

Prevention of Falls in Older Adults eLearning Module

Acknowledging traditional territories

We would like to begin by honouring the Algonquin Anishnaabeg people, on whose traditional unceded territory the City of Ottawa is located.

We would like to extend this respect to all First Nations, Inuit and Métis peoples, their ancestors, their Elders and their valuable past and present contributions to this land.

Intention of training

This training is for anyone who would like to learn valuable information regarding falls and fall prevention in older adults, such as personal support workers, volunteers, friends and family, and older adults who support others close to them.

This course will help you to:

- Define a “fall”, what puts older adults at risk for a fall, and how falls can be prevented.
- Learn about the body systems that help us to stay balanced and upright.
- Understand how big of a problem falls are for older adults, and how to talk about fall prevention with clients, patients, family and friends.

What is a “fall”?

The Public Health Agency of Canada’s definition of a “fall” has three distinct elements. Click on the hotspots to reveal these elements.

A fall is a sudden and unintentional change in position resulting in an individual landing at a lower level, such as on an object, the floor, or the ground, with or without injury.

Knowledge check

Which of the following example(s) is/are a fall?

- a) Someone trips on a scatter mat and lands on the floor
- b) A person trips on a scatter mat and falls on to a couch
- c) Both A and B

Answer: Both A & B are considered a fall, in both examples there was a **loss of balance**, and the person came to rest at a lower level.

Did you know that...

- Falls are the leading cause of injury among older Canadians;
- 20-30 % of older adults have more than one falls each year.
- Falls cause 95% of all hip fractures.
- 40% of all falls causing hospitalization happen at home.
- Rates of fall-related Emergency Department visits rise with age
- Falls and their resulting injuries cause loss of quality of life, increase caregiver responsibilities, and can lead to admission to long-term care.

Take a moment to think about these facts

Which statistic surprised you the most?

Keep in mind that not all falls are reported and there are also many “near” misses. A person may have lost their balance and avoided falling by grabbing onto something for support. These near misses don’t get reported.

Now you know the statistics. But the number of falls is only part of the problem.

Why is it important to prevent falls?

The number of falls is only part of the problem.

Falls can result in chronic pain, reduced mobility, loss of independence and even death. An older adult’s life can change after a fall. They are often worried or afraid of falling again. Fear can make them limit their activity. This in turn will cause muscle weakness, poor balance, and a loss of mobility. This can lead to a loss of independence, and increase the older adult’s risk of having another fall.

Let’s try an activity!

The following activity demonstrates how balance is affected by our sensory system.

In a standing position with your feet slightly apart, stand on one foot for 30 seconds with your hands on your hips. Notice how easy or difficult it is to keep your balance. You can use a chair to hold onto if you need to.

Then, do the same exercise but with your eyes closed.

How did you do?

Was it more difficult with your eyes closed?

Standing on one leg is already a challenge because you are balancing on a much smaller base of support.

With the addition of closed eyes, most people will have difficulty balancing for the full 30 seconds.

And you may have noticed more movements in your foot and ankle as you tried to stay balanced.

This activity shows how the body has to work harder to keep balanced when there are changes in the body systems that help us stay upright.

Think of an older adult who may be experiencing health issues like poor vision, dizziness, and muscle numbness or weakness.

These health issues can challenge their balance and put them at risk of having a fall.

Knowledge check

What body system or systems help with balance?

- a) Vision
- b) Hearing
- c) Muscle strength
- d) Sensors in our joints and muscles
- e) All of the above

Answer: All of the above. Balance is a complex process. All of these body systems help with balance. Our brain reacts to signals from all these systems to help us stay upright. A change or problem in any one of these systems can affect our balance and put us at risk of falling.

Why do people fall?

Think of some reasons. You probably had no trouble coming up with many reasons why someone may fall. The research tells us there are many reasons why people fall; these reasons are also known as risk factors.

Categories of risk factors

There are many risk factors or reasons for falls, and often they interact with each other. Some you can change and others you cannot. See each category to learn more.

