

Title: Sport climbing and gait in Parkinson disease

Name: Lucia Gassner
School of Engineering, RMIT University, Melbourne, Australia
Department of Neurology, Medical University of Vienna, Vienna, Austria
Department of Sport Physiology, Institute of Sports Sciences, University of Vienna, Austria

Background: Sport climbing (SC) is a whole-body workout, which recruits simultaneously physical, psychological, and social abilities. In the field of neurological rehabilitation, SC is already used as therapeutic climbing. Surprisingly, there is a lack of evidence on benefits of SC with Parkinson's disease (PD) patients. SC seems to be relevant and beneficial for PD patients who suffer from motor impairments. The purpose of this study is to investigate if SC has a positive influence on gait of PD patients.
Methods: We evaluated the effects of sport climbing (SC) on gait in 46 PD patients, who were randomized into a climbing group (n=22) and a control group (n=24). The climbing group followed a 12-week 90 min/week supervised climbing training course. The control group received information material of the European physiotherapy guidelines for physical activity recommended by the WHO. They were instructed to follow the recommendation of the guidelines to independently life an active lifestyle and train unsupervised. Using movement sensors, Unified Parkinson's Disease Rating Scale, and Hoehn and Yahr scale, we quantified the effects on PD patients due to SC. Mann-Whitney U test and Wilcoxon Rank-Sum test were used for analyzation.
Results: SC improves gait and clinical-motoric parameters in PD patients. A more active lifestyle helps to improve motor-related functions in PD patients. The low dropout rate demonstrates feasibility and motivating effects of SC.
Conclusion: For the first time, it is investigated that SC has positive effects on gait of PD patients. For patients with PD, it is crucial to develop strategies to arrest and potentially improve disease progression for a better quality of life. SC can enrich the existing field of training therapy and provide PD patients with an enhanced quality of life.

Keywords: gait, movement sensors, Parkinson's disease, rehabilitation, sport climbing, training therapy, quality of life

Biography

Lucia Gassner has completed her studies at the University of Vienna, Austria. Currently, she is PhD student in Sport Science at the Department of Sport Science, Vienna, Austria and in Biomedical Engineering at the College of Science, Engineering & Health, RMIT University Melbourne,

Australia. She is specialiced in Parkinson’s disease, health science, movement sensors, and rehabilitation. Lucia Gassner worked more than six years in rehabilitation and is going to finish both PhDs in 2020.

Presenting author details

Full name: Lucia Gassner
Contact number: +61(0)481459967
Twitter account: -
Linked In account: -
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