

Impact Absorbing Flooring

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Topic:	Impact absorbing flooring or flooring developed to reduce the risk of injury from falls- different types and effectiveness.
Purpose:	A resource for clinical/organizational decision-making in long-term care

Summary¹

- Studies in seven countries, including Canada have found low-impact, compliant flooring can significantly reduce injuries and may also prevent fractures and fall-related injuries [1,4,5].
- Types of low-impact flooring (LIF) being studied for clinical and cost-effectiveness include 3 different LIFs (SoftTile, Kradal, and SmartCell) [5,6,10,11], with SmartCell tested in Canada.
- Compliant flooring is a passive fall injury measure that does not require elderly people in residential care to make decisions, adapt or actively participate in a prevention program nor require user compliance (in contrast to protectors, exercise, drugs) to be effective [1, 13].
- Low-impact compliant flooring may increase staff comfort during walking, [1,5] or benefit care staff by decrease in fall-related injuries [1] and could reduce health care costs [12].
- Financial disadvantages include: compliant flooring costs more than standard flooring; lack of cost-effectiveness analyses for the care facilities (potential benefits of health care savings from fewer injuries are realized by government, not those who install the flooring); and lack of funding or resources for retrofitting floors [1,3].
- Some evidence shows compliant flooring causing rolling resistance when moving heavy equipment making it difficult to maneuver equipment [5, 6]. Studies are underway in Canada and Sweden to identify a flooring type that can reduce this resistance [2, 8, 10].
- A comprehensive multimethod evaluation of compliant flooring in long-term care (LTC) has been undertaken in a recent Canadian [doctoral dissertation](#) at Simon Fraser University as part of an ongoing randomized trial ([FLIP Study](#)) [9]. It examines the above issues, and organizational barriers and facilitators for LTC stakeholders of implementing such flooring. The findings suggest that while stakeholders perceive compliant flooring to add value to the LTC setting, there are uncertainties about clinical effectiveness, effects on staff, and flooring performance, and informational and financial barriers to the uptake of compliant flooring.
- A recent Swedish qualitative study [13] of frail elderly in residential care found that the study participants appreciate the potentially protective capacity of compliant flooring.
- Related work on aging and the effect of safety flooring is underway in the Injury Biomechanics and Aging Laboratory, University of Waterloo Department of Kinesiology

¹ References indicated by number in square brackets [] are on the following page

Canadian Research Contacts on Low-impact/Compliant Flooring

Chantelle Lachance Research gate profile Twitter: @CLachance	Supervisor: Dawn C. Mackey Director, Aging and Population Health Lab Simon Fraser University
Fall-Related Injury Prevention (FLIP Study) . Technology for Injury Prevention in Seniors This project involves an ongoing randomized trial of a flooring intervention to prevent fall-related injuries at a long-term care facility, as well as an evaluation of the intervention's cost-effectiveness.	
Taylor Winberg Graduate Student , Department of Kinesiology, University of Waterloo	Supervisor: Dr. Andrew Laing Director, Injury Biomechanics and Aging Laboratory Department of Kinesiology, University of Waterloo
Reactive balance control: the roles of aging and the effect of compliant/safety floors. Slips, Trips and Falls International Conference. June 2017. Toronto Rehabilitation Institute (TRI) http://www.slipstripsfallstri.com/ Program for Slips, Trips and Falls conference	

References on Compliant Flooring to Prevent Falls in Long Term Care

Key reference – PhD thesis: Compliant flooring for fall injury prevention in long-term care. Chantelle Lachance. 2017. Biomedical Physiology and Kinesiology - PhD Thesis, Simon Fraser University. <http://summit.sfu.ca/item/17249>

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