

Senior Fall-Prevention Resources-- What is Missing?

It's Not Just How to Prevent Falls, It's How to Prevent Injuries From Falls

For Seniors and at-risk-of-falls populations, maintaining a healthy and active lifestyle is an important factor in maintaining physical strength and balance to help prevent falls. There is an abundance of excellent data, advice and resources on Fall Prevention:

For example, according to research and data from the National Safety Council ([NSC](#)) and the Center for Disease Control ([CDC](#)), some of the main **risk factors associated with falls** amongst the elderly are:

1. *Recurring Falls:* A history of falls is associated with an increased risk of recurring falls. If an elderly person has already fallen once they are more likely to fall again.
2. *Age:* Risk of falling increases with age, especially for older women.
3. *Living alone:* Elderly adults who live alone tend to have a greater ability to function. However, when you live alone, injuries from falls can be worse especially if the fall results in the person getting stuck on the floor, unable to get up.
4. *Medications:* Many medications can be associated with an increased risk of falling especially if an elderly person is taking multiple medications at once.
5. *Slippery Surfaces:* The most common areas of the home where falls occur are bathrooms & kitchens. Any floor area that is susceptible to water accumulation is potentially dangerous.
6. *Home Layout:* While most falls occur in the bathroom and bedroom, they also happen in any room where there are uneven surfaces, rugs w/abrupt edges, poor lighting or objects in commonly used pathways (i.e. between the bedroom & bathroom, on the way from the living room to the kitchen, etc.).

Knowing the primary risk factors provides a guide to a wide assortment of **advice on how to prevent the chance of a fall**, including:

1. *Talk to your doctor:* Review medications that may affect your balance, and get your hearing and vision checked out.
2. *Avoid slippery surfaces:* Most senior falls take place in the bathroom.
3. *Fall-proof your home:* Install raised toilet seats, incorporating grab bars and other supportive structures.
4. *Exercise:* Regular exercise matters for fall prevention as much as it does for cardiovascular health. Frequent walks, participation in exercise program that builds up your balance, strength, and flexibility, such as Tai Chi.
5. *Use assistive devices:* Walkers and wheelchairs, stair-lifts, etc. can facilitate movement while reducing the risk of falls.
6. *Update corrective vision:* Visit an optometrist to make sure corrective vision needs are being met.
7. *Improve in-home lighting:* Ensure that rooms and passages are well lit, install night-lights & motion sensors.
8. *Consider sleeping downstairs:* Switch to a first-floor room.

9. *Talk to your family members.* Although millions of older adults fall every year, less than half tell their doctor or family.

Some good fall prevention resources are:

- Fall Prevention Center of Excellence
 - <http://stopfalls.org>
- National Council on Aging
 - <https://www.ncoa.org/healthy-aging/falls-prevention>
- U.S. Center for Disease Control
 - <https://www.cdc.gov/HomeandRecreationalSafety/Falls/fallcost.html>
- National Directory of Home Modification and Repair Resources
 - <http://www.programsforelderly.com/housing-national-directory-home-modificaton-repair-usc.php>

Likewise, for the those who wish to be an advocate for fall prevention issues, there is robust community with which to become involved:

- Fall Prevention Center of Excellence
 - <http://stopfalls.org/advocacy/>
- National Council on Aging
 - <https://www.ncoa.org/healthy-aging/falls-prevention/falls-free-initiative/>

Dose of Reality

Even with so much well-deserved, appropriate and critical emphasis on fall prevention, the reality is that falls still occur. Consider that it isn't the fall that can cause a life changing event, it's the landing! Preventing a fall is one thing, preventing a fall-related injury is something else altogether. So, please **DON'T FALL**, but if you do **DON'T BREAK**.

The Missing Resource

When it comes to resources on how to prevent falls, there are plenty. But if the objective is "DON'T BREAK", (perhaps the most important component of retaining independence as a senior) wide dissemination of knowledge comparatively thin. An answer: **Fall Protection Flooring**. The logic is simple. If falling on a hard surface can cause impact-related injuries (breaks, concussions, contusions, skin tears, etc.) then falling on a softer surface can reduce impact related injuries. More on that, later in this article.

Many are fortunate enough to walk away from a fall, but for those who sustain an injury the statistics are sobering:

- About one-third of the senior population over the age of 65 falls each year, and two-thirds of those fallers will fall again within 6 months.
- Falls are the leading cause of death from injury among people 65 and older, and the risk of falls increases proportionately with age. At 80 years, over half of seniors fall annually. Falls account for 87% of all fractures among people aged 65 years or older.

