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YOUR HEALTH | 70 AND UP

The Boston Globe

## Balancing Act Memory isn't the only thing that begins to fade as we get old.

By Pamela Ferdinand | December 4, 2005

The older we get, the less stable we become. An estimated 1 out of 3 people age 65 and older report chronic dizziness. And nearly 40 percent of all people with inner-ear disorders reported a fall within the last six months, with hip fractures and their potentially fatal complications high on the list of injuries. "Balance-related falls cause about one-half of the accidental deaths in the elderly population, so it's a real problem," says Conrad Wall 3d, the founder and director of the Jenks Vestibular Diagnostic Laboratory at the Massachusetts Eye and Ear Infirmary.

Wall's lab is testing its latest invention: a battery-powered feedback device also known as a balance belt. A ring of tiny patches attached to an elastic band vibrates like a pager or cellphone when the wearer begins tilting in a particular direction. Leaning forward, for instance, the wearer feels gradually intensifying vibrations near the navel. The sensation triggers an almost reflexlike response to shift the body in the opposite direction. The trick, says Wall, has been to create vibration that is neither too strong (and alarming) nor too ticklish.

Researchers used the mechanical equivalent of a banana peel to try to gently trip test subjects wearing the device. Preliminary results showed belted walkers were more stable, swaying less and falling less often. Now Wall is testing people wearing the device for longer periods of time and under more "real-life" conditions. He anticipates the balance belt could retail for about the price of a hearing aid.

His lab also is working along with others on a vestibular implant - similar to a cochlear implant for the hearing-impaired - that would monitor head movement and stimulate the nerves carrying information about balance and motion from the inner ear to the brain. The technology is "almost there" to accomplish this feat, Wall says. However, because an implant would require surgery, devices such as the balance belt may be better suited to older individuals.

### Catching Alzheimer's Earlier

The risk of Alzheimer's increases dramatically in your 70s. Researchers are testing therapies with the potential to halt its progress, prevent further deterioration, and potentially restore function. They also are increasingly using brain scans to try to identify those most at risk for developing the disease, says Dr. Reisa Sperling of the Memory Disorders Unit at Brigham and Women's Hospital. A new study is testing whether brain scans, among other methods, can be combined to measure the progression of mild impairment and early Alzheimer's. Also, the discovery of a compound that lights up on PET scans may eventually help with early detection and improve diagnosis and treatment.

### Seeing Is Believing

Glaucoma is a disease of aging that permanently damages the optic nerve, leading to vision loss and blindness. The most common screening technique measures pressure in the eye from fluid buildup. Eyedrops and surgery, often with lasers, remain the mainstays of treatment. Now more attention is being paid to improved imaging of the optic nerve itself, which connects the retina to the brain, says Dr. Cynthia Grosskreutz, co-director of the Glaucoma Consultation Service at Massachusetts Eye and Ear Infirmary. Researchers are exploring ways to intercept biological mechanisms that cause cells in the optic nerve to die and are trying to design pills and eyedrops to fortify the optic nerve. Grosskreutz says experiments with drugs given to rats with glaucoma had "exciting results."



(Volker Steger Photo)

### A Robotic Reminder

MIT's AgeLab is finding offbeat ways to help people who forget or neglect to take their medications. A battery-powered robotic pet, or "pharm animal," in the shape of a stuffed bunny lets you program up to three medications and press a button when you comply with its reminder to take a dose. If you don't, the "bunny" gets sad, then sick, and finally dies. You could lie to it, of course. But then your grandchild - whose image is on the pet's videoscreen stomach - won't be thrilled. Says lab director Joe Coughlin, "The idea is to use guilt, emotion, and ritual to get you to do what most of us don't do rationally." The lab also has developed a "smart personal adviser." It helps you shop for foods to fit your specific dietary needs - like low carbs or no sugar. ■

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