How to prevent falls in adults over 65: What does the research show?
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Many health practitioners are looking for ways to help older adults prevent falls. This article tells about the latest research into this area of health care. It covers:

- Prevention programs that treat a combination of risk factors connected with falling
- The differences between high-risk groups and the general older population
- The role of exercise and physical activity in preventing falls

Prevention programs and risk factor combinations - What does current research tell us?

For the past decade, the view held by many researchers is that falling is caused by many factors. Research indicates that fall prevention programs should focus on identifying and changing as many of these risk factors as possible. Many individual studies have shown that this approach works. A recent review in the British Medical Journal (BMJ) concluded that multiple risk intervention programs reduce the number of falls by about 25%.

Effective interventions included:

- Reducing postural hypotension (sudden loss of blood pressure when one stands up. It can be a symptom from some diseases or drugs)
- Improving gait (the size of our steps, how high we lift our feet, how much our body sways when we walk, how well we can walk in a straight line, change directions and increase our walking speed.)
- Improving balance
- Improving the strength and range of motion of the legs
- Ensuring safe transfers (e.g. moving safely from a chair to a toilet seat, bed or bath tub.)
More generally, the BMJ review pointed out that successful intervention programs included:

- Medical assessment
- Home safety assessment and advice
- Review of the dosage and number of prescription drugs
- Environmental changes
- Individually-tailored exercise programs
- Training in transfer skills and gait
- Referral of clients to relevant healthcare professionals according to need.

The review also pointed out that home assessments without referrals or direct intervention don't appear to work. However, people who have fallen and gone to emergency departments benefit from follow up home assessments, occupational therapy and referrals.

In residential settings like nursing homes, research shows that individual treatment plans for high-risk people can reduce the number of falls. Providing general exercise programs for all residents did not directly achieve this.

Because some falls cannot be prevented, the use of hip protectors by nursing home residents was effective in reducing one of the most serious outcomes of falling - hip fractures.

**High-risk groups and the rest of the older population - Why are the differences important?**

The benefits of multiple-risk prevention programs are clear. However, in considering falls prevention programs, practitioners and health planners need to keep in mind the differences between the general population of older people and the small group within this population that has a high number of risk factors.

One estimate is that about 33% of people over age 65 have just one known risk factor for falling, and around 15% have no identifiable risk factors at all. Only about 7% have four or more risk factors. In other words, the group with the largest number of risk factors and the highest risk for falling is a relatively small one. As a result, only part of the older adult population will directly benefit from prevention programs that treat multiple risk factors, and those with no modifiable risk factors may not benefit at all.

It is important for health professionals who are planning treatments and prevention programs to consider where their group of...
older persons falls on the risk spectrum, since this will determine the type and amount of resources required as well as the efficiency of the program.

For example, some programs may put resources into detailed assessments and individualized treatments to reduce the number of risk factors from five to four in some individuals, from four to three in others. This is likely to be most effective in the most frail groups of seniors.

Many people in the general population of 65 years or over have few known risk factors. Research tells us that in this group the focus should be on raising awareness of activities that increase risk in the presence of environmental hazards (e.g., carrying heavy loads down stairs) and on maintaining health and fitness through proper exercise and nutrition.

**What about exercise and physical activity?**

The British review concluded that:

- Exercise alone in general groups of older persons does not reduce falls.
- Exercise reduces falls among those with mild problems in strength or balance.
- Individually tailored programs delivered by qualified professionals reduce fall risk in community dwelling women over age 80.
- Balance training (T'ai Chi) classes with individual instruction can reduce falls.

These findings have to be considered in context. Because falling is less frequent in the healthiest older adults, it is more difficult for researchers to demonstrate conclusively that any preventive program reduces falls in this group. For example, even if an exercise program did reduce falls by 25% among older persons with no known risk factors, it would take over 5,300 people for a randomized study to show this convincingly. Due to the expense, it is unlikely such a study will be completed in the near future.

Because there are no randomized trials showing conclusively that exercise programs reduce falling in general groups of older persons, care providers and policy makers may have to accept evidence that is more circumstantial:

- Falling occurs 20% to 40% less often among those who report high activity levels.
- Physical activity and exercise play a key role in modifying some risk factors (e.g., problems with transfers, leg strength, range of motion and other aspects of balance and gait) so exercise almost certainly plays an indirect role in falls prevention.
Progressive resistance (weight training) and functional training can improve strength and movement related to daily activities and balance. It can also reduce fall-related behavioural and emotional restrictions due to 'fear of falling.'

A 10-year follow-up of a randomized walking study showed that the treatment group had fewer falls (27%) than the control group (33%).

Exercise has positive effects on bone mass.

Exercise may postpone the development of age-related causes of falling.

One cautionary note comes from the literature. While many studies show promising effects due to increased activity, they do not have enough subjects to show conclusively that the frequency of falling is reduced. However, some of these studies also suggest that the frequency of injury among those who fall is higher among those in the exercise group. While these findings are not conclusive either, they may indicate the hazards of vigorous activities in groups unaccustomed to them, and underscore the importance of proper training, supervision, and safety.

So what can we conclude?

Based on current research, we can say:

- The best approach to preventing falls in any group of older persons will depend on where that group sits on the risk spectrum.
- Older adults with a high risk of falling can benefit from prevention programs that identify and modify several different risk factors. The number at highest risk, however, is a relatively small number of adults over 65. It is this group that will benefit most from the more expensive programs based on individualized assessment and treatment.
- While research to date has not proven a direct connection between physical activity (other than Tai Chi) and reduced numbers of falls in general groups of older persons, it does suggest that increased physical activity can both delay and reduce many of the risk factors that contribute to falls by older adults. The number at highest risk, however, is a relatively small part of the population of adults over 65. Exercise, of course, has many positive effects not related to falling.

To sum up, for the general population of older adults, policy makers and practitioners should still focus on the many accepted benefits of increased physical activity. This focus should not ignore other factors such as nutrition and environmental hazards. Policy makers and practitioners should concentrate on physical activities and exercises that relate to the various risk factors for falling that affect their clients.

Finally, a new exercise may itself pose an injury hazard, at least in the short term. Appropriate safeguards should be in place.