Personal and medical

The first category is personal and medical risk factors:

- Genetics,
- Natural process of aging,
- Chronic or acute health problems, or
- Combination of all of these can increase the risk of falls.

Let's look at these more closely:

- Having a **past history of falls** is one of the strongest predictors of having a future fall.
- **Acute illness** like an infection, can result in a variety of symptoms like weakness, fatigue, pain, and dizziness.
- **Chronic conditions and disabilities** like Parkinson's disease, arthritis, hypotension, urinary incontinence, or stroke can affect mobility, gait and balance.
- Any **balance and gait problems** can result in instability.
- **Muscle weakness is one of the most important risk factors , increasing the risk of a fall by four to five times.**
- **Cognitive impairment** can make it difficult for people to be aware of their environment and to make safe choices.
- Vision changes with age and can be affected by disease. These changes increase the risk of falling.

Vision problems

Vision problems like cataracts, glaucoma, diabetic retinopathy (complication of diabetes), and macular degeneration can affect balance. If an individual can't see clearly they are more at risk for tripping or slipping.

The following 4 images from the National Eye Institute show how one's vision is affected with eye disease. All of these visual issues can increase a person's risk of falling.

In addition, glare intolerance, new glasses, or multi-focal lenses can create visual problems.

There are numerous risk factors that an older adult may have in this Personal and Medical risk factor category. But even if genetics, the natural process of aging, chronic or acute health problems can't be changed; good management can help reduce the related risks.

Personal and medical key factors

- There are numerous risk factors that an older adult may have in this Personal and Medical risk factor category.
- But even if genetics, the natural process of aging, chronic or acute health problems can't be changed,
- Good management can help reduce the related risks.

Behavioural

The second category of risk factors is behaviors, including actions, emotions or choices of the individual.

- The **fear of falling** can cause the person to be less physically active.
- Being less active or making the choice not to exercise will lead to muscle weakness and poor balance which further increases the risk of falls.
- **Medications:** Older adults taking more than 3 medications including over-the-counter medications, are also at higher risk due to drug interaction.
 - Certain type of medications: especially pills for sleep, depression and mood can be a problem because of the potential side effects like dizziness, drowsiness and confusion.
- A chronic lack of sleep can cause an individual to be less alert and less aware of their surroundings.
- **Alcohol**, and the effect of alcohol when taking medication can affect a person's balance and their decisions related to safety.
- Poor **nutrition and hydration** could lead to physical weakness, fatigue and frailty.
- Sometimes people take **risks** and they make poor decisions related to safety.

- For example, climbing on a chair to change a light bulb if you already have poor balance.
- **Clothing** that doesn't fit properly and **inappropriate footwear** are also known risks.
- Not wanting to use **assistive devices** like canes and walkers, or using them incorrectly can increase someone's risk of falling.

Behavioural key factors

- A person's attitudes and beliefs can influence their behaviors.
- These lifestyle choices and risk-taking behaviors can influence their health and risk for falls.

Environmental

The third category of risk factors is associated with our environment or surroundings. This includes both indoor & outdoor spaces.

- Slipping while walking causes 61% of fall-related injuries;
 - 18% occurred on ice or snow, and 43% were from walking on other surfaces.
- The next most frequently reported activity associated with falls is going up or down stairs or steps (12%).
- **Indoor hazards include things like** throw rugs, loose carpets, electrical cords, clutter, poor lighting, stairs, slippery floors, and no grab bars in the bathroom.
 - These hazards are not only found in an individual's home they can also be found in institutional settings. For example, the risk of having a fall can be affected by the poor enforcement of safety regulations, the lack of hand rails, inaccessible grab bars, slippery floors, the lack of rest areas, equipment that clutters rooms and hallways, and beds that are too high.
- **Outdoor hazards include** uneven surfaces; snow or ice; raised door sills, unsafe stairs, poor lighting; slippery surfaces, obstacles and the lack of handrails, grab bars, curb ramps or rest areas.

Environmental key factors

- An older adult may have to deal with numerous factors in their environment that can increase their risk for having a fall.

- These challenges can be present daily as an individual goes through their daily activities.

