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Institute for Aging Research Study Finds Indoor and Outdoor Falls are Different for the Elderly

Findings May Affect Interventions to Prevent Falls

BOSTON—The risk factors for indoor and outdoor falls for older adults are different, according to a new study by the Institute for Aging Research of Hebrew SeniorLife, an affiliate of Harvard Medical School, a fact that is often missed when the two are combined and may affect how falls prevention programs are structured.

“Indoor and outdoor falls are both important,” says senior author Marian T. Hannan, D.Sc., a senior scientist at the Institute for Aging Research, “but people at high risk for indoor falls are different in many ways from those at high risk of outdoor falls. Failure to separate the two can mask important information on risk factors and may hamper the effectiveness of falls prevention programs.”

Published online ([http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1532-5415/earlyview](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1532-5415/earlyview)) in the *Journal of the American Geriatrics Society*, the study found that indoor falls are associated with an inactive lifestyle, disability, and poor health, while outdoor falls are associated with higher levels of activity and average or better-than-average health.

Older adults who fell outdoors were somewhat younger than those who fell indoors, more likely to be male and better educated, and had lifestyle characteristics indicative of better health. Those who fell indoors had more physical disabilities, took more medications, and had lower cognitive function than those who fell outdoors.

The study examined 765 men and women, age 70 and older, from randomly sampled households in the Boston area. Study participants underwent a comprehensive baseline falls assessment, including a home visit and clinic examination. Falls were reported on monthly calendars submitted to the researchers. Over a nearly two-year period, 598 indoor falls and 524 outdoor falls were reported. When a participant reported a fall, a structured telephone interview was conducted to determine the circumstances.

Dr. Hannan says the study has several implications. First, a fall is not necessarily a marker of poor health. In fact, almost half of all falls occurred outdoors, and people who fell outdoors had the same or better health than those who did not fall at all. Second, epidemiological studies of risk factors for falls in older people may be hampered when falls are combined, with important associations between risk factors and indoor and outdoor falls potentially being missed. Third, intervention programs need to be tailored differently for people more likely to fall outdoors than those who tend to fall indoors.

“Most fall prevention programs emphasize the prevention of indoor falls, particularly through strength, balance and gait training; use of assistive devices; treatment of medical conditions; reduction in the use of certain medications; improvement in vision; and the elimination of home hazards,” write Dr. Hannan and her colleagues.



Many of these programs do not take into account the causes of outdoor falls, she says. Falls interventions for community-dwelling seniors, she adds, should consider their health status, activity level, and other characteristics. Most seniors who fall outdoors do so on sidewalks, streets or curbs, or in parking lots.

“Healthy, active older people should be aware of their surroundings, especially when walking outdoors,” says Dr. Hannan, an associate professor of medicine at Harvard Medical School. “More attention needs to be paid to the elimination of outdoor environmental hazards involving sidewalks, curbs and streets, such as repairing uneven surfaces, removing debris, installing ramps at intersections, and painting curbs.”

According to the Centers for Disease Control and Prevention, nearly 40 percent of seniors who live in the community fall each year, with many suffering moderate to severe injuries, including hip fractures and traumatic brain injuries. At least half of these falls occur outdoors.

The study, which was funded by the National Institutes of Health, was part of MOBILIZE Boston (Maintenance of Balance, Independent Living, Intellect and Zest in the Elderly), a long-term cohort study based at the Institute for Aging Research. The study is determining the causes of falls in older adults in order to develop new ways to prevent falls from occurring. MOBILIZE Boston is directed by principal investigator Lewis A. Lipsitz, M.D., director of the Institute for Aging Research, professor of medicine at Harvard Medical School, and a leading authority on falls.

Scientists at the Institute for Aging Research of Hebrew SeniorLife seek to transform the human experience of aging by conducting research that will ensure a life of health, dignity and productivity into advanced age. The Institute carries out rigorous medical and social studies that discover the mechanisms of age-related disease and disability; lead to the prevention, treatment and cure of disease; advance the standard of care for older people; and inform public decision-making.

Founded in 1903, Hebrew SeniorLife, an affiliate of Harvard Medical School, is a nonprofit organization devoted to innovative research, health care, education and housing that improves the lives of seniors.

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