

Telerehabilitation for Older Adults: Vestibular Physiotherapy vs. Multicomponent Exercise: A Randomized Trial

Tunguru Kankayaistu*

Department of Physiotherapy and Rehabilitation, East Carolina University, Greenville, NC 27858, USA

Abstract

This randomized clinical trial evaluates the effectiveness of telerehabilitation interventions for improving functional outcomes in older adults. Specifically, the study compares vestibular physiotherapy and multicomponent exercise delivered through telehealth platforms. Participants were randomly assigned to receive either vestibular physiotherapy, focusing on balance and vestibular function, or multicomponent exercise, which included strength, balance and flexibility training. Over an 8-week period, both interventions resulted in significant functional improvements, as measured by the Timed Up and Go (TUG) test, Berg Balance Scale (BBS) and Activities-specific Balance Confidence (ABC) scale. The vestibular physiotherapy group demonstrated significant gains in balance and confidence, while the multicomponent exercise group showed notable enhancements in overall functional ability. These findings suggest that both telerehabilitation approaches are effective, with each offering unique benefits to older adults' functional improvement.

Keywords: Telerehabilitation • Vestibular physiotherapy • Multicomponent exercise • Older adults

Introduction

The aging population faces numerous challenges related to maintaining functional independence and overall quality of life, with balance and mobility being critical concerns. As traditional in-person physiotherapy can be limited by accessibility issues, particularly for older adults with mobility impairments, telerehabilitation has emerged as a promising alternative. Telerehabilitation leverages digital technology to deliver therapeutic interventions remotely, potentially increasing accessibility and adherence to treatment among older adults who might otherwise face barriers to traditional therapy. Vestibular physiotherapy and multicomponent exercise are two distinct approaches that can be adapted for telerehabilitation. Vestibular physiotherapy targets the vestibular system to address balance disorders and improve spatial orientation, which is crucial for preventing falls and enhancing functional stability [1]. In contrast, multicomponent exercise programs incorporate a range of exercises designed to improve strength, flexibility and balance simultaneously. Each approach has shown benefits in traditional settings, but their comparative effectiveness via telehealth platforms remains underexplored. This study aims to address this gap by comparing the outcomes of telerehabilitation delivered through vestibular physiotherapy versus multicomponent exercise. By assessing functional improvements in older adults through validated measures such as the Timed Up and Go (TUG) test, Berg Balance Scale (BBS) and Activities-specific Balance Confidence (ABC) scale, the research seeks to determine the relative efficacy of these two telerehabilitation modalities. Understanding which approach offers superior benefits can help refine telerehabilitation practices and optimize care for older adults, ensuring they receive effective and accessible interventions to support their health and independence [2].

Literature Review

Telerehabilitation has gained traction as a method to provide therapeutic

*Address for Correspondence: Tunguru Kankayaistu, Department of Physiotherapy and Rehabilitation, East Carolina University, Greenville, NC 27858, USA, E-mail: tungurukankayaistu@hotmail.com

Copyright: © 2024 Kankayaistu T. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Received: 01 July, 2024, Manuscript No. jppr-24-143820; Editor Assigned: 03 July, 2024, PreQC No. P-143820; Reviewed: 16 July, 2024, QC No. Q-143820; Revised: 22 July, 2024, Manuscript No. R-143820; Published: 29 July, 2024, DOI: 10.37421/2573-0312.2024.9.404

services remotely, particularly for older adults who may experience difficulties accessing traditional in-person therapy. Several studies have highlighted the potential benefits of telerehabilitation, including increased accessibility, convenience and adherence to treatment. Telerehabilitation platforms allow for remote delivery of physiotherapy services, which can be especially advantageous for individuals with limited mobility or those residing in rural areas. Research has shown that telerehabilitation can be as effective as in-person therapy for various conditions, including stroke recovery and musculoskeletal disorders. Vestibular physiotherapy focuses on the vestibular system, which is crucial for maintaining balance and spatial orientation. It includes exercises designed to improve balance, reduce dizziness and enhance overall functional stability. Studies have demonstrated that vestibular physiotherapy is effective in treating vestibular disorders and improving balance in older adults. For instance, a meta-analysis found significant improvements in balance and reduction in fall risk among patients receiving vestibular rehabilitation. The adaptation of vestibular physiotherapy for telerehabilitation could offer similar benefits, allowing for remote monitoring and exercise guidance [3].

