



WellSpring

Sharing physical activity knowledge

ALBERTA CENTRE FOR ACTIVE LIVING • DECEMBER 2018 • VOLUME 29 • NUMBER 12

Finding Balance:

Preventing older adult falls

Cathy Gladwin, MSc, Injury Prevention Centre, School of Public Health, University of Alberta

The year 2011 was a landmark for older adults. This was the year the oldest baby boomers turned 65 years of age. Now in 2018, approximately half of this large demographic is over age 65 and they are falling in unprecedented numbers. Estimates show that one in three, or about 177,000 of Albertans over the age of 65 will fall at least once in the coming year.¹

Falls are the leading cause of injury among older people,² and because there are now more older people, there has been much research investigating the risk factors of falls and interventions to prevent them. In the late 1980s, few journal articles related to falls in older adults existed. By 2004, this had increased to nearly 400 per year³ with the publication of systematic reviews and meta-analyses following in subsequent years. In 2012, Gillespie et al. published a Cochrane Database Systematic Review which defined the types and frequency of exercise needed to prevent falls.⁴ It was this review that provided the foundations of knowledge upon which the *Finding Balance* program is built.

Finding Balance in Alberta

Finding Balance, an older adults' falls prevention program developed by the Injury Prevention Centre in the School of Public Health at the University of Alberta, was first launched in November 2008. At the time, the population of Alberta adults over 65 years of age was approximately 370,000. Today, that population has reached 535,000 and is expected to grow up to 1 million by 2045.⁵ At the same time, approximately 90% of older adults in Alberta live independently in their communities⁶ and, in recent years, over 175,000 older Albertans have experienced at least one fall a year, with 9,000 per year being injured severely enough to require a hospital admission and unable to return to independent living.

It is these individuals the *Finding Balance* program aims to support. More specifically, *Finding Balance* provides older adults and practitioners with the latest information and resources to help older adults live an active and independent lifestyle. The program uses real life strategies that older adults can use to lower their risk of a fall.



S U M M A R Y

With an aging population comes the risk of falling and injuring oneself. Preventative measures can be taken to support the reducing the risk of falling.

This WellSpring provides an overview of the *Finding Balance* program, led by the Injury Prevention Centre at the University of Alberta, that aims to support practitioners and the aging population across the province to reduce their risk of falls and support active, independent living.

Stay Independent. Prevent Falls.

Stay independent. Prevent falls.

Considering that 40% of nursing home admissions are the direct result of a fall,¹ preventing falls and staying independent are closely linked in the messaging. More specifically, the key message helps the older adult audience make the cognitive link between falling and losing the ability to live independently by focusing on independence factors older adults value, including:⁷ living in their own homes, making their own decisions about how they spend their time, and not wanting to rely on others or be a burden to family, was highly valued by older adults.

Empowering older adults to take action

Finding Balance materials use the message, “You can reduce your chances of falling”, which is meant to increase awareness and empower older adults to take action to prevent falls. Older adults fall due to one or more of any number of intrinsic or extrinsic factors. Approximately 15% of falls are caused by external situations that would cause most people, regardless of age, to fall, which can include tripping on obstacles or sliding on ice. Another 15% of falls result from identifiable causes specific to the individual such as fainting, while the remainder are the result of a combination of two or more of these factors.⁸

Finally, 70% of falls do not have a single cause that can be identified and addressed, which means older adults need to equip themselves with physical capacities to prevent a fall wherever and whenever it may happen. For example, people who have strong legs and good balance are less likely to fall. Regardless of the factors that precipitate a fall, it is the leg strength of the individual and their ability to remain upright that can stop a fall from occurring. Following a slip or a trip, leg strength can also help an individual regain balance, allowing them to catch themselves before they fall.⁹

Challenge your balance — Build strength — Be active

The 2012 review by Gillespie et al⁴ recommends group and home exercise programs that combine balance and strength exercises. The combination of both types of exercises was found most likely to prevent falls among older adults living independently in the community.⁴ With this in mind, the 2018 core messages for *Finding Balance* are: Challenge Your Balance, Build Strength, and Be Active.