Social and economic

The fourth category is social and economic risk factors.

Factors like isolation, economic status, language, low literacy, poor living conditions, or lack of transportation, do not directly affect balance. But these factors have an impact on an individual's health and access to resources and support.

- For example, someone living alone with a limited income may not have the financial means to purchase or install a grab bar in their bathroom and may not be aware of available funding.

This category is important to consider even though we do not always recognize these factors as fall risks.

- **Social isolation:** Might lack of support for wellbeing, can be a contributing factor for mental health issues.
- **Poor family support:** May have inadequate access to services.
- **Low income:** Can lead to low levels of physical activity, inadequate housing, unsafe neighbourhood, poor diet, inability to address home hazards with upgrades or safety devices, inability to afford home care.
- **Language barriers:** May reduce the likelihood of understanding information provided, such as medication instruction and general health information.
- **Low level of education:** May have inadequate resources and knowledge of lifestyle factors (nutrition, physical activity), lower literacy affects ability to read and follow directions for medication and safety.
- **Lack of transportation:** Could contribute to social isolation and a barrier to participate in fall prevention programs.
- **Poor living conditions:** May have unsafe environments, lack of handrails and grab bars, unsafe stairs, disrepair of structural issues creating hazards.

Social and economic key factors

- Social and economic risk factors are important to consider even though we do not always recognize these factors as fall risks.

- These factors do not directly affect balance but have an impact on an individual's health and access to resources and support

Risk factors, summarized

This is a summary of the four categories of risk factors for falls. For more information, you can consult the Public Health Agency of Canada resources. Research tells us that having four or more risk factors can increase the risk of falling by over 70%, and it is important to understand that all those risk factors are complex and interactive.

Personal and medical

- History of falls
- Acute illness
- Chronic conditions
- Disabilities
- Balance/gait deficit
- Muscle weakness
- Cognitive impairment
- Vision problems

Behavioural

- Fear of falling
- Many or certain medications
- Lack of sleep
- Alcohol
- Risk taking
- Poor nutrition & dehydration
- Lack of exercise
- Clothing & footwear
- Poor use of assistive devices

Environmental

- Indoor
- Outdoor

Social and economic

- Social isolation

- Poor family support
- Low income
- Language barriers
- Low level of education
- Poor living conditions
- Lack of transportation

Times when risk is greater

In addition to the four categories of risk, there are times when risk is greater. Individuals and caregivers need to be aware during high risk times and be more attentive and cautious.

Acute illness

Acute illness like the flu, a urinary tract infection, or surgery can affect a person's energy level, mobility, and concentration. They are not functioning to their full potential.

Change in medication

A change in medication or a new medication may result in side effects or may require a period of adjustment.

New environment

A new environment like moving to a retirement home can create safety issues because the older adult is not familiar with their surroundings.

Stress and anxiety

During a time of stress or anxiety, the individual can be fatigued and distracted.

Why do older adults fall?

Public health units and agencies within the Champlain area have adopted a self-screening tool called the [Staying Independent Checklist](#).

An older adult and their caregiver or service provider can complete and identify their risk for having a fall.

The checklist identifies a person's risks and can guide what strategies can help reduce falls. It is important to discuss the results with their primary care provider.

Key messages: Risk factors

There are multiple risk factors for falls, and they do not exist in isolation.

They are complex and interactive, some you can change and others you cannot.

Knowing the risk factors can guide your strategies to reduce falls in the older population.

Now you know why older adults fall. Next, we will explore how to prevent them from falling using the BEEACH fall prevention model.

The BEEACH fall prevention model

The Canadian Fall Prevention Curriculum adopted what is known as the BEEACH fall prevention model which identifies strategies to prevent falls.

Behaviour change

It's not always easy for a change in behaviour to happen. People or an organization may not be ready to make a change for a variety of reasons.

It is important to be aware of this because you may be making suggestions to a client repeatedly and they don't follow through. There are stages of readiness to change behaviour.

But don't ever give up! Continuing the conversation and offering simple suggestions can help move someone to another stage of readiness. Check out some conversation starters below.

