



## **A Practitioner's Guide to Assessing the Risk of Falls in Senior Patients**

### **Transcript of Video**

Welcome to Best Foot Forward – a practitioner's guide to assessing the risk of falls in senior patients. Hello, I'm Dr. Brian Gleberzon. Best Foot Forward is a public education initiative of the Canadian Chiropractic Association. It includes a variety of educational materials to help older Canadians – especially those over 65 – identify their risk for falling-- and learn how to prevent injuries.

This module of the program is designed for you – the clinician – to motivate and assist you in assessing your senior patients for risk of falling – to educate them on preventive measures. As you have probably noticed, this disk contains a transcript of this video as well as other supporting materials. These files can be printed or saved as needed.

This continuing education guide is based on the Report on Seniors' Falls in Canada – an undertaking of the Public Health Agency of Canada. I enjoyed the opportunity to work on this report and look forward to sharing the findings with you.

To begin, let's look at the epidemiology of falls.

One out of every three Canadians age 65 and older who is living independently will fall.<sup>1,2,3</sup> This rises to 50% by the age of 80.<sup>4</sup>

Serious injury occurs in a quarter of falls – with the elderly having a much greater risk of hospitalization and death from falls compared to children under 18.<sup>4,5</sup>

Falls are the leading cause of deaths due to injury among older Canadians, and the 6th leading cause of death over all.<sup>2</sup>

Falls account for a high incidence of fractures leading to hospitalization.<sup>5,6</sup> Hip fractures account for 40% of hospitalizations and this is expected to increase 4 fold over the next 35 years.<sup>7</sup>

Falls account for 90% of wrist, forearm and pelvic fractures.<sup>2,5</sup>

An estimated \$1 billion in direct health care costs is spent on fall-related injuries and complications each year.<sup>7</sup>

And for the patient, falling can have a long-term impact on their quality of life. Not only is there a significant drop in activities of daily living among those who have experienced a fall, but falls are associated with restricted mobility, an increase in nursing home placement, most importantly, a loss of independence.<sup>5,6,7,8</sup>

75% of those who fall are over the age of 65. People who are 80 years, and older, are in the highest risk group.<sup>6,7</sup>

Potential contributing factors for patients who are at risk of falling include:<sup>7</sup>

- Poor physical condition affecting muscle strength, balance, flexibility and coordination.
- People with impaired vision are two and a half times more likely to fall. Poor hearing also increases risk.

Physical disability and acute illness are also contributing factors – particularly as they impact medication use and affect gait, sensation in the feet, or dizziness.<sup>5,6,7</sup>

Medications may increase the risk of falls. For example, use of benzodiazepines may impair alertness, and psychotropic medications have been associated with doubling the risk of falling.<sup>7</sup>

Polypharmacy is of particular concern as are pharmaceutical/nutraceutical interactions.<sup>5,6,7</sup>

Medications may lead to hypotension, weakness, stiffness, impaired alertness, judgment and coordination.<sup>7</sup>

Any patient taking four or more medications in any combination of pharmaceutical and nutraceuticals is at an increased risk of falling.<sup>8</sup>

In addition to the biological factors, there are also a broad variety of behavioural and environmental risk factors that contribute to falls.<sup>7</sup>

Environmental factors include household hazards such as stairs, throw rugs, poor lighting, electrical cords and, of course, tripping over the family pet.<sup>7,9</sup>

Behavioural factors include risk-taking activities such as unsafe climbing and reaching, unsupportive footwear, and alcohol consumption.<sup>7</sup>

Addressing these risks may be beyond the control of the clinician, but can be reviewed with the patient.

The CCA has produced materials on this disk that you can share with patients to help them evaluate their risks – and prevent them.

Now, let's look at the clinician's role in evaluating risk of falls in patients.

We are going to focus on three types of assessment: history-taking, balance, and strength assessment. You may already be familiar with some or all of these tests. And you may routinely conduct other tests such as gait analysis, x-ray line marking, or postural analysis.

We are going to look at tests that primarily evaluate balance and strength.

The **SPLAT** questions are a good place to start with a patient you know has had at least one fall.<sup>2</sup>

The patient's responses will help you determine the context of the fall and to what degree behavioural, environmental, biological or medical factors are involved.

When asking about symptoms, enquire whether or not the patient was dizzy or light-headed or felt the room spinning at the time of the fall.

Has the patient had any prior falls?

The location of the fall may point to environmental risk factors such as lack of a bathroom grab bar.

The activity at the time of falling may reveal balance issues – for example, was the patient getting up from a seated position, turning or walking down stairs?

The time of day may also be revealing: was it early in the morning, mid-day or later at night? Blood sugar may be a factor.

For balance testing, the **Global Ranges of Motion** test is an excellent assessment tool for evaluating a patient's ability to balance.<sup>10</sup>

There are 4 basic parts to the Global Ranges of Motion evaluation: flexion, extension, lateral flexion, and rotation.

(Dr. Gleberzon and the volunteer patient demonstrate the Global Ranges of Motion tests.)

**Live Action:** Mr Rosenberg, I'd like to now assess your lumbar ranges of motion. If you could face that way. I'm going to ask you first to bend forward as best you can. Good, don't bend your knees. Does that give you any trouble? Come on back. Did it hurt coming back? Can you arch backwards? Does that bother you at all? Let me ask you to bring this hand down the side of your leg. Very good. Try the other way. Does that give you any trouble? Now I'm going to ask you, keeping your feet planted on the ground, can you turn this shoulder back. And the other way. Does that bother you in any way? Very good, thank you.

