

Building balance: Poise yourself on one foot or use computer program to assess stability

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James Kaiser of Webster balances on the Equilibrate System, created by Balance Engineering of Rochester, formed in 2009.
JAMIE GERMANO staff photographer

Kathleen Barbehenn checks her balance as she goes about her day.

When the 63-year-old Ontario, Wayne County, woman is in the checkout line at the grocery store, she rests her hands on the cart and stands on one foot. At home, she'll try to take off a shoe without having to lean against a wall.

She poses a challenge: "Can you get up from a chair without having to use both hands?"

"Ways to assess balance range from Barbehenn's no-tech approach to a high-tech device being marketed by a Henrietta startup company that measures the stability of your upper and lower body.

Either approach can yield vital information to seniors and baby boomers concerned about how they literally will stay on their feet as they get older.

Among adults 65 and older, an estimated one in three will have a fall each year, according to the National Safety Council. Hip fractures, primarily the result of falls, account for approximately

300,000 hospitalizations each year. While medication and illness can cause falls, many are the result of fractures caused by the bone-thinning disease osteoporosis, which often is thought of as a women's ailment. However, about 2 million U.S. men are affected, and by age 65 or 70, men and women lose bone mass at the same rate.

A fall can be life-changing, as nearly half who survive a hip fracture never regain full mobility and 20 percent die within a year of the event.

While strong legs and solid core muscles can make you feel sturdy, balance also relies on your vision, inner ear and nervous system.

Health professionals can check those by having you stand, walk forward, backward, to the side, rotate your body or they can time how long it takes you to complete a movement.

You can feel yourself wobble, and anyone watching can see that you're unsteady.

But balance issues can be subtle. Balance Engineering in Henrietta, formed in 2009, has developed a way to pick up early signs of unsteadiness that could lead to falls.

The company uses technology similar to sports video games where you become the athlete. Its system detects how evenly your body weight is distributed and if you sway even a little bit when you're supposed to be standing still.

You stand on a low platform, like the balance board in the Nintendo Wii Fit, which gauges how much force you exert with each leg. Unlike other balance systems that measure only the lower body, the Equilibrate System also picks up any movement in your upper body. Users don a vest with seven adjustable sensors, and two cameras focus on those points to capture any movement.

Assessments are made as you stand on both feet and then one foot. The device also can measure balance in a simulated stride. Michael Compisi, president of Balance Engineering, says the system provides objective, precise measurements and can pinpoint weak areas. "It paints a picture fairly quickly."

Daniel Geen, an owner at Genesee Valley Physical Therapy, has been testing the \$12,500 device and offering suggestions. He says that the system can help physical therapists teach patients about balance and how to correct a problem. Giving patients that knowledge usually helps them stay with their program.

Dr. Michael Maloney, director of University Sports Medicine at the University of Rochester Medical Center, is familiar with the technology but has not used the Equilibrate System.

He said that baby boomers are frequent physical therapy patients. Having a device to assess balance and detect problem areas can keep aging athletes in the game and sedentary seniors in their homes.

"If you're considered out of balance, the risk of falling is greater," he says. "This could be a valuable tool for people to help determine their independence."

While physical problems can be factors in a fall, so can fear or even isolation.

"Less interaction can make you become more anxious and can contribute to falling," says Mary Beth Gueldner, director of RSVP, the volunteer recruitment and referral service at Lifespan of Greater Rochester. "If you're too cautious, what you're trying to avoid is what happens to you."

The agency offers a fall-prevention program called A Matter of Balance, which encourages participants to combat that sense of resignation. "It helps them be able to face their fear about falling and do something about it," she said.

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