This year, an estimated 9,000 Albertans who fall will be hurt severely and unable to live independently.



Challenge Your Balance

Balance is about controlling movements whether during walking, carrying things, or standing still. It is also about keeping one's body upright through the coordination of a range of body structures and functions. Balance to avoid a fall involves an awareness of where body parts are in space (proprioception), reaction time to respond to unexpected changes or movements, and muscle strength to extend the legs against gravity, with spare capacity to regain an upright position in case of a trip or slip.

To improve balance, it is important to engage the body in situations that create a sense of motion. For example, moving the centre of gravity away from a comfortable, stable position challenges balance and can improve it over time.¹⁰ Exercises to improve balance are available on the *Everyday Exercises for Older Adults* poster.

Build Strength

Strong leg muscles are important for being mobile and steady or stable. Lower extremity weakness is a significant risk factor for falls in older adults,¹⁰ while increased lower extremity strength is associated with better balance function.¹¹ Muscle strength can be improved in individuals of any age. To improve and maintain muscle strength, resistance training using bands or weights and exercises that use body weight are recommended.^{12,13} Exercises to improve strength are available on the *Everyday Exercises for Older Adults* poster.

Be Active

Being active is both a means and a benefit of preventing a fall. Finding Balance encourages people to be active to have a strong general fitness base that will in turn support their efforts to reduce their risk of falls. Being active, as opposed to being sedentary, can also help build confidence and overcome the fear of falling, which is in itself a risk factor for falling.¹⁴ The benefits of being active can be found on the *Finding Balance* poster.

Finding Balance materials are congruent with the Canadian Physical Activity Guidelines for Older Adults. (CSEP website), which recommends achieving 150 minutes of moderate-to-vigorous activity per week.¹⁵

Know your risks

As previously mentioned, Gillespie et al⁴ found that there are a number of risk factors for falls that are specific to one's environment or health. These factors need to be addressed on an individual basis and are thus more difficult to address within a program aimed at the broader older adult population. Finding Balance raises the awareness of the existence of these risks and has supplementary materials addressing them in a series of *information sheets*.

Some extrinsic risk factors can be identified and eliminated from the environment. For example, an occupational therapist can identify and assist with removing tripping hazards such as clutter and loose rugs from homes, and suggest ways to keep the home free of potential fall hazards. Similarly, some intrinsic factors can be addressed by having regular care from an optometrist; reviewing medications that can cause dizziness with a pharmacist or doctor; preventing or eliminating foot pain; and treating any health conditions that affect balance and strength. Even older adults with extraordinary conditions that have an increased risk of a fall can benefit from improving strength and balance.

Resources for older adults and practitioners

Older adults, their families, and practitioners can access the latest evidence-based materials for preventing falls at findingbalancealberta.ca, including a program brochure, information sheets covering topics from *Getting a Good Night's Sleep* to *Walking in Winter*, a Falls Self-Assessment

People who have strong legs and good balance are less likely to fall.

Checklist (a set of validated questions to allow individuals to identify if they may be at risk of falling),¹⁶ exercise cards, and a poster to help older adults challenge their balance and build strength.

In recent years, over 175,000 older Albertans have experienced at least one fall a year. Nine thousand per year have been injured severely enough to require a hospital admission and many have been unable to return to living the life of their choice. By focusing on improving and maintaining strength and balance and being active, the *Finding Balance* program can help older adults avoid a life-changing fall.