The **Get Up and Go** test is a simple test that can reveal a lot. (Dr. Gleberzon and the volunteer patient demonstrate the Get Up and Go tests.)<sup>11</sup>

The things to look for in the Get Up and Go test are:

- Poor balance while seated;
- Difficulty rising or difficulty sitting down;
- Instability when standing or turning;
- Short discontinuous steps;
- Hesitancy and slowness;
- Excessive truncal sway,
- Grabbing for support
- Stumbling

The **Berg Balance** tests evaluate stability when changing positions and standing. There are 14 tests in the Berg Balance Scale.<sup>12</sup> It incorporates the elements in the simpler Get Up and Go test. (Dr. Gleberzon and the volunteer patient demonstrate the Berg Balance tests.)

**Live Action:** Mr Rosenberg, I'd like to now do a group of tests called the Berg Balance Scale

which assess your balance. Stand up please. I'd like you to stand like that for two minutes or so. For the next test I'd like you to take a seat please. Now what I'd like you to do next is to stand up from this chair, take a seat on the table and come on back. Come on back please. Good. I'd like you to stand one more time. Close your eyes. Feeling light headed or dizzy at all sir? Open your eyes. Now bring your feet together. Stand like that for a moment. Okay. You can move your feet back apart. Good. I'd like you now to reach forward as best you can. Very good. Come on back. For the next test, I'm going to place this bottle in front of you and I'm going to ask you to bend forward. Try to pick that up. Now what I'd like you to do is stand in this position and twist so you look over this shoulder. Thank you. Now try the other side. Very good, thank you. What I'd like you to do now, is to turn all the way around in a circle. Good. What I'd like you to do next is to put one foot on the box. Now try the other foot. Very good. Now what I'd like you to do is stand with one foot in front of the other. Good, now the other one. Good. I'd like you to take a seat one more time. And for the final test, I'd like you to cross your arms and I'm going to ask you to sit like that for 2 minutes. Good, very good.

The Berg Balance tests are graded on a scale of zero to four with four meaning the patient has performed the test well and zero meaning the patient has been unable to perform the test independently.

The test and grading scale are reproduced on this CD for you to use.

Lastly, let's look at some tests for strength. Lower limb strength is a factor in balance and affects a person's ability to maintain stability during a slip or trip. I will demonstrate a method of evaluating the strength of the more important muscles needed to maintain proper balance. (Dr. Gleberzon and the volunteer patient demonstrate the tests)

- Heel to toe walking assesses balance.
- Heel walking tests the strength of the tibialis anterior.
- Toe walking assesses the gastrocnemius and soleus.
- Resisted leg extensions test the strength of the quadriceps.
- Resisted hip flexion tests the strength of psoas.
- Resisted leg flexion tests the strength of the hamstring.

- Resisted thigh extension tests the strength of the gluteous maximus.

Now that we have reviewed some key tests to evaluate risk of falling, let's look at a sample care plan to help improve strength and balance.

As always, prescriptions for physical activity need to take into account both the patient's ability and motivation.<sup>13</sup> It is important to identify the patient's barriers and then to develop a program that will work for that individual.

When prescribing corrective exercises, be as specific as possible. Indicate the type of activity they should do, for example swimming, walking, or weight training.<sup>13</sup>

Indicate the frequency – how many times a day or week should they exercise?.

Also, indicate the intensity and duration – how long should each exercise activity last?

And what should the patient do if they experience discomfort or pain.

Here are some suggestions to consider.

Cardio training for older Canadians can be as simple as walking several times a day. Judge your patient's abilities and modify your recommendations accordingly. Help your patient think "out of the box". Rainy day? Go for a walk in the mall.<sup>14</sup>

Similarly, modify your strength training recommendations to suit the patient and his or her circumstances. Make it easy – bicep curls can be done while watching TV.

Lower limb strength is an essential factor in falls prevention.<sup>15</sup> Leg extensions are an easy way to strengthen the lower limbs. Help patients feel comfortable by starting out at a level they can achieve – even if they can only extend and raise their leg a few inches.

Balance exercises such as standing on one leg or turning, are very helpful for patients.

Relatively simple knee bends can be performed by most older Canadians and may be a good place to start with individuals who lack confidence or are very unsteady.

Demonstrate balance exercises with the patient to judge their abilities. This will allow you to

modify your prescription accordingly.<sup>14</sup>

For stretching exercises, again – walk your patient through the recommended stretches to demonstrate correct technique.<sup>14</sup> For example, the patient should be told not bob or bounce when stretching. Have the patient demonstrate the stretches for you on subsequent visits.

If a patient is unlikely to do stretches on their own, encourage him/her to join a group class such as yoga, pilates or Tai Chi.<sup>14,16,17</sup>

This concludes our video presentation. I hope you have found it informative and useful. Please also take a look at the support materials on this disk. They include:

- A copy of the Report on Seniors' Falls in Canada
- Patient education materials
- The Berg Balance tests and rating scale
- A transcript of this video for easy reference.

Thank you for taking an interest in the CCA's Best Foot Forward program.

2007

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