Falls & Older Adults
Lesson 2: Identification & Prevention of Risk Factors for Falls

Learning Objectives:
- Identify older adults at risk of falling
- Describe common types and locations of injuries due to a fall
- Recognize risk factors to decrease the risk of falls and enhance fall prevention
- Explain why it is important to implement fall prevention strategies for older adults

Review > Summary of Lesson 1:
Why is it important to be able to recognize and prevent falls in the older adult?
- Falls are the #1 cause of injury-related hospitalizations for older Canadians
- When an older adult sustains an injury due to a fall, it not only affects them physically, but can effect their overall health, independence and quality of life
- An older adult who has fallen is more at risk to fall again
- Falls are preventable and there are many strategies that can be used to decrease the risk of falls for older adults

Where did Older Adults Fall?
- Most falls occurred at home (50%)
- 17% occurred in residential care (e.g. Long-term care, nursing home or complex care facility)
- Those who fell in a residential care setting tended to have more complex health issues, such as advanced dementia, limited mobility, and/or multiple chronic health issues

(Public Health Agency of Canada, 2014)
Where did Older Adults Fall? continued

- Majority fell on non-snow or non-ice surfaces (45%)
- Some fell while walking on snow or ice (16%)
- Some fell while walking up or down stairs (13%)
- Some fell while participating in sport or physical activity including skating, skiing and snowboarding (8%)

Note! These statistics demonstrate some common interactions with environments and risk of a fall.

Type & Body Part Injured

Type of Injury
- Majority sustained fractured bones (35%)
  - Only 1/3 will regain prior functional level
  - 7% will die within 30 days
  - 20-30% of these will die within 1 year
- Sprains or strains (30%)

Body part injured
- Shoulder or upper arm (17%)
- Knee or lower leg (15%)
- 7% Head (2% concussion or brain injury)
- 7% Hip

Note! The fracture statistics strongly declare the need for education and treatment regarding bone health for older adults.

Where did Older Adults go for Care after a Fall?

- 67% Emergency room
- 16% Doctor’s office
- 7% Clinic

Note! These statistics demonstrate the costs of falls to the healthcare system.
Risk Factors for Falls

Risk factors for falls are often described under the following areas:

- Biological / Intrinsic
- Behavioural
- Medication
- Cognitive changes and impairments
- Social & Economic
- Environmental

Notes!
- Older adults often have multiple risk factors in more than one area listed above.
- Falls often lead to finding an underlying condition(s).

(Tinetti, 2003)

Common Biological / Intrinsic Risk Factors for Falls

- Acute illness - e.g. urinary tract infections and pneumonia have been found to be precipitating factors
- Chronic health conditions - e.g. such as neurological disorders, diabetes, arthritis, and stage renal disease, incontinence, urgency
- Balance/gait deficits - can be due to biomechanical, sensory and cognitive changes
- Sensory deficits - low vision, poor proprioception or tactile sensation
- Muscle weakness - reduced physical fitness and mobility
- Inadequate nutrition and hydration - e.g. postural hypotension
- Cognitive impairments - may affect ability to anticipate/adapt to the environment, e.g. dementia, delirium

(Scott, 2012)

Behavioural Risk Factors for Falls

- History of fall and fear of falling - 34% of older adults worry about falling, results in limited activities, decreased mobility and muscle weakness
- Assistive devices – inappropriate prescription, fit, use and maintenance
- Excessive alcohol – almost ¼ of patients presenting with a fall in ER tested positive for alcohol
- Footwear and clothing - e.g. Thick soles that limit sensation, smooth slippery soles, high heels, tripping on long or hanging clothes
- Prior history of falls - persons who have fallen are 3x more likely to fall again and may not reduce their risk, e.g. use a walker
- Inadequate diet and hydration – 34% of older Canadians living at home were at nutritional risk (Ramage-Morin et al., 2013)
- Risk-taking behaviour - e.g. climbing ladders, standing on chairs, walking without mobility aid

(Ramage-Morin et al., 2013)
Medication Risk Factors for Falls

Psychotropics, Sedatives, Hypnotics, Benzodiazepines, antidepressants and antipsychotics
- May cause drowsiness, dizziness, hypotension, Parkinsonian effects, ataxia/gait or visual disturbances