- 20% of those who fall and break a hip or suffer a Traumatic Brain Injury (TBI), die within six months of the injury. That's about one every 19 minutes.
- Hospitalization after a fall leaves the elderly more vulnerable to hospital-acquired infections, such as pneumonia, sepsis, C. diff, and catheter-associated urinary tract infections (UTIs). Matters can be complicated further if an infection is resistant to commonly used antibiotic drugs.
- About half of all seniors hospitalized for hip fracture cannot return home or live independently after the fall. Only 22% of seniors in a University of Mississippi study could handle living on their own after being released from the hospital following a fall.
- Every 11 seconds an older adult is treated in an emergency room for a fall

Even without an injury, a fall or fear of falling can significantly alter quality-of-life, including:

- Limited activities, which increases the likelihood of a fall due physical decline
- Reduced social interactions resulting in depression, isolation, and feelings of helplessness
- Loss of independence

Additionally, your fall may be like a rock thrown into a lake, creating ripples that affect all those around you -- spouse, children and grandchildren, extended family members and care providers. An article by Eduardo Porter of the New York Times reports that the burden of care for aging relatives is reshaping the lives of millions. About 15% of women and 13% of men 25 to 54 years old spend time caring for an older relative, according to the U.S. Labor Department. Among those 55 to 64, the share rises to 1 in 5 Americans. And 20% of those caregivers also have children at home. More than 45% have full or part-time jobs. Caring for an ill or injured spouse or parent can stunt careers, weigh heavily on marriages, and hinder the ability to open up the next chapter in a care-giver's life.

And then there is the financial burden. The Genworth Cost of Care Survey estimated that the median annual cost for homemaker-type senior care services in the case of an individual requiring daytime or full-time care in shifts is \$183,960, reports *Forbes*. The cost totals \$100,375 for private-room nursing community care.

If you are lucky enough to have long-term care (LTC) insurance, the trend has been toward significant rate increases and reduced benefits as fewer and fewer companies choose to offer LTC insurance. Financial pressures have left only about a dozen companies selling new coverage, down from more than 100 just a few years ago.

So, clearly, avoiding fall-related injuries is a high priority. We don't make this point to sow doom and gloom, but to assure you that there is an effective, simple solution that can protect you from fall-related injuries and keep you from becoming a statistic.

What to do? Here is an answer -- **SmartCells® Fall Protection Flooring** -- a stable, firm surface proven highly effective at reducing up to 90% of impact forces, while at the same time providing stability for balance-impaired persons and care-givers.

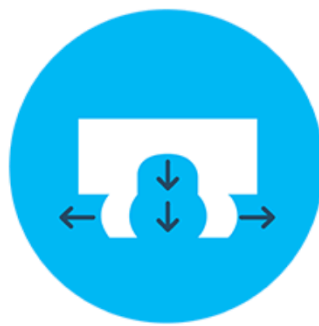
The SmartCells® cushioning technology is a flooring underlayment (under carpet or vinyl) where falls are likely to occur and serves as a “always there” passive intervention, providing security and dramatically reducing the likelihood of fall-related injuries, even when a caregiver isn’t present.

Here is how the SmartCells® cushioning technology works. The SmartCells® patented, dual-stiffness structure becomes softer under impact while at the same time providing stability for balance-impaired persons and care-givers.

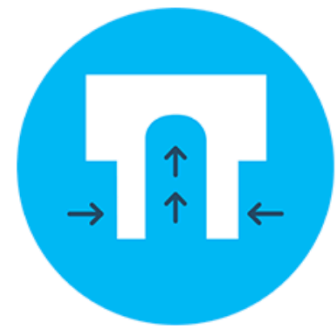
SmartCells® Cushioning Mechanism



Stable at Rest



Cushion on Impact



Energy Return

SmartCells® cushioning technology products have a “resting state” – much like a non-compressed spring – with a natural, supportive, upright force that provides a compressible, soft surface that is also stable and supportive.

SmartCells® Cushioning Products compress and absorb pressure/impact energy from standing, weight-shifting, walking, or from the impact of a fall. After reaching a “critical threshold” the cellular structures soften and collapse laterally, without bottoming out. SmartCells® get softer as force is applied and remain in this cushioned “sweet spot” for as long as the pressure remains.

