

# Exploring outcomes of Tension and Trauma Releasing Exercises (TRE) on people with multiple sclerosis – a pilot study

Annual RIMS Conference  
20-22 June 2019  
Ljubljana

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**Background:** TRE (Tension and Trauma Releasing Exercises) is a series of exercises that activate reflexive muscle vibrations with the aim of releasing stress, tension and trauma. It is a self-help method which, after individual instructions, can be practiced by the patient at home. Many people with Multiple Sclerosis (PwMS) have reported benefits from TRE, but no scientific studies have yet investigated the effects of TRE on PwMS.

**Aim:** This pilot study aimed to test a TRE programme for PwMS and explore possible outcome measures to apply in future randomized studies.

**Methods:** Eleven participants were recruited and nine completed a nine-week TRE program with weekly instruction sessions and daily at-home training. Outcome measures explored were:

1. Fatigue level via the Modified Fatigue Impact Scale (MFIS), measured pre- and post intervention.
2. Self-reported day-to-day MS symptom and functioning scores on 11-point numeric rating scales (sleep quality on a 5-point rating scale), reported daily (or as often as possible) via a symptom and functioning questionnaire reached via a smartphone app (MS Life Logging).
3. Ankle reflex mediated stiffness (a measure of spasticity using a Portable Spasticity Assessment Device (PSAD))

Changes in mean scores for fatigue level (MFIS scores) and ankle mediated stiffness were evaluated using unpaired t-tests.

Symptom and functioning scores were analyzed using linear regression comparing mean weekly scores between week one and the subsequent nine weeks.

Figure 1: Change in MFIS total score and subscores (before and after TRE intervention)  
P-values pertain to t-tests of differences in mean scores at baseline and follow-up

