

Research Poster 484

Whole Body Vibration Therapy with Exercise Enhances Motor Function and Improves Quality of Life in Parkinson's Disease



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Research Objectives: To investigate the effect of combined Whole Body Vibration (WBV) and exercise therapy in Parkinson's disease (PD).

Design: We utilized a prospective interventional design. Data was collected in 3 sessions; pre-treatment, 1 day post-treatment, and 4 days post-treatment.

Setting: This study was conducted on the Florida State University campus.

Participants: Participants were recruited on a voluntary basis via the National Parkinson's Foundation. Exclusionary criteria included confounding comorbidities. Seventeen PD patients (stages I-IV) were enrolled, however, one was lost to follow-up and another withdrew for unrelated medical reasons.

Interventions: Participants underwent twelve sessions of combined WBV and exercise therapy over the course of six weeks. Treatment regimen consisted of static and dynamic lower body exercises performed on a vibratory platform.

Main Outcome Measure(s): Motor performance, functional outcome, and quality of life was assessed using the GAITRite®System, Unified Parkinson's Disease Rating Scale (UPDRS parts 2,3), Beck Depression Inventory (BDI), Fatigue Symptom Inventory (FSI), and Healthy Days Measure (HRQOL-14).

Results: One-way ANOVA showed statistically significant improvements in combined UPDRS scores $F(1,474,20.64) = 26.37, p < 0.001$, decreasing from 29.53 ± 7.60 (baseline) to 18.00 ± 7.09 (1 day post-intervention) and 17.53 ± 5.78 (4 days post-intervention). Post-hoc analysis revealed UPDRS decreases from baseline to 1 day post-intervention (10.13 (95% CI, 4.86,15.41) $p < 0.001$), and from baseline to 4 days post-intervention (10.73 (95% CI, 6.22,15.25) $p < 0.001$). Significant improvement also observed in post-interventional examinations for gait velocity, cadence, and double support time. No significant change in FSI, BDI, and HRQOL-14 scores.

Conclusions: Combination WBV-exercise therapy has significant positive short-term influence on motor performance, ADLs, and postural stability. Further investigation is needed to determine long-term effects.

Key Words: Parkinson's disease, neurorehabilitation, exercise, tremor, gait

Disclosures: None disclosed.

Research Poster 488

Cognitive-Motor Performance Under Single- And Dual-Task Conditions in Individuals with LVCA



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Research Objectives: The present study aimed to determine the difference in single- vs. dual-task cognitive-motor performance between individuals with LCVA and healthy young and age-matched adults.

The following hypotheses were investigated: 1. Participants with LCVA will demonstrate reduced accuracy and response time during dual-task conditions as compared to healthy age-matched and young adults; 2. Neurocognitive test scores will predict dual-task performance.

Design: Prospective, non-randomized cohort study.

Setting: Research was conducted in a university lab with community-dwelling participants.

Participants: 5 adults with LCVA, 5 healthy age-matched adults, and 5 healthy young adults included. LCVA participants a minimum of 6 months post-stroke. All participants spoke English and reported good hearing/vision.

Interventions: N/A

Main Outcome Measure(s): Measures of gait speed, and accuracy and reaction time on cognitive tasks were recorded for single- and dual-task conditions. Neuropsychological test scores were compared to performance on each condition.

Results: When comparing single-task to dual-task letter performance, the LCVA group was much less accurate than the young adults [0.10 (0.03), $p < 0.04$; 95% CI: 0.01, 0.20], while the difference between the LCVA and matched adult groups approached significance [0.10 (0.04), $p < 0.058$; 95% CI: -0.003, 0.21]. When comparing single-task to dual-task tone performance, the LCVA group demonstrated significantly slower response time compared to either the young [435.50 (127.87), $p < 0.03$; 95% CI: 49.88, 821.12] or the matched adult groups [528.53 (142.96), $p < 0.02$; 95% CI: 97.39, 959.67]. No significant mean differences were noted between groups in the other conditions. Dual-task letter performance was predicted by scores on the RBANS-attention scale [$r = 0.50, p < 0.01$], and Dual-task tone performance was predicted by scores on the RBANS-language scale [$r = 0.58, p < 0.002$].

Conclusions: Results have implications for treating individuals with LCVA and communication disorders. Performance of LCVA under single- and dual- task conditions demonstrate the importance of not only treating individuals while they are performing a single language task, but also under dual-task conditions to ensure gait safety while performing cognitive tasks, as language processing and walking simultaneously appear to be more challenging for all individuals. Additional research should be conducted to confirm findings and determine variations in RCVA performance under conditions.

Key Words: Stroke, Attention, Gait

Disclosures: None disclosed.

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Headache Five Years After Traumatic Brain Injury



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Research Objectives: Headache (HA) is the most frequently reported symptom following TBI. However, little is known about the natural history of posttraumatic headache (PTH) or its impact over time. We describe the natural history of posttraumatic headache (PTH) in individuals following moderate to severe traumatic brain injury up to five years after injury.

Design: Cohort.

Setting: Community.

Participants: Prospective enrollment and follow up at 3, 6, 12 and 60 months post injury of 316 individuals admitted to inpatient rehabilitation with moderate to severe TBI.

Interventions: None.

Main Outcome Measure(s): Prior HA history, HA prevalence, frequency, classification, pain rating, and impact of new or worse HA (compared to pre-injury) were examined over 5 years.

Results: Individuals were 72% male, 73% Caucasian, 55% injured in motor vehicle crashes, with an average age of 42. Pre-injury HA was reported in 17% of individuals. New or worse HA prevalence was high and remained so over time with 38% at baseline, 37% at 3 months, 33% at 6 months, 34% at 1 year, and 35% at 5 years. Average HA pain (on a 0- 10 scale) remained high over time ranging from 5.5 at baseline to 5.7 at 5 years post injury. Impact scores (as measured by HIT-6) showed substantial impact of PTH across time, with mean scores of 57.1 at 3 months and 56.5 at 5 years. Having HA several times per week or daily was seen in 50% of individuals at three months, though decreased to 36% by 5 years.

Conclusions: HA is a persistent symptom after TBI with a significant number of individuals reporting frequent HA with significant impact both early after injury and long-term. Results suggest that ongoing assessment