



DALHOUSIE
UNIVERSITY

FACULTY OF MEDICINE

Healthy Aging and Frailty: The Vulnerability Vector

Healthspan. It's the new concept geriatricians have coined to describe the length of time we live healthy and disease-free. As we age, we want our healthspan to match our lifespan – but most of the time, our lifespan is longer.

Atlantic Canada contains the highest percentages of older adults in the country. Currently, more than 230,000 people aged 65 and older live in Nova Scotia alone.

At one-fifth of our total population, it's critical that we improve individual healthspans so the overall health and related needs of these aging Baby Boomers and other older adults don't overwhelm our health-care system, housing, and social service needs.

Keeping this population independent, active, productive, and healthy as long as possible is vital to the well-being of our entire society. This is a critical challenge—and reducing frailty lies at the crux of solving that challenge.

Frail adults are vulnerable to diseases of aging, including cardiovascular disease, dementia, osteoarthritis, cancer, chronic obstructive pulmonary disease (COPD), and diabetes. The more health deficits, or challenges, someone has, the frailer they are likely to become.

If we are to increase our healthspan, we need to reduce our frailty. That's where Dalhousie's world leaders in healthy aging come in. They are experts in how to detect frailty, how frailty links to diseases of aging, and what we can do to reduce or prevent the vulnerability that frailty increases.

■ Newfoundland and Labrador
■ New Brunswick ■ Nova Scotia
■ Prince Edward Island



**Miss the
event?
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here!**



Dalhousie's Influential Healthy Aging Team

Dalhousie is home to a pioneering group of researchers specializing in healthy aging and frailty. The work of this multidisciplinary team of geriatricians, pharmacologists, neuroscientists, epidemiologists, and colleagues is the reason clinicians around the world now recognize frailty as more important than chronological age when assessing and treating older adults.

Dr. Ken Rockwood and the late Dr. Arnold Minsky invented the Frailty Index, a tool health-care providers all over the world use to understand their patients' degree of frailty and factor it into treatment, planning and care decisions. Researchers and policymakers also employ this index in population health studies, to learn about and design services that support their aging populations. Higher scores on the index can predict susceptibility to death, disability, and cognitive decline. Improving someone's score on the frailty index helps to prevent people's progress to those outcomes.

Thanks to the Dalhousie team, people can use an easy-to-understand pictorial version of the index to assess their own frailty. With that information, they can change their lifestyle to improve their scores, and achieve a longer healthspan.



Dalhousie's Influential Healthy Aging Team

The research Dr. Rockwood and his colleagues, post-graduate fellows, graduate students and other medical trainees have generated has sparked the creation of additional indices, such as a frailty index researchers can use in basic science work, and the social vulnerability index Dr. Jasmine Mah, one of Dr. Rockwood's graduate students, created. This index charts how engaged people are, and what supports they have, because social vulnerability is another key variable we need to achieve an excellent quality of life as we age.

Dalhousie's healthy aging researchers are global leaders. They work together across disciplines to move their ideas from basic research in their labs, to clinical trials and better policies and practices. They are dedicated and passionate about improving the quality of life for older adults, some of the most vulnerable people in our society.

The Healthy Aging team's discoveries and their unique perspective and knowledge drive improvements in how we prevent frailty and treat the diseases of aging, to make sure people live their best lives as long as possible.



Meet some of our researchers

Dr. Kenneth Rockwood is a geriatrician, Professor of Medicine (Geriatric Medicine & Neurology) and Clinical Research Professor of Frailty & Aging. He is a world-leader on frailty, and has more than 600 peer-reviewed publications and nine books to his name. He collaborates nationally and internationally. His research projects include a new study of the effects of nutrition and exercise on frailty and cardiovascular disease (the STRONG trial), understanding frailty in younger people in the United Kingdom, preventing dementia (including intergenerationally), and the effects of deprescribing medication to older adults. Dr. Rockwood also investigates the application of the frailty index, which he and a colleague created, in clinical management and practice.

Dr. Pamela Jarrett is a geriatrician and Associate Professor who collaborates nationally and internationally on research projects concerning the prevention and treatment of dementia, transitions in care, frailty, falls and hip fractures, and medication use in older adults. She also studies the impact of dementia on the healthcare and social systems, as well as how to improve care for older adults in the community. She is a member of the Canadian Ministerial Advisory Board on Dementia, which provides advice on how to implement a national dementia strategy.

Dr. Susan Howlett is a Professor of Pharmacology and Geriatric Medicine. She has discovered profound differences in male and female heart cell function, how these change with age, and how sex hormones regulate these processes. Her lab has pioneered the measurement of frailty in naturally aging animals with a novel "frailty index" (FI) tool based on deficit accumulation. Her work shows that the level of frailty rather than age alone is a better tool to grade maladaptive, age-dependent changes in heart structure and function. She has also developed a new tool based on lab results (the FI-Lab) to measure frailty in people.

Dr. Paige Moorhouse is Professor of Medicine (Geriatrics) and Senior Medical Director for the Episodic and Integrated Acute Care Network at Nova Scotia Health. Her research focuses on vascular cognition impairment; end-of-life care; driving and dementia; program evaluation and application; and care planning for older adults. She is the principal investigator for several provincial and national grants, including the NCE-funded Technology Evaluation in the Elderly (TVN) program.



Meet some of our researchers

Dr. Samuel Searle is an Assistant Professor of Medicine and a geriatrician whose research interests include frailty and cognitive impairment. He is particularly interested in how people living with frailty as residents of assisted living facilities recover from acute illnesses, and how patterns of recovery predict frailty trajectories and functional outcomes.

Dr. Melissa Andrew is a geriatrician and Professor of Geriatric Medicine. Her research topics include frailty, social vulnerability, vaccinology and cognitive impairment. As an Associate Member of the Canadian Center for Vaccinology, she works with clinicians, patients, and researchers to investigate models of care in long-term care facilities, frailty, vaccine effectiveness, and outcomes of vaccine-preventable illness and COVID-19. She also studies frailty and social context in relation to dementia, and collaborates with colleagues in primary care and social gerontology to study how models of care affect older people's health and quality of life. She's a member of Canada's National Advisory Committee on Immunization (NACI).

Dr. Olga Theou is an Assistant Professor in Physiotherapy and Medicine and holds a Canada Research Chair in Physical Activity, Mobility, and Healthy Aging. Her research delves into how best to assess and manage frailty in people living in a variety of settings, and she is considered a top scholar in writing about geriatric assessment. She also investigates whether increasing physical activity and getting people more active prevents frailty and improves the outcomes for people with chronic diseases. Her work is contributing to policies that support healthy aging and better care for older adults.

Dal's Healthy Aging group includes:

- geriatricians
- pharmacologists
- neuroscientists
- epidemiologists
- kinesiologists
- statisticians
- computer scientists

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Investing in the next generation of researchers, innovative training facilities like our new BioLabs East facility, and in pioneering discoveries will ensure Dalhousie leads the way to a better future. If you would like to know more about how you can be part of the transformative efforts of the Faculty of Medicine, reach out today.

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