

Stand Tall: How to Prevent Falls

Treadmills, balloons and other tricks to help you keep your balance

By: [Cathie Gandel](#) | Source: AARP Bulletin Today | March 5, 2010

With record snowfall hitting much of the country this winter, many streets, sidewalks and steps have been annoyingly slippery and hard to navigate. For older people, though, these slick walkways can be treacherous, even deadly.

On any given day—even a day without snow—every 18 seconds, an older adult lands in the emergency room because of a fall. And nearly 23,000 deaths a year are linked to falls. *Washington Post* publisher Katharine Graham and Robert Atkins, M.D, of Atkins diet fame, for example, both died as a result of falls.

But last winter—when her dog yanked on the leash during a walk on an icy sidewalk—Sandra Perkins was prepared. The 65-year-old retired nurse from Hazel Crest, Ill. , had just finished a training program at the University of Illinois at Chicago where she practiced recovering from slips and trips. Twice a week for two weeks, Perkins put on a harness, stepped on a specially designed treadmill and learned how to respond to slippery situations created by the researchers.

“What I’d learned to do on the treadmill became automatic, and I didn’t hit the ground,” Perkins says. More than a third of people age 65 and older fall each year, according to the Centers for Disease Control and Prevention (CDC). Deaths from falls are largely due to head injuries or hip fractures that lead to extended hospitalizations.

CDC figures in 2006 showed that falls contributed to 1.8 million emergency room visits by Americans age 65 and older. By 2008, that number had climbed to 2.1 million.

And the problem, says Judy A. Stevens, a senior epidemiologist with the [CDC’s Injury Center](#), is going to continue to get worse as the population ages.

But researchers, scientists and doctors are not giving up. They’re in a race against time to use new technologies—and old—to prevent falls. Indeed, just talking to a doctor about how to avoid a spill can be vital.

The CDC’s Stevens says learning how to prevent falls not only helps people avoid injuries, but also helps them preserve their independence, their ability to walk to the store, visit friends, navigate their own homes.

The federal government supports these anti-fall efforts through the Safety of Seniors Act (SOS), enacted in 2008 to fund projects, research and education. Sen. Barbara Mikulski, D-Md., one of the bill’s sponsors, called falls among the aging a “serious public health issue.”

Pain, canes and elevators

Loss of balance, weak muscles, impaired vision, medications and hazards in the home are most often blamed for falls.

And recent research has turned up other causes of falls and ways to address them, including:

- **Control pain:** Chronic or severe pain can lead to falls in part because the body may alter posture and movement to adapt to the pain. “Older people may tend to minimize or dismiss pain,” but they shouldn’t, says Suzanne G. Leveille, professor of nursing at the University of Massachusetts, Boston, and lead author of a November study in the *Journal of the American Medical Association*. [Researchers found that those with severe pain were 77 percent more likely](#)

[to fall compared with those without pain](#). Work with your doctor to manage pain and treat the underlying conditions, such as arthritis, that cause the pain.

- **Test for inner-ear disorder:** An inner-ear disorder called [vestibular dysfunction may cause dizziness](#) and affect balance. Your physician can test your balance by asking you to stand with your eyes open and then closed, first on the floor and then on a foam mat.
- **Adjust medications:** While medications can increase the risk for falls, sedatives and antidepressants may be particularly dangerous, according to an analysis of findings from 22 studies.
- **Use canes properly:** Improper use of canes and walkers sends 47,000 older people to the emergency room each year. Don't borrow these devices; have a physical therapist fit you with one and teach you how to use the aid.
- **Don't let pets trip you up:** Pets are responsible for 21,000 older adults being treated for falls every year. Don't let pets lie next to the bed or at the foot of your chair, and keep their toys off the middle of the floor.
- **Careful going up (or down):** Navigating elevators can be tricky for older adults. Between 1990 and 2006, more than half of the 2,600 [elevator injuries in adults over age 65 that were severe enough to require a trip to the emergency room were the result of a slip](#), trip or fall, according to a new study. Take your time, don't run for the elevator, and don't stick an arm, a leg or a walker into a closing elevator door.

Ask your doctor

Unfortunately, knowing why we fall doesn't seem to translate into fewer falls. Often older adults don't admit to vulnerability or even to having had a fall, and so they don't take steps to prevent them. Jeffrey Kaye, M.D., director of the [Oregon Center for Aging and Technology](#) at Oregon Health and Science University, has learned that firsthand. He and his colleagues placed wireless sensors in the homes of volunteers and monitored their movements. The participants in the ongoing study are asked every week if they have fallen.

A "yes" doesn't result in any difference in their walking according to the sensors.

"They get up and they say 'I fell' but they are able to walk and they just go about their business," Kaye says. Although the home sensor system shows that people fell, "it doesn't change their behavior, at least in the short term, in any obvious way."

So what's the best way to break this cycle?

Having a doctor evaluate patients' risk for falls is the most important step people can take, says Stevens of the CDC's Injury Center.

High-tech solutions

While the ancient practice of tai chi and other programs can improve balance, the latest technology may also help in the fight against falls.

Perkins from Illinois was in a pioneering program where she and others got on a treadmill, wearing a harness that held them up if they fell. As researchers unexpectedly speeded up or slowed down the treadmill, people would often fall the first time but quickly learn to catch themselves. That was no surprise to Mark Grabiner, professor of kinesiology and bioengineering at the University of Illinois at Chicago, who designed the program. He and his colleagues have been studying how older adults fall in

order to train them not to—whether by taking a short step, a long step or even a couple of steps to help them regain their balance.

“The beauty of this is that we really don’t have to teach anybody anything,” says Grabiner. “We put them on the treadmill, and the nervous system does the rest. It’s so cool.” Grabiner says the treadmill helps re-train nerves and muscles to respond automatically when people trip or slip.

Researchers in Australia are testing the Nintendo Wii balance board’s effects on older adults. And in a pilot study in New Hampshire called [ActiveStep, a computer-controlled treadmill with a support harness that simulates slips and trips](#) has been shown to reduce falls by 40 percent when used with traditional physical therapy.

Balloon volleyball

Tonya Walton, who teaches a six-week fall-prevention class at [Friendship Village Community Center](#) in Chevy Chase, Md., says she uses low-tech measures to achieve similar results. Class members play volleyball with balloons, play catch with tennis balls and participate in other games that improve eye-hand coordination and movement. She also teaches simple strength and balance exercises—like walking toe-to-heel. Walton says as her students enjoy the games, their bodies remember how they moved when they were children. Stiff gaits relax and balance returns. It’s the same effect the university researchers are creating, but without the harness or treadmill.

“People come back to me after the class is over and say they are no longer afraid when they walk outside,” Walton says.

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