Vestibular Rehabilitation in people with Multiple Sclerosis

J Marsden[1], M Pavlou[2], R Dennett[1], A Gibbon[1], J Freeman[1], D Bamiou[3], C Harris[4], A Hawton[5], B Jones[6] and S Creanor[6]

Background and Aim

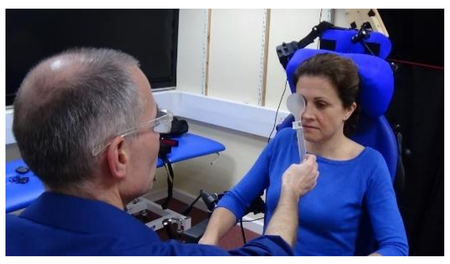
- People with multiple sclerosis (MS) commonly report symptoms of dizziness (63%), vertigo (6-20%) and imbalance (as first symptom 48%).[1,2]
- Symptoms can impact on functional ability, contribute to falls and may be associated with reduced quality of life and significant health and social care costs.
- Symptoms may be caused by dysfunction of the vestibular system.
- Lesions where the vestibular nerve enters the brainstem may give rise to a peripheral vestibular presentation. Lesions in the brainstem and adjacent areas can results in central vestibular signs.
- Vestibular Rehabilitation (VR) is a treatment of choice for such symptoms but there is a lack of evidence regarding its effectiveness in this population.
- The aim of this randomised controlled trial (RCT) is to compare the clinical and cost effectiveness of customised with booklet based VR.

Methods

- All potential participants initially screened via telephone and then face to face with clinical assessment and videonystagmography (VNG)

Clinical assessment

- Visual acuity
- Eye and head position
- Nystagmus
- Saccades
- Smooth pursuit
- Screening for BPPV



VNG assessment

- Nystagmus in the light and dark
- Vestibulo Ocular Reflex (VOR) in light and dark
- Saccades
- Smooth pursuit
- Response to step acceleration of rotary chair
- VOR suppression

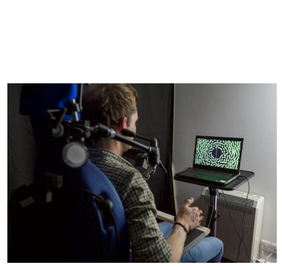
Inclusion Criteria

- ✓ People with a diagnosis of MS
- ✓ Patient determined disease steps 1-6
- ✓ People who report one of the following at least 4 times/month:
  - feeling that things are spinning or moving around
  - a feeling of being light-headed, "swimmy" or giddy
  - feeling unsteady and about to lose balance

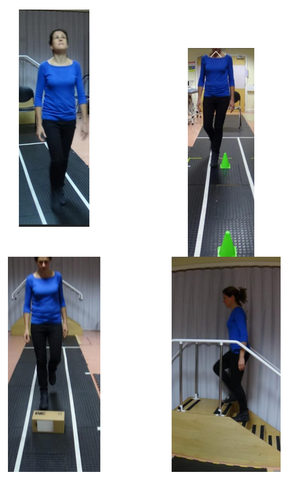
Outcome Measures

Outcome measures completed at baseline (T0), post intervention (T14) and 12 week follow up (T26[+])

[+] Primary end point



Rod and Disc



Dynamic Gait Index

Dynamic Visual Acuity Test

Symbol Digit Modalities Test

Booklet of questionnaires including Dizziness Handicap Inventory* and health economics