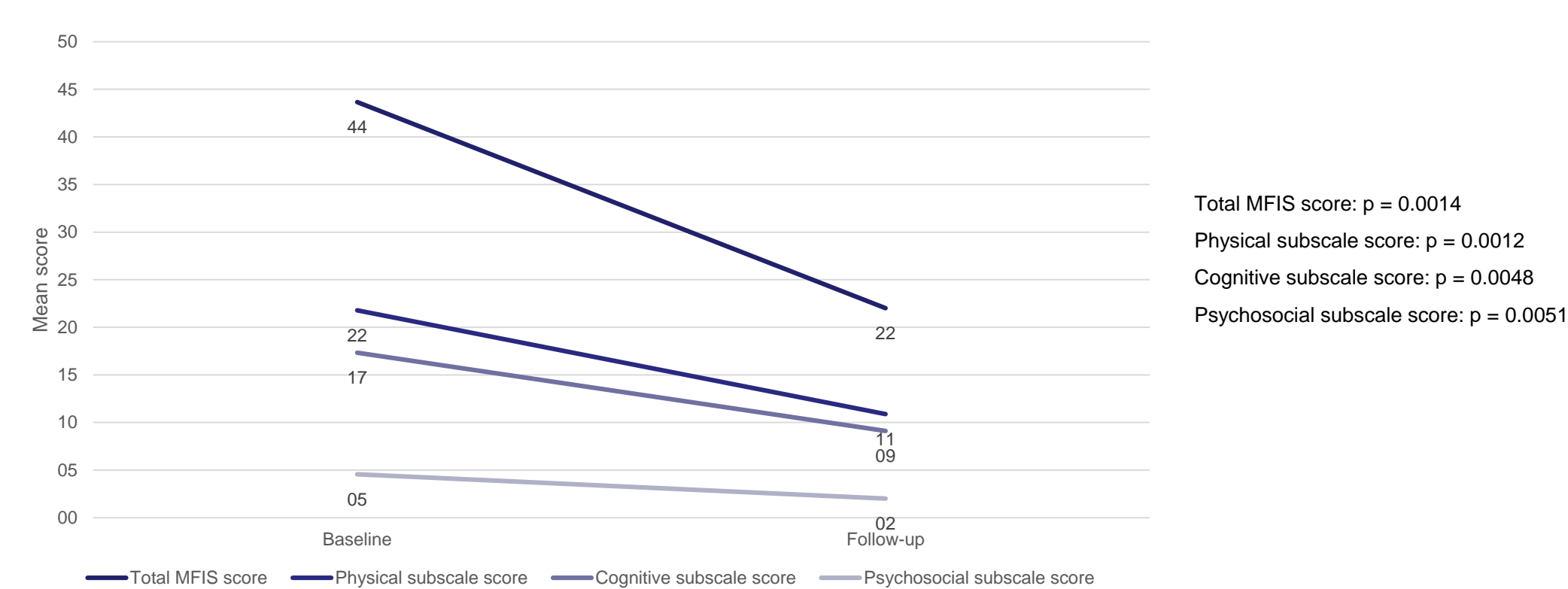
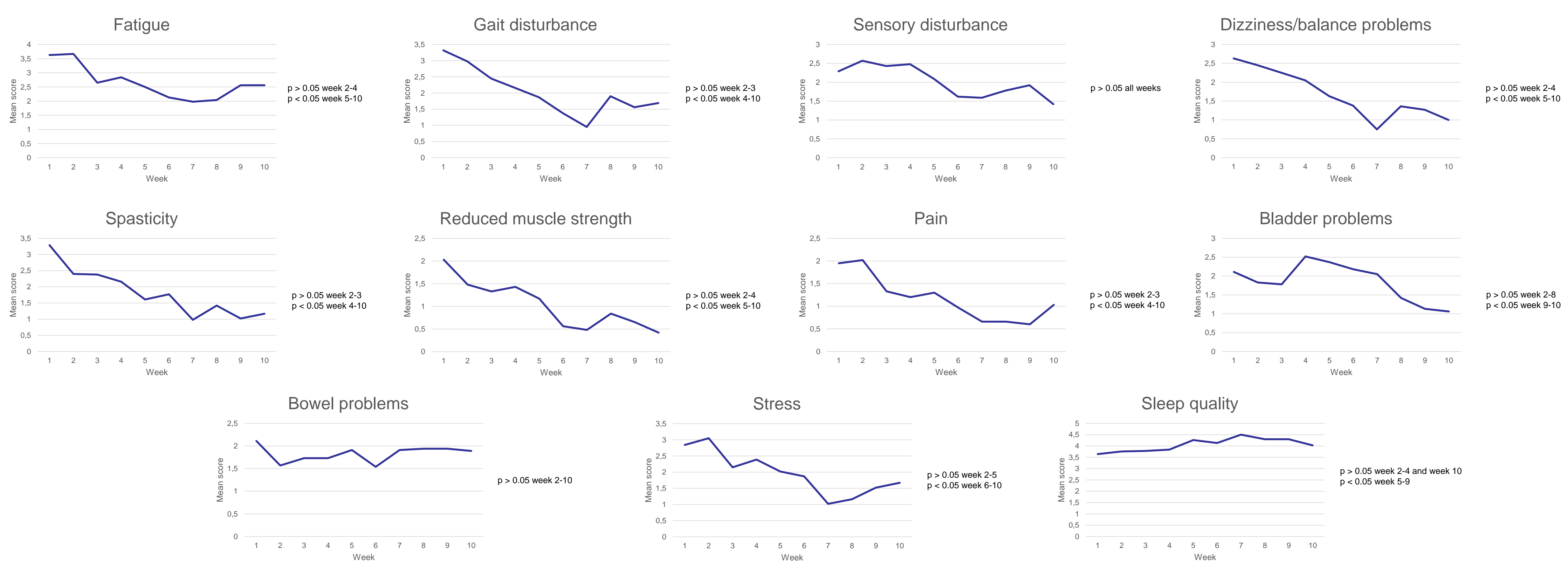


Figure 2: Changes in mean scores for self-reported day-to-day symptom and functioning levels  
P-values pertain to t-tests of differences in mean scores between week 1 and subsequent weeks



**Results:** MFIS scores showed a significant decrease in fatigue, with mean total MFIS score falling from 43,7 at baseline to 22,0 at follow-up (p = 0,0014).

Compared to the reference week (week 1), self-reported fatigue, gait disturbance, dizziness/balance problems, spasticity, reduced muscle strength, and stress was reduced consistently from week 4-6 (p < 0,05). Bladder problems were reduced significantly in the final 2 weeks, and sleep quality increased significantly in weeks 5-9, but showed no significant difference between week 10 and the reference week. No statistically significant changes were seen for sensory disturbance or bowel problems.

Seven participants showed signs of spasticity in the ankle plantar flexors with a Modified Ashworth Scale (MAS) score >1. No significant changes in reflex mediated stiffness between baseline and follow-up were found in these participants.

**Conclusion:** The results of this pilot study indicate promising effects of TRE on PwMS on several symptom and functioning indicators. Larger, randomized studies should be carried out to explore the findings further.

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