

Detailed information on the project

Title of project	Effects of the adapted home-based exercise program “T&E” (Test-and-Exercise) on balance, mobility, and executive functions in persons with Alzheimer’s Disease: protocol for an exploratory pilot study (HOPE)
Language of project	French
Contributing institutions	HES-SO Valais-Wallis, CMS Sierre, Consultation Mémoire de l’hôpital de Sierre
Key words	Alzheimer’s disease, home-based exercise program, balance, mobility, executive functions
Geographical space	Valais central, Switzerland
Research question	“Does a home-based exercise program, delivered once a week, one-to-one, have effects on the basic functional mobility and executive functions in persons with mild or probable Alzheimer’s disease?”
Aim of project	The aim of this exploratory pilot study is to assess the feasibility and effectiveness of the adapted T&E home-based exercise program on the basic functional mobility, and executive functions in persons with mild or probable AD.
Methods	Exploratory pilot study using a pre- and post-test design; 12 subjects; Berg Balance Scale, Time up and Go test, Five Time Sit to Stand, Walking speed, Trail Making Test Part-B, Digit span backward task, Stroop Color and Word Test; T&E home-based exercise program, one-to-one physiotherapy sessions, 45 minutes once a week during 8 weeks. Changes in performance between pre- and post-test considering the minimal important difference (MCID).
Relevance	Even though it appears that physical activity is “beneficial” for people with dementia, there is a general lack of clarity regarding how physical activity interventions work, what outcomes can be expected, and what outcomes could be sought. Therefore, non-invasive, and non-drug interventions that could improve or temporarily overcome basic functional mobility and executive functions in people with mild cognitive impairment (MCI) are important to be assessed.
Results	The scores of five basic functional mobility measures show a trend towards improvement from baseline to week 8. Although the mean difference for the FTSTS improved above the pre-established MDC, none of the above changes were statistically significant based on the Student’s <i>T</i> -Test. Effect sizes for these differences were between 0.2 and 0.42. Most of the scores of the measures assessing the executive functions show a trend towards improvement from baseline to week 8 but scores of Digit Span Backward and Colour panel Z-score of the Stroop Color-Word test worsened. However, none of these changes were statistically significant based on the Student’s <i>T</i> -test. Effect sizes of these differences were between 0.03 and 0.54 All feasibility criteria were successfully met.
Conclusion	This pilot pre-post study suggests that a home-based intervention with the T&E exercise programme for patients with AD is feasible and may be effective. A randomised controlled trial will need to be carried out to determine the effects of the T&E programme on basic functional mobility and executive function in people with MCI or early Alzheimer’s disease.

Project lead	Prof. Anne-Gabrielle Mittaz Hager, PhD Candidate, MSc in Sciences, Technologies, and Health, https://www.hevs.ch/fr/rad-instituts/institut-sante/collaborateurs/professeure-hes-ordinaire/mittaz-hager-5232
Project team	Prof. Roger Hilfiker, co-applicant, PhD Candidate in Health Sciences (Epidemiology) Sophie Carrard, scientific collaborator, MSc Candidate in Physiotherapy Annick Bonvin, administrative collaborator
Mandating institutions	School of Health Sciences, University of Applied Sciences and Arts Western Switzerland HES-SO / HES-SO Valais-Wallis - HEdS
URL of project	https://www.hevs.ch/fr/projets/hope--alzheimer-201062
Start of project	May 2021
End of project	March 2022
Dissemination	Publications in peer-reviewed international scientific journals (i.e., International Psychogeriatrics, Frontiers in Aging Neuroscience, Physical Therapy, ...), presentation at international and national conferences (to be defined). Publication in journals intended for practitioners and health professionals. Presentation at elderly and community centers, ... Dissemination of results in physiotherapy curriculum at the HES-SO Valais-Wallis. Communication of the main results to Alzheimer Switzerland, the public and local and federal politics.