

Summary

- Physical activity plays an important role in healthy aging. Increased levels of physical activity contribute to better quality of life and improved health outcomes. However, residents in long-term care (LTC) settings often face challenges to participating in regular exercise or social activities. These challenges include lack of motivation and long periods of time spent sitting or lying down.
- This program introduced a new exercise technology, known as 2RaceWithMe (2RWM), to encourage increased physical activity by older adults in LTC and community settings. 2RWM combines hand and foot pedals, used together or separately, with a library of interactive travel videos. Pedalling is synchronized to the video so that users must keep pedalling in order to continue watching.
 - In addition to higher levels of physical activity, use of the 2RWM was also expected to result in increased mental stimulation and more social engagement for older adult users.
- The project was conducted across two different phases. Phase 1 included individuals residing in LTC, independent living, and semi-independent living units, while Phase 2 targeted more independently mobile older adults from assisted living and adult day programs. Participants' personal and health information was collected before and after each phase to assess exercise trends and compare health and social engagement outcomes.
 - Phase 1 included 32 older adult residents (ages 55 to 99 years; 21 females and 11 males; 10 Anglophones and 22 Francophones) at two LTC facilities (Faubourg du Mascaret [FdM] and York Care Centre [YCC]). Participants' 2RWM usage was tracked for six months.
 - Phase 2 included nine older adults (4 females and 5 males), all of whom were Anglophone, at one facility (YCC). The project tracked participants' use of the 2RWM for eight weeks.

HSPF Focus Area
Project Start & End Date
Organization/Agency
Location/Project Sites
Principal Investigator(s)

Increasing independence, quality of life, and promoting healthy lifestyles
 March 1, 2020 – March 31, 2024
 Centre for Innovation and Research in Aging (CIRA)
 Fredericton, Moncton
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Indicator	Impact / Outcome / Result	Quote
General Health	<ul style="list-style-type: none"> 2RWM usage was measured by the average number of pedal revolutions per quarter. During Phase 1, usage at YCC initially increased, then dropped partway through the intervention before increasing to the end of the intervention period. Pedal revolutions at FdM decreased over time. Phase 2 results demonstrated a general increase in pedal revolutions over time. Variations in pedal revolutions during both project phases coincided with participant absences and illness outbreaks. 	<p><i>"I find it's great exercise for everyone."</i></p>
Prevention	<ul style="list-style-type: none"> Participants who were interviewed indicated that they enjoyed using the 2RWM. However, there were no statistically significant differences in participants' mobility, physical function, overall cognitive function, or overall quality of life following the intervention. Analysis of questionnaires administered before and after Phase 1 revealed that FdM participants' level of technology acceptance slightly decreased over time. FdM participants similarly demonstrated mildly increased scores for anxiety and depression indicators after the intervention. These changes may be attributed to factors including participant withdrawal, facility outbreaks, and reduced activity engagement. 	<p><i>"Good exercise ... feel it in my shoulders."</i></p>

Indicator	Impact / Outcome / Result
Prevention	<ul style="list-style-type: none"> Compared to before the intervention, Phase 1 participants at YCC likewise demonstrated slightly reduced cognitive performance scores, which may be attributed to changes in health status and decreased activity engagement.

Methods and Comparison

2RWM device data (number of pedal revolutions and length of use) was collected throughout the intervention to measure device usage. Questionnaires on personal and health information, physical and cognitive status, and social engagement were administered before and after the intervention to assess the device's impact. Participants were also interviewed on their experience and level of satisfaction with the 2RWM.

Conclusions and Lessons Learned

- Older adults indicated that they enjoyed using the 2RWM. However, participant absences, technical issues, facility outbreaks, and the level/availability of assistance from the project team impacted levels of device usage over the project duration. Additional research is needed to assess the full impact of the device on users' physical and mental health outcomes.
- Ongoing organizational support (from senior leadership, department leads, unit coordinators, activity directors, unit staff, volunteers, and students) and continued support from the 2RWM Customer Service Team is critical to integrate new technologies into regular practice within the LTC context.

Recommendations

- Conduct further research over a longer duration on the impacts of the 2RWM. This research should include the use of a control group and a range of device options for older adults.
- Share training materials and implementation guidance to help organizations determine if new technologies align with existing programs, policies, staffing capacity, and financial resources.

Next Steps

Since the end of the program, the 2RWM is still being used by residents at FdM. While the 2RWM is not consistently available for use at YCC, discussions are underway with site leadership to facilitate use of the device on three units across the facility.

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