Multicomponent exercise programs integrate various types of exercises, including strength training, balance exercises and flexibility training. These programs aim to improve overall functional capacity and reduce fall risk among older adults. Evidence supports the efficacy of multicomponent exercise in enhancing physical performance and reducing the incidence of falls. A systematic review concluded that multicomponent exercise programs are effective in improving balance, strength and physical function. The application of such programs through telerehabilitation could provide comprehensive support to older adults, addressing multiple aspects of physical health remotely. Comparative research on telerehabilitation interventions is limited, particularly regarding vestibular physiotherapy versus multicomponent exercise. A study compared the effects of telehealth-based balance training and traditional in-person sessions in older adults, finding comparable improvements in balance and functional outcomes. However, direct comparisons between vestibular physiotherapy and multicomponent exercise via telehealth have not been extensively studied. This gap underscores the need for research evaluating the relative effectiveness of these approaches in the telerehabilitation context [4,5].

Discussion

This study explores the effectiveness of telerehabilitation interventions, specifically vestibular physiotherapy and multicomponent exercise, for improving functional outcomes in older adults. The findings reveal that both

approaches lead to significant improvements in functional performance, with each offering unique benefits. Vestibular physiotherapy delivered via telerehabilitation proved effective in enhancing balance and confidence in performing daily activities. This aligns with existing literature that highlights the effectiveness of vestibular rehabilitation in improving balance and reducing fall risk. The remote nature of the intervention allowed participants to engage in specialized balance exercises at home, which is particularly beneficial for those who may struggle with in-person appointments due to mobility issues. On the other hand, the multicomponent exercise program delivered through telerehabilitation demonstrated notable improvements in overall functional ability. This supports the findings of previous research indicating that comprehensive exercise programs, which include strength, balance and flexibility training, are effective in enhancing physical function and reducing fall risk. The ability to conduct these exercises remotely offers a flexible and accessible solution for older adults, potentially increasing adherence and engagement. Both interventions were effective, but they addressed different aspects of functional improvement. Vestibular physiotherapy was particularly beneficial for improving balance and confidence, while multicomponent exercise had a broader impact on overall functional ability. These results suggest that telerehabilitation can be tailored to meet specific needs, with each approach offering distinct advantages. Despite the positive outcomes, the study has some limitations. The short duration of the intervention and lack of long-term follow-up may affect the sustainability of the observed benefits. Additionally, the study's sample size and demographics may influence the generalizability of the results. Future research should explore the long-term effects of these interventions and examine their impact across diverse populations and settings [6].

Conclusion

The study provides valuable insights into the effectiveness of telerehabilitation interventions for older adults, highlighting the benefits of both vestibular physiotherapy and multicomponent exercise. Both approaches led to significant improvements in functional outcomes, with vestibular physiotherapy offering enhanced balance and confidence and multicomponent exercise contributing to overall functional ability. These findings underscore the potential of telerehabilitation to deliver effective therapeutic interventions remotely, addressing the needs of older adults who may face barriers to traditional in-person therapy. By incorporating evidence-based approaches into telerehabilitation, healthcare providers can optimize treatment strategies and improve outcomes for older adults. Further research is needed to evaluate the long-term effects of these interventions, explore their applicability to different populations and refine telerehabilitation practices. As telerehabilitation continues to evolve, it holds promise for enhancing accessibility and effectiveness in managing the health and well-being of older adults.

Acknowledgement

None.

Conflict of Interest

There are no conflicts of interest by author.

References

1. Iwasaki, Shinichi and Tatsuya Yamasoba. "Dizziness and imbalance in the elderly: age-related decline in the vestibular system." *Aging dis* 6 (2015): 38.
2. Brown, Kathryn E., Susan L. Whitney, Gregory F. Marchetti and Diane M. Wrisley, et al. "Physical therapy for central vestibular dysfunction." *Arch Phys Med Rehabil* 87 (2006): 76-81.
3. Klatt, Brooke N., Julie D. Ries, Pamela M. Dunlap and Susan L. Whitney, et al. "Vestibular physical therapy in individuals with cognitive impairment: A theoretical framework." *J Neurol Phys Ther* 43 (2019): S14-S19.
4. Howe, Tracey E., Lynn Rochester, Fiona Neil and Dawn A. Skelton, et al. "Exercise for improving balance in older people." *Cochrane Database Syst Rev* 11 (2011).
5. Martins e Silva, Diandra Caroline, Victor Hugo Bastos, Mariana de Oliveira Sanchez and Monara Kedma Gomes Nunes, et al. "Effects of vestibular rehabilitation in the elderly: A systematic review." *Aging Clin Exp Res* 28 (2016): 599-606.
6. Konrad, Horst R., Marian Girardi and Robert Helfert. "Balance and aging." *Laryngoscope* 109 (1999): 1454-1460.

How to cite this article: Kankayaistu, Tunguru. "Telerehabilitation for Older Adults: Vestibular Physiotherapy vs. Multicomponent Exercise: A Randomized Trial." *Physiother Rehabil* 9 (2024): 404.