providers of the target participants, the professionals involved in the delivering of the intervention, and other parties involved directly or indirectly in its implementation. Professionals who have actually been engaged in the implementation of a fall prevention intervention report that a favourable political climate at the national and local level , the enthusiasms of the professionals delivering the intervention and the involvement of members of the community (local press and television, specific groups, advocacy organizations) are important facilitators (Apollo WP4 2009).

The evaluation of the achievements of the proposed intervention is an essential component of the implementation. The process of program delivery should be monitored, including the recruitment and compliance of participants, the exposure of the participants to the planned activities, the adherence of the implementation to the protocol design, the problems encountered during delivery and continued use of activity over time. This information can lead to adjustments of the intervention in order to ameliorate its efficiency. Of course, the final evaluation of the success of the intervention will be determined by the achievement of the proposed reduction in falls and fall-related outcomes, which will have to be carefully monitored.

KEY MESSAGE: Consider communication and motivation of participants, involved professionals, and other stakeholders as an integral component of the intervention. Process and outcome monitoring are essential to identify possibilities of improving the efficiency of the intervention.

Fall prevention and the promotion of health and mental well-being in older people.

The global health effect of an intervention, beyond the prevention of falls, must be considered . Physical activity has been shown to decrease the risk of cardiovascular disease, diabetes, depression and overall mortality in older people, and to promote mental well-being (Department of Health, 2004). Considering all these health outcomes together when planning an intervention will simultaneously improve the global health of the older population and the cost-effectiveness of the intervention.

Messages on the benefits of being physically active at all ages have been widespread in the EU in recent periods, and a certain degree of general knowledge of the dangers of an inactive lifestyle is already present in the adult population.

In general, however, the issue of falls has not been properly considered in the evaluation of interventions aiming at reducing cardiovascular or other diseases. Falls are an important threat to the physical and mental well-being of older people, and therefore fall prevention must be taken into account in the development of strategies aimed at promoting a healthy aging. Exercises for the improvement of muscle strength and balance should be included in interventions aimed at older people alongside to those aimed at improving cardiovascular fitness.

To date, however, there is a lack of evaluation of multi-modal exercise programs for older adults on several different endpoint. Only a few studies have evaluated their effect, often using intermediate endpoints rather than clinically relevant ones (Baker 2007).

Besides overcoming the barriers against the uptake of a more physically active life, other interventions for fall prevention should also be considered, in particular for the part of the older population for which physical exercise is not an acceptable solution. Home hazard assessment and modification has also shown to prevent falls, particularly in frail high risk older people. Again, the effect of the intervention can be improved by evaluation other injury hazards, besides that of falls, e.g. burning and accidental poisoning.

KEY MESSAGE: The issue of falls must be considered when planning interventions aimed at improving the health of older people. Large, well planned interventions evaluating simultaneously the effect of multi-modal exercise programs on different outcomes, including falls, cardiovascular disease and risk factors, physical functioning, mental well-being and quality of life are needed. Alternative strategies for fall prevention, like home hazard assessment and modification, should also be offered in addition or as an alternative.

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