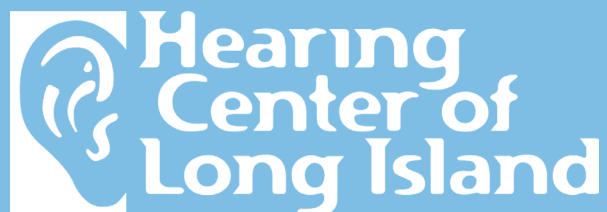


# FALLING

## AGING AMERICANS AT RISK!

The #1 cause of injury-related deaths and hospital admissions in older adults



*By Dr. Lawrence Cardano, Au.D.  
Doctor of Audiology  
Director  
Hearing Center of Long Island*

For more information call (516) 219-8768 or visit [www.HearingCenterOfLI.com](http://www.HearingCenterOfLI.com)

## INTRODUCTORY LETTER FROM DR. CARDANO

### ***"Hearing Loss increases the risk of falling 200-300%!"***

Falling is a major risk that we should all want avoid. As we age our risk of falling increases dramatically. Nearly every year, 3,000,000 older adults are brought into emergency rooms for fall-related injuries.

There is more than one reason that older adults fall more often, rather a complicated and intricate web of changes in things like strength of the lower extremities, cardiovascular function, nutritional deficiencies, medication interactions, vision problems and hearing loss that contribute to this increased risk. Although most people don't instantly think of 'hearing loss' as being a leading cause of falls, experts across a range of health care professions agree that the lack of this important sense can deprive the brain of the information it needs to best understand its surroundings, leaving you in serious danger. In the past decade, the fall death rate (i.e. the death of an older adult directly attributed to a fall) has risen over 30%, and in the next decade it is estimated that there will be approximately seven 'fall deaths' every single hour.

A fall can threaten one's safety and independence and generate enormous economic and personal expenses. It is estimated that a fall can cost a family, on average, nearly \$30,000 per incident. And, unfortunately, those who fall nearly double their risk of falling again. If you or somebody you love has had a traumatic fall, you are keenly aware of the overall health decline and increase in health care needs that are required after the incident.

While there are few certainties in life – aging is one of them and along with aging comes our near certain fate of experiencing hearing loss, tinnitus and associated cognitive deficits. Nearly 50,000,000 Americans have hearing loss to some degree, and the chances of experiencing this silent disorder increase dramatically with age, impacting:

- nearly half of people between the age of 60-70 years old
- nearly 2/3 of people between 70-80 years old
- and likely as many as 80% of people over the age of 80

Other common ear-related disorders can impact balance include Meniere's Syndrome and BPPV (Benign Paroxysmal Positional Vertigo).

This research report will outline the risk factors associated with falling in older adults, the alarming statistics with regard to falls as we age, and discuss simple, proven, and afford-able ways to reduce the risk.

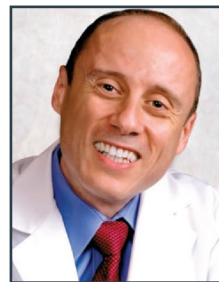
At Hearing Center of Long Island we believe that "Hearing Care Is Health Care". We encourage our patients who are at risk of falls to get the help they need from physical therapists or other medical professionals. We are dedicated to the proper treatment of hearing loss because we know the benefits it provides for overall quality of life, improvements in cognitive function, reducing the risk of dementia, and reducing the risk of life-altering falls.

Sincerely,

*Lawrence Cardano, Au.D.*

Dr. Lawrence Cardano,  
Director  
Hearing Center of Long Island

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**Dr. Lawrence Cardano, Au.D.**

Doctor of Audiology  
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## WHY WE FALL: CONTRIBUTING FACTORS

Each year, millions of older people—mostly those 65 and older—experience a fall. In fact, more than 1/3 of older adults fall each year; **but less than half actually tell their doctor.**

Did you know that falling once actually doubles your chances of falling again?

Falls are the leading cause of injury-related deaths and hospital admissions in older adults. In addition, given the decrease in bone density in older adults, **falls account for nearly 90% of hip fractures. That's right--not only are seniors more prone to falling, but they are also more susceptible to fall-related injuries such as a broken hip or head trauma.**

**Understanding why older individuals are at an increased risk can help people to take the proper steps to prevent taking that next misstep that leads to a fall.**

**“For every degree of hearing loss, your risk of falling increases another 140%.  
The proper treatment of hearing loss nearly eradicates this increased risk.”**

*— Dr. Cardano*

Several factors contribute to older adults falling much more frequently than younger people. Below is an abbreviated list of 'why' seniors are more likely to fall and more likely to die from a fall. NOTE – older adults rarely fall because of 'just one' of these factors; rather, these factors combine to lead to a serious, possibly life-threatening, fall.