Start by saying you care

You can say:

"You're important to me. I know you want to be independent and stay in your home, but I don't want you to fall and get hurt."

"I'm worried because more than 1 in 4 older adults fall each year, and some of those falls lead to serious injuries."

"There are lots of things you can do to prevent falls. I want to help."

Talk about ways to prevent falls

You can say:

"Being active will help you feel better and stay independent."

“Physical activity helps improve your balance and makes you stronger. This can help keep you from falling.”

“Ask your doctor or pharmacist to review your medicines. Some medicines can make you sleepy or dizzy and cause you to fall.”

“Get your vision checked by an eye doctor every year. You might need new glasses or contacts.”

“Making your home safer can help protect you. For example, try putting non-slip mats in the bathtub or shower.”

Offer to help

- a) Help your loved one collect all of their medicines and put them in a bag to take to their next doctor’s visit.
- b) Go with your loved one to get their vision checked.
- c) Install railings on both sides of the stairs and put grab bars inside and outside of the bathtub and next to the toilet.
- d) Sign up for a tai chi class together — tai chi is a mind-body exercise that can improve balance.
- e) Keep a phone close to your loved one's bed or favourite chair.
- f) Help move furniture in your loved one's home so the walking paths are clear.
- g) Pick up clothes, books, and other items from the floor and stairs — this will help keep your loved one from tripping.

Education

Many older adults don’t recognize falls as a serious health issue until they learn the statistics, or they or someone they know experiences a fall.

Many believe falls are a normal part of aging and that falls are accidents that can’t be prevented.

You can make them aware, increase their knowledge, and give them simple ideas on how to reduce their risks.

Equipment

There is a wide selection of equipment that can help an older adult in their daily activities. Effective equipment to prevent a fall, has to be used properly and be in good working order. Report any concerns to the client, family member or supervisor as appropriate.

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Explore some tips about common equipment below.

Canes

- A cane needs to be fitted to an individual for the correct height.
- The correct height for a cane is determined by turning the cane upside down, and the tip should be at the level of the wrist.
- If you suspect the cane is too long or short, discuss this observation with the individual and report it to your supervisor.
- Check the cane tip regularly and ask the individual to replace it as required.

Walkers

- The correct height of the walker is at the wrist level.
- Walking inside the walker offers the most stability.
- Encourage the older adult to use the handbrakes on the walker when transferring.
- If you have any concerns about the mobility aid that an older adult is using, report it to your supervisor.

Environment

Forty percent of falls happens at home; falls on stairs and in bathrooms can cause serious injuries.

Hazards may also exist in institutions – examples include beds that are too high, slippery floors, and cluttered rooms and hallways.

In public places – slippery sidewalks, fruit on the floor in grocery stores, etc.

Explore how you can help make their environment safe for older adults below.

Bathrooms

- 1) Have non-slip surfaces inside the tub and shower
- 2) Install well-anchored grab bars by the toilet and bath to help you sit and stand
- 3) Use a raised toilet seat, and a bath seat in the shower, if needed
- 4) Keep the floor clear of water or obstacles.
- 5) Beside the bath or shower, use a bathmat with rubber backing
- 6) Do not use bath oil.

Stairs

- 1) Make sure stairs are well lit and have a non-slip surface
- 2) Use handrails on stairways
- 3) Remove reading glasses when using stairs
- 4) Do not store items in the stairway
- 5) Avoid carrying too many items at once when using stairs

Throughout home

- 1) Pathways are clear of extension cords and other objects.
- 2) Rugs have no ripples or tears.
- 3) Scatter mats are removed or taped to the floor.
- 4) All light fixtures have a minimum of 60 watt bulbs.
- 5) Items used every day are stored within easy reach.
- 6) Store heavy items in lower cupboards or shelves.
- 7) Clean up spills when they happen.

Environment key messages

- 1) Home care agencies often have an assessment or checklist looking at the safety of the environment. This is important for both client and staff safety.
- 2) Funding for adaptations may be available through municipal, provincial or federal programs.