Number of Medications
- Taking 3 or more medications places an older adult at higher risk of falls (Leipzig et al., 1999)

Laxatives
- May cause incontinence and hasty trips to the bathroom
- People taking laxatives were found to be twice as likely to fall as those not taking them (Bloch et al., 2010)

Cognitive Changes & Impairments

Any of the following cognitive changes can affect balance and attention and cause delays in switching attention to respond to a perturbation.
- Normal age-related cognitive changes
- Delirium - often caused by acute infection, dehydration, medication changes or emotional stress
- Dementia or cognitive impairment
  - Older adults with dementia have been shown to have a 2-3x increased risk of falls as those without (Härlein et al., 2009)

Social Isolation & Poor Economic Levels

Social networks
- Strong family networks correlate positively with lower fall rates
- Married older adults are less likely to report a fall

Socio-economic status
- Poorer economic status has demonstrated higher fall risk
- May be associated with poor environment, diet, or resource barriers to healthcare, poorer literacy which decreases ability to access educational resources regarding fall prevention

(Leipzig, R. M., Cumming, R. B., Tinetti, M. E., 1999)
(Härlein et al., 2009)
(Public Health Agency of Canada, 2014)
Environmental Risk Factors

Community
- Poor building design/code e.g. lack of handrails on stairs, railing on porch or verandah, short depth of stair tread
- New or unfamiliar environment

Living or home environments
- Tripping hazards e.g. scatter rugs, items on floors or on stairs, placement of or excess furniture, electrical cords, pets
- Assistive devices – lack of or poorly installed grab bars at toilet or bath
- Poor visual cues e.g. with change stairs or grade level

Environmental Risk Factors continued

Weather and climate
- Wet or icy surfaces, thick snow, freeze/thaw effects, unexpected changes
- Difficult access to walkways, steps, doorways, ramps
- Use of assistive devices and or walking poles with incorrect tips (e.g. no ice tips when icy)
- Unable to get outside resulting in increased isolation, decreases in strength and mobility, poor nutrition due to less food in the house

Summary of Common Risk Factors for Falls: The BBSE Model

<table>
<thead>
<tr>
<th>Biological / Intrinsic</th>
<th>Behavioural</th>
<th>Social &amp; Economic</th>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired mobility</td>
<td>History of falls</td>
<td>Living alone</td>
<td>Home hazards</td>
</tr>
<tr>
<td>Chronic illness (e.g. Diabetes, Arthritis)</td>
<td>Fear of falling</td>
<td>Illiteracy / language barriers</td>
<td>Poor building design or maintenance</td>
</tr>
<tr>
<td>Acute illness, infections</td>
<td>Multiple medications</td>
<td>Poor living conditions</td>
<td>Tripping hazards</td>
</tr>
<tr>
<td>Sensory disorders (e.g. visual, tactile)</td>
<td>Use of antipsychotics, sedatives/hypnotics, antidepressants</td>
<td>Low income, lower levels of education</td>
<td>Lack of handrails, curb ramps, grab bars, poor lighting</td>
</tr>
<tr>
<td>Cognitive impairments</td>
<td>Lack of sleep, nutrition and/or hydration</td>
<td>Lack of support networks</td>
<td>Slippery or uneven surfaces</td>
</tr>
<tr>
<td>Incontinence, urgency</td>
<td>Inappropriate use of footwear, adaptive aids</td>
<td>Lack of transportation</td>
<td>Inadequate building codes</td>
</tr>
<tr>
<td>Foot disorders</td>
<td>Excessive alcohol</td>
<td>Culture / ethnicity</td>
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</tr>
</tbody>
</table>

(Public Health Agency of Canada, 2014; Scott, 2012)
Lesson 2 Summary

Some key facts related to the prevention and identification of risk factors for falls:

☑ Falls most often occur at home with older adults who live alone.
☑ Majority of falls are NOT caused by ice or snow
☑ Only 1/3 of older adults will regain their prior functional level after a fall → 2/3’s will NOT!
☑ 7% of older adults will die within 30 days of a fall.
☑ Many risk factors must be considered to prevent falls (e.g., A memory aid is the BBSE Model: Biological, Behavioural, Social & economic, and Environmental).

References


References