1. **Decline in Physical Fitness.** Whether the result of hearing loss (which is associated with decreased physical activity) or some other physical or emotional ailment, many older adults fall as a result of being less active - which exacerbates the physical effects of aging. Failure to engage in even mild exercise on a regular basis result in reduced muscle strength, decreased bone mass, loss of balance and coordination, and reduced flexibility. Physical therapy can go a long way to help overcome the muscular weaknesses that can lead to serious falling incidents.
2. **Hearing Loss.** In the largest clinical study to date on hearing loss and falls, it was found that hearing loss can increase the risk of falling by 300%. A combination of factors can cause hearing loss to increase risk of falls. Among these are reduced situational awareness and cognitive overload.
3. **Impaired Vision.** Age-related eye diseases can make it difficult, if not impossible, to detect fall hazards, such as steps, puddles and thresholds; much like age-related hearing loss can make detecting audible signs of danger nearly impossible to hear. It is critically important that people with impaired vision follow physician recommendations for treatment.
4. **Medications.** A wide variety of medications can directly increase a senior's risk of falling. In addition, taking more than 4 medications on a daily basis increases the risks for falling. Side-effects, such as drowsiness, dizziness, and low blood pressure can all contribute to an accident. Keep in mind that over-the-counter medications and supplements can have powerful side effects and synergistic effects, too.
5. **Hypertension.** Orthostatic hypotension, a.k.a. postural hypotension, is a form of low blood pressure that happens when you stand up from sitting or lying down. Orthostatic hypotension can make you feel dizzy or lightheaded and may cause a person to faint. Typically, the symptoms are acute, lasting for less than a few minutes. However, longer-lasting orthostatic hypotension can signal more serious problems, so it is important to see a doctor if you frequently feel lightheaded when standing up.
6. **Diabetes.** About one in four older adults live with diabetes, which increases their risk of falling due to physical impairments that may make a person less steady on their feet. Research finds that an older adult living with diabetes is 17 times more likely to suffer a fall than a younger man or woman who does not have the disease. Given the connections of diabetes to hearing loss and dementia, falling can be incredibly dangerous in this population.
7. **Chronic Diseases.** Poor physical health increases a person's initial risk of falling and minimizes their ability to respond to and recover from a fall. Chronic conditions such as Parkinson's disease, stress, arthritis, and dementia can lead to weakness in extremities, balance disorders and cognitive impairment.
8. **History of Surgical Procedures.** Surgery in older adults, especially hip, knee and other joint replacements can leave a person weak, in pain and discomfort, and less mobile than they were before the procedure – leading to increased risk of falling.
9. **Environmental Hazards.** The majority of falls occur in or around the home. Many factors such as poor lighting, clutter, loose carpets, slick floors and lack of safety equipment can make a happy home a dangerous home!

## FALLS AND HEARING DISORDERS

The inner ear is responsible for hearing and balance; thus, there are many medical conditions that can impact both systems and leave a person both hearing and balance impaired.

### *Meniere's Disease*

Perhaps the most common disorder affecting both hearing and balance is Meniere's disease. Meniere's disease, sometimes referred to as a 'disorder' or 'syndrome' can

cause room-spinning vertigo, roaring tinnitus, hearing loss, and a feeling of pressure deep inside the ear. The pathophysiology (cause) of this disorder is the result of excess fluid trapped inside the inner ear, often referred to as 'Endolymphatic Hydrops' (i.e. endolymph is the fluid inside the inner ear that drives cellular activity related to both hearing and balance). The increase of fluid pressure in the ear will impact both the auditory and balance centers and send misguided information to the brain, rendering the patient deprived of sound input with the feeling of dizziness.

The cause of Meniere's disease is considered multi-factorial, meaning the exact cause is not known and may be the



result of a number of factors, including genetic predisposition, abnormal autoimmune activity, and/or viral infection. While Meniere's disease often starts off with mild 'attacks' of symptoms that are often temporary and only affect one ear, unfortunately as the disease progresses the dizziness, hearing loss, tinnitus and aural pressure advance to both ears and become permanent. Advanced stages of the disease can render people very restricted in their quality of life.

Currently there is no 'cure' for Meniere's, but there are effective treatments available to alleviate the hearing loss and balance issues. Treatments include the following:

- **Medical Treatment of Hearing Loss.** Advanced hearing device technology should be expertly customized to provide proper cognitive stimulation and restore sound and clarity to the auditory system.
- **Medications.** The most disabling symptom of an attack of Meniere's disease is dizziness. Prescription drugs are available to relieve dizziness and shorten the attack.
- **Salt Restriction and Diuretics.** Limiting salt intake and use of diuretics (water pills) help some people control dizziness by reducing the amount of fluid the body retains, which may help lower fluid volume and pressure in the inner ear.
- **Nutritional & Dietary Changes.** Some people report that caffeine, chocolate, and alcohol make their symptoms worse and either avoid or limit them in their diet. Not smoking may also help reduce the symptoms.