Like miniature springs, SmartCells® store impact energy until pressure is reduced or eliminated. The SmartCells® resilient rubber material and structure work “in-phase” with body movements to actively rebound, releasing their stored energy to provide stability and support, especially for balance-impaired persons.

Research

SATECH, Inc., the manufacturer of SmartCells® Fall Protection Flooring, has relied on extensive, published external research for all assertions and evidence about the effectiveness of the flooring to reduce fall-related injuries. Typical published, common-sense assumptions are accepted and stated as the foundations of these studies:

- “Preliminary evidence suggested compliant flooring may be effective at preventing fall-related injuries in long-term care.”
- “Controlled laboratory studies have shown that specific types of compliant flooring provide meaningful amounts of force attenuation and energy absorption during impact.”
- “Extensive biomechanical research demonstrates that specific types of compliant flooring provide substantial impact force attenuation without impairing balance or mobility during daily activities.”

Compliant Flooring Published Research Excerpts:

Dual-stiffness flooring is effective in preventing falls in addition to preventing injuries from falls

- “Results from our study of 1,907 falls provide strong evidence that the compliant flooring we tested does not influence [cause] falls in the LTC setting.”
- “...the rate of serious injury on the SmartCells® floor was still 28% smaller than the rate on the control, even with all the limitations mentioned in the study. Additionally, the rate of minor injuries on the SmartCells® floor was reduced by 15%.” (Considering both serious and minor injuries the injury reduction rate on SmartCells flooring is 43%.)
- “Overall, these results suggest that the safety floors we tested effectively addressed two competing demands required to reduce fall-related injury risk; namely the ability to absorb substantial impact energy without increasing footfall deflections. This study contributes to the literature suggesting that safety floors are a promising intervention for reducing fall-related injury risk in older adults.”
- “LIF (Low Impact Flooring) significantly reduced fall-related injuries compared with a standard vinyl flooring, whereas they did not alter the overall risk of falling.”
- “There was a tendency for residents falling on DSF (Dual Stiffness Flooring) to have less bruising and abrasions, while having more redness and cuts. There were 2 fractures on regular flooring (2.4% fracture rate) and none on the DSF flooring (0% fracture rate). The fracture rate of 2.4% of falls on the regular floor is consistent with previous reports in the literature, whereas a 0% rate found on the DSF floor is a clinically significant improvement.”

Compliant flooring reduces impact forces

- “This study demonstrates that during 'high severity' simulated impacts, novel compliant floors can substantially reduce the forces and accelerations applied to a head-form compared to common floors including carpet and resilient rubber. In combination with reports of minimal balance impairments, these findings support the promise of novel compliant floors as a biomechanically effective strategy for reducing fall-related injuries including traumatic brain injuries and skull fractures.”

- “Impact forces were 20–80% lower, and the authors reported that the risk of a moderate head injury (based on Head Injury Criteria) is 5–25% for a head impact on NCF (Novel Compliant Flooring) versus an 80–90% risk on carpet.”
- “With NO Flooring Protection -- A feet-first fall from a bed (most likely scenario) with NO floor protection has an approximate *25% likelihood* of causing severe brain damage.”
- “WITH Flooring Protection -- A feet-first fall from a bed (most likely scenario) WITH floor protection has a *less than 1% likelihood* of causing severe brain damage.”

Specific Fall Protection flooring can have a positive effect on balance.

- “Compliant floors can attenuate femoral impact force by up to 50% while having only limited influence on balance in older women.”
- “This study illustrates that the SmartCells®... novel compliant floors have minimal influences on balance and balance control responses...caused no impairments in ability to recover balance ...ranked as high for balance confidence and practicality [as normal floors].”
- “While all floors affected postural sway during quiet stance, the effect was most dramatic for Firm Foam, which caused more than a doubling in sway range and velocity. **SmartCells® is statistically indistinguishable from a standard rigid floor.**”
- “Compliant flooring... did not affect risk for falls.”

Aging has unique challenges that can stack the odds against remaining vibrant, productive, healthy and happy and financially secure. Utilizing SmartCells® Fall Protection Flooring can help you beat the odds, and reduce the risks associated with Fall-related injuries.

Steps to take:

1. **Prevent falls** -- stay healthy, active and strong
2. **Take advantage of the resources** -- **DON'T FALL. DON'T BREAK.**
3. **Contact SATECH, Inc.** for further information: info@SmartCellsUSA.com or visit www.SmartcellsUSA.com