A Second Heart to Improve Blood Flow and Reduce Falls

Written by Kristian Partington

More than a third of Canadians over the age of 65 will fall, often resulting in injury and a lengthy recovery. Among the many factors that can lead to an increased risk of falling is the simple fact that blood flow in the brain can change in aging bodies. This can cause dizziness and sudden loss of balance when people move from lying down or sitting to a standing position.

Beginning this spring, a new collaborative project seeks to reduce the risk of falls among older adults by targeting blood flow and rapid changes in blood pressure. Project partners include the RIA and the University of Waterloo (UW)’s departments of Mechanical and Mechatronics Engineering and Kinesiology.

The Second Heart study will assess as many as 50 older adults using a new kind of individually-tailored technology developed by UW professor Dr. Sean Peterson. The device uses compression to increase blood flow from the lower legs to the heart and the brain - think of compression socks that have the ability to turn on and off and adjust to individual needs.

Waterloo (UW)’s departments of Mechanical and Mechatronics Engineering and Kinesiology.

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“Sometimes falls are far more complicated and you suspect that blood pressure may be an issue but you don’t know for sure,” Dr. Milligan explains. “The thing that excites me about this project is we’re examining older individuals and measuring their blood pressure changes. We’re also seeing what kind of difference improving blood flow back to the heart really makes.”

This preliminary study, made possible thanks to Spark program funding from the Centre for Aging + Brain Health Innovation (CABHI), will run for approximately one year, after which time the interdisciplinary RIA team will assess the results. If all goes as Dr. Milligan hopes, then the prototype Dr. Peterson created can be enhanced and introduced to a wider population for further study. This emerging technology offers a new possibility to greatly reduce the risk of falls among older adults.

Visit the RIA website for updates as this project progresses.

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The Schlegel-UW Research Institute for Aging aims to enhance the quality of life and care of older adults through partnerships in research, education and practice. Innovations are developed and tested in the Schlegel Villages, and then shared to benefit older adults everywhere.

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As a physician with the Centre for Family Medicine with a special focus on mobility and falls prevention in long-term care, Dr. James Milligan has supported many older adults dealing with the ramifications of a fall. He’s well aware that any means of reducing the risk must be explored and developed. As Schlegel Specialist in Mobility and Aging at RIA, Dr. Milligan will lead The Second Heart study with the help of Dr. Richard Hughson, Schlegel Research Chair in Vascular Aging and Brain Health and Dr. Peterson.

While most specialists agree that blood pressure fluctuations are a major factor in falls, Dr. Milligan says that clinically this can sometimes be difficult to determine. The causes of a fall are typically pieced together after an incident, based upon a person’s recollection. They may not be able to offer a clear history of what happened in the moments and seconds before a fall.

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