## **Benign Paroxysmal Positional Vertigo (BPPV)**

This long-named vertigo-inducing disorder can strike at any time and in anybody; however, older adults are significantly more prone to experiencing BPPV. As the name implies, this benign (e.g. not harmful, not malignant) paroxysmal (e.g. sudden attack) positional (e.g. provoked by a certain position) vertigo (e.g. room spinning dizziness) can come on suddenly and drop a person to the floor.

BPPV involves a collection of naturally forming calcium carbonate crystals (otoconia), or "ear

rocks," that become dislodged and stuck in one of the semi-circular canals of the vestibular organ, which are responsible for detecting rotation of our body. This 'misinformation' sent from the canal to the brain will give a false impression that the body is moving in a certain position, when in fact it is not – thus resulting in the experience of vertigo. Symptoms of BPPV include dizziness, poor balance, lightheadedness, and nausea. They may worsen with changes in head position.

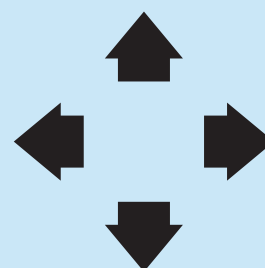
The cause of BPPV varies and may be the result of head injury or may just be sporadic (i.e. no known reason), and most often comes on without notice. There are indications that BPPV may be associated with sudden-onset hearing loss. It is possible that the inflammatory process causing sudden-onset hearing loss also dislodges otoconia (ear-rocks), causing excess short-term BPPV, but permanent structural damage or underlying common risk factors cause additional long-term excess risk for dizziness.

Benign paroxysmal positional vertigo can heal without therapy, but there are treatment options available, including head exercises, designed to move the crystals out of the inner ear structures. When hearing loss is involved, medical treatments exist to restore clarity and cognitive stimulation.

## **Hearing loss can increase your risk of a serious falling incident in at least two ways:**

### **Reduced Situational Awareness**

Our brains receive input from our ears 24 hours per day 7 seven days per week – whether we are awake or not. Much of this input we are not aware most of the time yet it is extremely important. Some of this auditory input involves sounds around you that help you be aware of your surroundings and helps you avoid falling.



### **Cognitive Overload**

With hearing loss, you need to put more mental effort into understanding conversation. This leaves less mental energy available to devote to maintaining your balance and being aware of obstructions you may trip on.





## **Preventing Falls**

**Every 13 seconds, an older adult is rushed to an emergency room because of a fall.** So many older adults are falling that it is the leading cause of accidental death in this age group (> 65 years young). However, despite the fact that the rate of fatal falls is at an all-time high, and continues to increase, most — if not all — falls are preventable. Taking simple steps to avoid falling can help keep you from the emotional, physical and financial burden of caring for yourself, or a loved one, who has fallen.

Given the list on the previous page in the **'Why We Fall'** section of this report, it makes sense that if these issues are addressed, one can significantly decrease their risk of a disastrous fall.

**Physical Therapy and Exercise.** If you are at risk for falls- especially if you have already had a falling incident, physical therapy can help to greatly reduce your risk. Depending on your case, a physical therapist may use therapeutic exercise, neuro re-education and gait training.

Regular exercise can help prevent falls by making muscles stronger and more flexible, improve your balance and increase how long you can stay active for. Any exercise regimen should be approved by a primary care physician. Some sample exercises to improve balance include:

- moderate intensity exercise (e.g. you can still carry on a conversation while you exercise), 150 minutes per week
- walking indoors in inclement weather

- leg extensions
- knee curls, etc.

If a person experiences any pain, dizziness, or problems breathing during or after any exercise, stop and seek medical attention. Start at a slow pace: 5-10 minutes a day.

**Hearing Loss.** Not being able to hear what is happening in your surroundings well can be dangerous. In addition, walking properly and staying upright while navigating through your environment takes more mental activity that you would expect. The extra mental effort required to concentrate on what you are try to hear when you hear poorly reduces the mental reserves left that can be devoted to avoiding a fall. In the largest clinical study to date on hearing loss and falls, it was found that hearing loss can increase the risk of falling by 300%.

**Evaluate medications.** If you are taking medications, be sure to review with your pharmacist potential side effects, including increased risk of falling. Note that prescription, over-the-counter medications and supplements can cause dizziness and drowsiness, especially when taken together. Medications can also lower blood pressure, thus increasing rates of orthostatic hypotension.

