Development and Usability Testing of a Physical Activity Intervention Using Coaching and Technology following Amputation C. MacKay, W.C. Miller, A. Tobia, B. Lau, J. Campbell, P. Flora. *Gerontechnology* 25(s)

Purpose Lower limb amputation (LLA) is most common in older adults over age 65 resulting from complications of diabetes or other vascular disease.[1] Physical activity (PA) improves function, strength and balance following LLA [2]; however, access to rehabilitation services in Canada are limited.[3] There is a need for accessible, low-cost approaches that support PA in individuals with a dysvascular LLA (LLA due to diabetes or other vascular disease). **I**mproving **P**hysical **A**ctivity through **C**oaching and **T**echnology following **L**ower **L**imb **L**oss (IMPACT-L3) is a physical activity intervention that utilizes virtual peer coaching, wearable technology and online education to support PA behaviour change. Our aim is to describe the development and usability testing of IMPACT-L3. **Methods** Formative research that supported the development of IMPACT-L3 included a national consensus meeting on research priorities for PA for people with LLA and qualitative research to explore patients' and health professionals' perspectives of PA in the context of LLA (n=51). Additional qualitative interviews with 18 people with LLA recruited through rehabilitation hospitals and social media refined intervention components of IMPACT-L3 and two co-design workshops (n=8 participants) refined specific content of the online PA education. The co-design process included an advisory committee (3 people with LLA, 2 health professionals, 2 health professionals/researchers) who provided advice on content and format of the education modules. The research team worked with an instructional designer to develop the interactive education modules. Usability testing of the education modules was conducted using think-aloud techniques with individuals with LLA. **Results and Discussion** First, qualitative interviews highlighted the importance of peer support in facilitating PA by sharing tips and resources and providing motivation for PA. Participants supported the use of wearable technologies, such as activity trackers, to provide data and accountability for PA and identified a need for education on PA. Next, through workshops and advisory committee input, PA education modules were drafted and iteratively refined. An instructional designer supported the development of education modules which included content on guidelines for PA; types of PA (light, moderate and vigorous aerobic activity, strengthening, balance exercises); skin/foot care; goal setting and action planning; and multimedia such as videos demonstrating exercises. Six participants completed user testing and provided feedback about the education modules. Feedback on four categories (navigation, presentation, language and content) was used to revise the modules. This study provided initial support for the content and usability of the education modules. IMPACT-L3 is currently being assessed in a pilot trial to assess feasibility and inform a future trial of effectiveness. Findings also highlighted the importance of ongoing and flexible engagement with end users and clinicians using various approaches (qualitative methods, co-design workshops, user testing) to ensure technology-enabled physical activity interventions for older adults meet their needs.

References

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Keywords: amputation, physical activity, technology, usability testing

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Acknowledgements: Components of this research were funded by AMS Healthcare