Activity

Strong evidence exists on the benefits of physical activity for reducing the risk of falling in older adults. It is one of the most important things you can do. Following the Canadian 24-Hour Movement Guidelines for Adults (65 years and older) can help you stay strong, mentally fit, and independent. Move every day, reduce the time that you sit, and get enough sleep.

Visit [Ottawa Public Health](#) to get more information on programs available.

Knowledge Check: How much activity is needed?

True or false: Older adults should do a maximum of 60 minutes of moderate to vigorous physical activity each week.

The correct answer is FALSE! Older adults should do at least 150 minutes of moderate to vigorous physical activity each week, muscle strengthening activities at least two days a week, activities that challenge balance, and several hours of light activity, including standing.

What is one of the most important things an older adults can do to prevent falls?

- a) Nothing can be done to prevent falls
- b) Follow Canada's physical activity guidelines and do strength and balance exercises twice a week
- c) Take only showers and not baths
- d) Wear slippers inside the house

The correct answer is follow Canada's physical activity guidelines and do strength and balance exercises twice a week. Strong evidence exists on the benefits of physical activity for reducing the risk of falling in older adults.

Clothing and footwear

Clothing should not restrict movement.

The older adult should have a good pair of well-fitted low heeled walking shoes.

Loose footwear like flip-flops and some sandals should be avoided.

Health management

Many medical conditions are known to contribute to the risk of falling. However, when properly assessed and treated, many of these risks can be reduced or eliminated.

Older adult should have regular physical check-ups and report any kind of new symptoms, e.g.. dizziness, weakness.

Any falls or near falls should be reported to a health care provider.

Discussing any fall can help identify risk factors and provide prevention tips.

Encourage a vision test

An annual vision assessment will help detect and treat eye conditions early, and identify needs for corrective lenses.

Review medication

Older adults absorb and process medications less efficiently. This can result in a dose being too high and the person having adverse reactions or side effects. An annual medication review or when new medications are started will help with drug interactions, side effects, and management.

The type of medication can also cause problems. For example, sleeping pills and antidepressants are known drug groups that increase the risk of falling. Judgment,

alertness, coordination, and balance can all be affected, however older adults don't often identify medication as a risk factor for falls.

Older adults don't often identify medication as a risk factor for falls. To help them manage their medications, encourage:

- the use of one pharmacy,
- the use of dosettes or blister packs,
- disposing of old/expired medications at the pharmacy, and
- keeping a current list of medications – including vitamins, over-the-counter drugs, and herbal supplements.

Inform of best eating practices

- 1) Follow Canada's food guide and eat a variety of food each day
- 2) Have plenty of vegetables and fruits.
- 3) Eat protein foods.
- 4) Choose whole grain foods.
- 5) Make water your drink of choice.
- 6) Don't skip meals. It can cause weakness and dizziness.
- 7) Eat a variety of **calcium rich** food daily and talk to your health care provider about taking a **vitamin D** supplement to keep your bones strong.
- 8) For more information on older adult nutrition visit the [UnlockFood](#) website

Best practices

Given the number of risk factors for falls, there are many fall prevention strategies to consider.

To make a difference, more than one strategy is necessary. The BEEEEACH fall prevention model provides the best practices on how to prevent older adults from falling.

Course completion

Well done! You have completed this eLearning course on older adult falls prevention.

Ottawa Public Health resources are available in the Resources section in the top right hand corner of this media player. You can download and print these documents.

Thank you!

Contact information

[Ottawa Public Health Website](#) (English)

[Ottawa Public Health Website](#) (French)

613-580-6744

TTY/ATS: 613-580-9656

Additional resources

[Surveillance report on falls among older adults in Canada](#)

[Senior's Falls in Canada, 2nd Report](#)

[Unlock Food](#)

[Canadian 24-Hour Movement Guidelines for Adults \(65 years and older\)](#)

[Public Health Agency of Canada Resources](#)

[Ottawa Public Health Resources](#)

[Fall Prevention Month](#)

[Parachute - Falls in seniors](#)