**Check your vision.** According to the Mayo Clinic, older adults should have their eyes examined once per year. An eye exam helps detect eye problems at their earliest stage — *when they're most treatable*. Your balance organ and visual system are intimately tied together, and a deficit in either can impact your balance. In addition, individuals

with distance vision problems are 2-3 times more likely to develop cognitive impairment (compared to those with normal vision). If you are prescribed glasses - wear them! **Note** – when receiving a new prescription, allow time for your brain to adapt, as this adaptation period may leave people more prone to a misstep and a fall.

**Make your home safer.** The data is clear; most people (~78%) fall at home! Nearly 55% of falls occur inside the home and nearly 23% happen outside or near the home. There are many no-cost and low-cost changes that one can make to their home to reduce the fall hazard. For example:

- Remove clutter from stairs and walkways.
- Rearrange furniture and cords so they are not a trip hazard.
- Remove throw rugs (yes, even the pretty ones!).

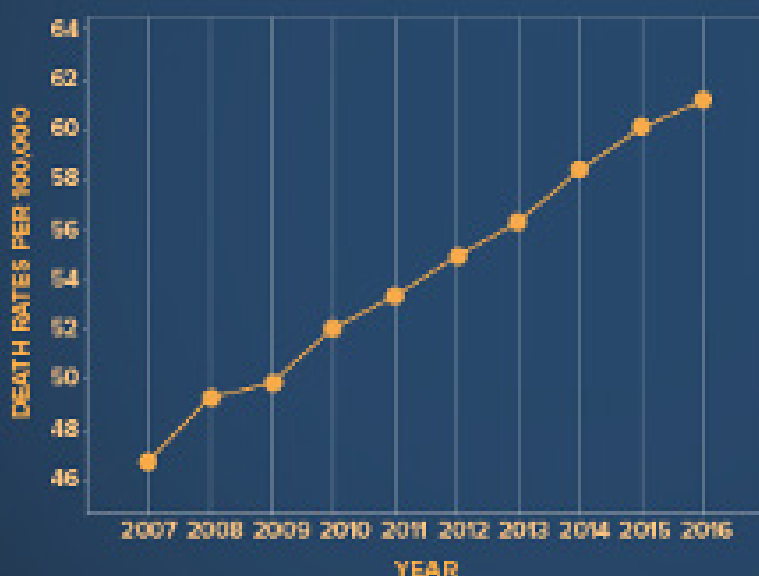
- Make sure you place your phone near the floor in case you fall and cannot stand to reach it.
- Use non-slip rubber bathmats.
- Wear non-slip slippers/socks.
- Install stairwell lighting and grab bars in the bathroom.
- When appropriate, invest in a home emergency response system with a fall detection device to alert emergency responders when you fall.

Although falling can have a devastating effect on one's life, falls are considered preventable. For those living with risk factors, it is important to reduce the risk by taking some of the simple steps outlined in this report. If you have any questions call us at (516) 219-8768 or contact us by e-mail at [info@HearingCenterofLI.com](mailto:info@HearingCenterofLI.com)

# Fall Death Rates in the U.S.

## INCREASED 30%

FROM 2007 TO 2016 FOR OLDER ADULTS



Learn more at [www.cdc.gov/HomeandRecreationalSafety](http://www.cdc.gov/HomeandRecreationalSafety).

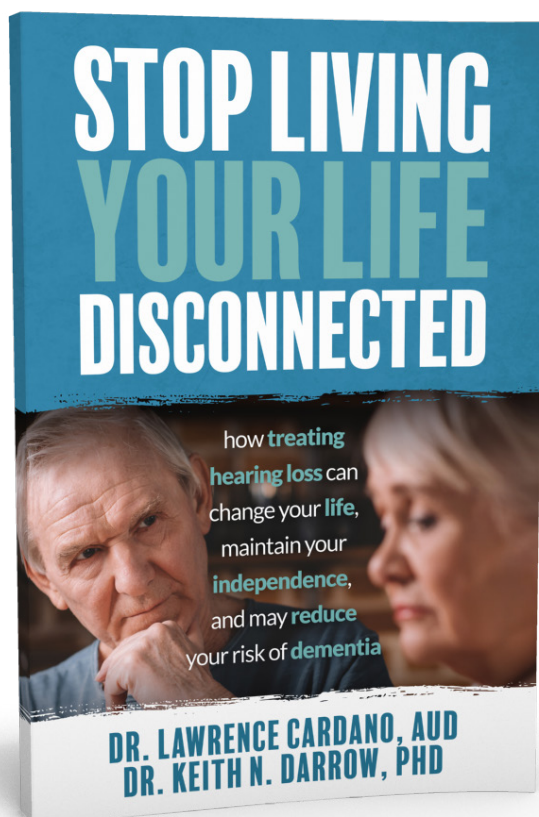
If rates continue to rise,  
we can anticipate

**7 FALL  
DEATHS  
EVERY HOUR  
BY 2030**





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