*Primary outcome measure

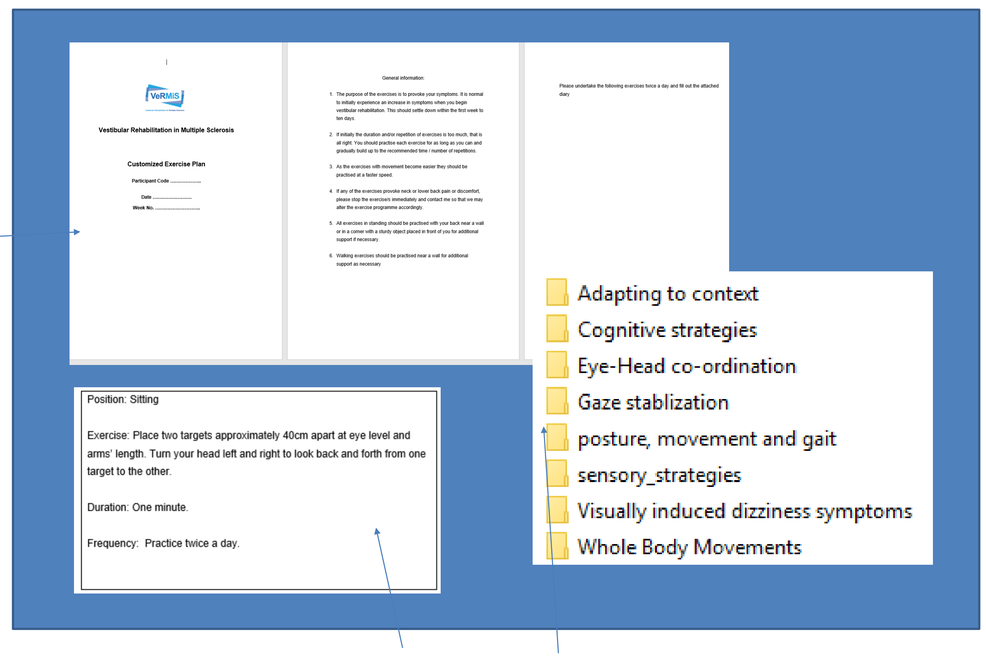
Study Process

Eligible participants are randomly allocated to either customised VR or booklet based VR groups.

Baseline T0 randomisation

Customised group

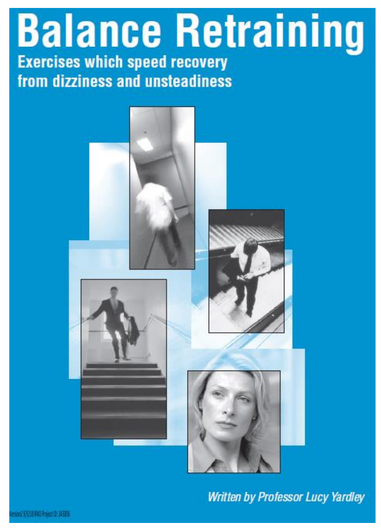
12 weekly 1:1 treatment sessions at study centre



customised booklet — exercise example — exercise categories

Booklet group

12 weeks unsupervised training at home



Therapist discusses:

- Long lasting Symptoms
- Causes of symptoms
- Mechanisms and rationale of balance retraining exercises
- Length of exercises, frequency and situation
- Basic exercises 1-6 demonstration
- Progression
  - Speed and general activities
- Special circumstances
- Scoring and use of diary
- Adverse events form

Post Intervention T14

Follow up T26

Results

- Forty nine people have been telephone screened, 35 have attended face-to-face screening.
- Thirty three participants (eight male, aged 35 – 74 years, patient determined disease steps (PDDS) score 1-6) have been included in RCT to date
- Recruitment continues at University of Plymouth and commences at Kings College London (from Oct 2019) until spring 2020 or n=120

Affiliations: 1 Faculty of Health and Human Science, Peninsula Allied Health Centre, Derriford Rd, Derriford, Plymouth PL6 8BH 2 Academic Department of Physiotherapy, King's College London, Room 3.5 Shepherd's House, Guy's Campus, London, SE1 1UL 3 EAR Institute University College London, 332 Gray's Inn Rd, London WC1X 8EE 4 School of Psychology, University of Plymouth, Drakes Circus, Plymouth PL4 8AA, 5 Health Economics Group, University of Exeter, Room 1.12, South Cloisters, St Luke's Campus, Exeter EX1 2LU, 6. Peninsula CTU, Peninsula Schools of Medicine & Dentistry, Plymouth Science Park, 1 Davy Rd, Derriford, Plymouth PL6 8BX
References: 1. Clinical and electronystagmographical evaluation of vestibular symptoms in relapsing remitting multiple sclerosis. Degirmenci et al:Neurological Research 32 (9): 986-991 2. The role of vestibular evoked myogenic potentials in multiple sclerosis-related vertigo. A systematic review of the literature 2019 Di Stadio et al MS and Related disorders 28 pp158-164. **Credits**: This study is funded by a Multiple Sclerosis Society research grant. Images 2 and 3 University of Plymouth