

Research Update



Practical, leading edge research results applied to physical activity for older adults, in plain language for health practitioners and leaders.
Sponsored by the Active Living Coalition for Older Adults (ALCOA).

How to prevent falls in adults over 65: What does the research show?

Mark Speechley, Ph.D. The University of Western Ontario

Active Living Coalition for Older Adults

33 Laird Dr., Toronto
ON, M4G 3S9

Toll-free: 800 549-9799 Tel.:
416-423-2153

Fax: 416 423-2112

E-mail: alcoa3@ca.inter.net
www.ALCOA.ca

*Additional copies of
ALCOA Research
Update issues and
research references for
this article are
available in print and
electronic formats from
the ALCOA office, or
can be downloaded
from www.ALCOA.ca*

*Reproduction of this
document, in part or in
total, is permitted and
encouraged on the
condition that credit is
given to the ALCOA
Research update and
the authors listed in
this publication.*

*The financial support
of Health Canada is
gratefully
acknowledged.*

Français au verso

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:

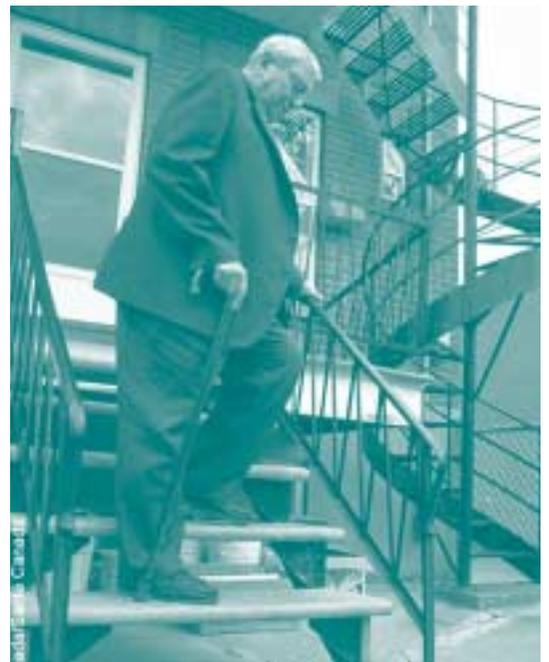
- Prevention programs that treat a combination of risk factors connected with falling
- The differences between high-risk groups and the general older population
- The role of exercise and physical activity in preventing falls

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



Activities we have always been able to do safely might become risky as we age.

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



Reviewing all prescriptions or medication as well as eyeglasses is important. Over time, people might need lower dosages or stronger eyeglasses. Not keeping up to date may increase their risk of falling.

ACKNOWLEDGEMENTS

Author:

Mark Speechley, PhD
University of Western
Ontario
London, ON

ALCOA Research Co-Chairs

Philippe Markon PhD
University of Québec
in Chicoutimi, PQ

Mike Sharratt PhD
University of
Waterloo
Waterloo, ON

Research Committee Members:

Nancy Ecclestone
Canadian Centre for
Activity and Aging
London, ON

Don Wackley
Ontario Coalition of
Senior Citizens
Organizations
Toronto, ON

Reviewed by:

Robert Petrella
MD, PhD
University of Western
Ontario
Canadian Centre for
Activity and Aging
London, ON

ALCOA Staff:

Imran Syed,
Communications and
Project Manager

Photos:

Health Canada

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.

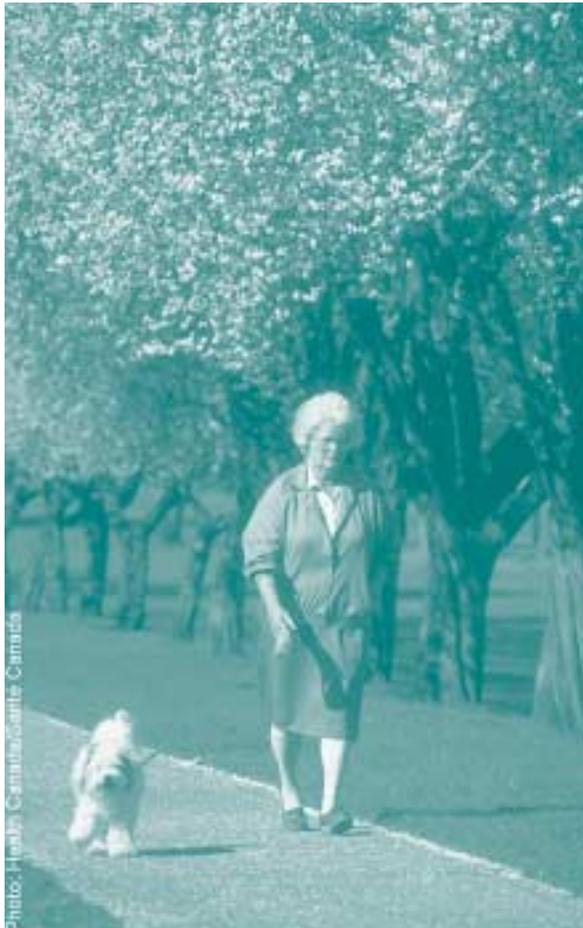


Photo: Health Canada/Carole Curran

Websites related to this topic:

www.osteoporosis.ca

www.hcsc.gc.ca/seniors-aines/seniors/hcvac/toc_en.htm

www.uwo.ca/actage

www.alcoa.ca

The views expressed in this newsletter are those of the authors and do not necessarily reflect those of Health Canada.

- 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 T'ai 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.

Research Update Newsletter Reader Survey

Please take a few moments to complete this survey. Your comments and feedback will ALCOA better meet the needs of its readers. Please be assured that your responses will remain confidential.

If you are interested in entering a draw for prizes then please include your email / telephone number at the end of this survey.

YOUR THOUGHTS ON THE FALLS PREVENTION ISSUE

1. Please circle the response that describes the new information you learned about the following topics.

	Learned a great deal	Learned some new things	Did not learn anything new
a. Falls prevention in general	1	2	3
b. Physical activity and falls prevention	1	2	3
c. Hip Guards	1	2	3

2. Please rate the Falls Prevention Issue on the following components (circle your response).

	Excellent	Good	Fair	Poor	Not sure
a. Selection of topic	1	2	3	4	NS ₉
b. Quality of information	1	2	3	4	NS ₉
c. Usefulness of information	1	2	3	4	NS ₉
d. Use of visuals (e.g., pictures, layout)	1	2	3	4	NS ₉
e. Overall rating of Issue	1	2	3	4	NS ₉

3. Is there anything that you intend to do based on what you have read? 1 Yes 2 No
 If Yes, what do you intend to do?

YOUR THOUGHTS ON THE ALCOA RESEARCH UPDATE NEWSLETTER

4. Please rate the EFFECTIVENESS of the Research Update in meeting the following objectives.

	Not at All Effective	Somewhat Effective	Very Effective
a. Keeping you informed on up-to-date information / research on physical activity and older adults	1	2	3
b. Communicating research in clear and plain language	1	2	3
c. Providing you with practical tips for using the research	1	2	3

5. Do you have any suggestions for future Research Update topics? 1 Yes 2 No
 If Yes, what topics would you like to see covered?

6. Do you have any suggestions to improve the Research Update? 1 Yes 2 No
 If Yes, how so?

DISTRIBUTION OF THE NEWSLETTER

7. How do you receive the ALCOA Research Update? (check all that apply)

- Through the mail As part of Joe Taylor's Active Living Newsletter
 At my work or organization Other. Please specify.
 Download from ALCOA web site _____

8a. Do you distribute or share any of the information in the Research Update? Yes No

b. If Yes, with how many others (approx.) do you share the newsletter? _____

c. If Yes, with whom are you sharing the Research Update? (check all that apply)

- older adults practitioners/leaders other _____

9. Do you know of anywhere else that you can get the type of information contained in the Research Update? Yes No

DEMOGRAPHIC INFORMATION

10. Age: 54 years of age or less 55 – 74 years 75 – 90 years Over 90 years

11. In which province / territory do you reside? _____

12. What type of organization do you work for or represent? Check all that apply.

- I do not work for or represent an organization Non-governmental/Volunteer organization Public Health Department/Unit/Board
 Senior's organization Government Other (please specify)
 Coalition Education system _____
 Healthcare system Corporate or Private Sector

13. Is your organization ... Local Provincial Federal Not sure

14. Please describe your role within your organization. Check all that apply.

- Health Practitioner Consultant Residence Staff
 Leader Active Living Programs University Staff Volunteer
 Fitness Professional University Faculty /Researcher Other (please specify)
 Recreation Leader Student _____

ALCOA thanks you for taking the time to fill out this questionnaire. Please mail your response to ALCOA, 33 Laird Drive, Toronto, ON M4G 3S9, or fax us at (416)-423-2112. The winners of the draw will be eligible to win PEDOMETERS and the draw will be carried out in March 2003.

If you would like to be entered into a draw for prizes, please provide your name, email address or telephone number. Only one entry per person will be included in the draw.

Name _____ Email _____ Telephone number _____