References

1. Public Health Agency of Canada. Seniors' falls in Canada: second report. <https://www.canada.ca/en/public-health/services/health-promotion/aging-seniors/publications/publications-general-public/seniors-falls-canada-second-report.html>. Accessed September 21, 2018.
2. Injury Prevention Centre, Edmonton (Database) Accessed November 2017. Unpublished data available upon request.
3. Lord SR. *Falls in older people: risk factors and strategies for prevention*. Cambridge, UK; New York: Cambridge University Press; 2007.
4. Gillespie LD, Robertson MC, Gillespie WJ, et al. Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev*. 2012(9):CD007146. doi: 10.1002/14651858.CD007146.pub3.
5. Alberta Seniors and Community Supports. Findings report of the demographic planning commission. <https://open.alberta.ca/dataset/80ee3d75-7a0d-430e-a65c-b9a51e0e8e1a/resource/6c62c289-b1c4-4247-8091-d7336bbb2183/download/demographic-commission-report-2008.pdf>. Published December 2008. Accessed August 22, 2018.
6. Alberta Seniors and Community Supports. A profile of Alberta seniors. <http://www.seniors-housing.alberta.ca/documents/Seniors-Profile-2010.pdf>. Published September 2010. Accessed July 6, 2018.
7. Hughes K, van Beurden E, Eakin EG, et al. Older persons' perception of risk of falling: implications for fall-prevention campaigns. *Am J Public Health*. 2008;98(2):351-357. doi: 10.2105/AJPH.2007.115055.
8. Campbell AJ, Robertson MC. Implementation of multifactorial interventions for fall and fracture prevention. *Age Ageing*. 2006;35 Suppl 2:ii60-ii64. doi: 10.1093/ageing/af1089.
9. Sherrington C, Tiedemann A. Physiotherapy in the prevention of falls in older people. *J Physiother*. 2015;61(2):54-60. doi: 10.1016/j.jphys.2015.02.011.
10. Moreland JD, Richardson JA, Goldsmith CH, Clase CM. Muscle weakness and falls in older adults: a systematic review and meta-analysis. *J Am Geriatr Soc*. 2004;52(7):1121-1129. doi: 10.1111/j.1532-5415.2004.52310.x.
11. Cho KH, Bok SK, Kim YJ, Hwang SL. Effect of lower limb strength on falls and balance of the elderly. *Ann Rehabil Med*. 2012;36(3):386-393. doi: 10.5535/arm.2012.36.3.386.
12. Joshua AM, D'Souza V, Unnikrishnan B, et al. Effectiveness of progressive resistance strength training versus traditional balance exercise in improving balance among the elderly — a randomised controlled trial. *J Clin Diagn Res*. 2014;8(3):98-102. doi: 10.7860/JCDR/2014/8217.4119.
13. Orr R, Raymond J, Fatarone Singh M. Efficacy of progressive resistance training on balance performance in older adults : a systematic review of randomized controlled trials. *Sports Med*. 2008;38(4):317-343. doi: 10.2165/00007256-200838040-00004.
14. Kumar A, Delbaere K, Zijlstra GA, et al. Exercise for reducing fear of falling in older people living in the community: Cochrane systematic review and meta-analysis. *Age Ageing*. 2016;45(3):345-352. doi: 10.1093/ageing/afw036.
15. Canadian Society for Exercise Physiology. Canadian physical activity guidelines for older adults - 65 years & older. http://www.csep.ca/CMFiles/Guidelines/CanadianPhysicalActivityGuidelinesStatements_E%204.pdf. Published May 2011. Accessed September 5, 2017.
16. Rubenstein LZ, Vivrette R, Harker JO, Stevens JA, Kramer BJ. Validating an evidence-based, self-rated fall risk questionnaire (FRQ) for older adults. *J Safety Res*. 2011;42(6):493-499. doi: 10.1016/j.jsr.2011.08.006.

ABOUT THE AUTHOR



Cathy Gladwin has a Master of Science degree in Health Promotion and is the Knowledge Translation Coordinator at the Injury Prevention Centre in the School of Public Health at the University of Alberta. She has worked in injury prevention since 1998 in roles that include policy advocacy, guideline development, and injury prevention messaging.

