The Effect of Weighted Compression Sleeves on Tremor Suppression in Individuals with Parkinson’s Disease

Jennifer Iannello, Garry Johnson, Lauren Pilla
Parkinson’s Disease

- Second most common chronic, progressive, neurodegenerative disorder\(^1\)

- Parkinsonian Tremor is one of the most disabling symptoms\(^2\)

- Dopaminergic medication is current treatment\(^3\)
Tremor Impairs Function

- Involuntary rhythmic and oscillatory movement affecting ~70% of individuals with PD$^2$
- No known cure for tremors$^2$
- Affects activities of daily living (ADLs)$^4$
Reduced Quality of Life

- Quality of life affected by functional limitations and low independence in ADLs\(^5\)

- Fine motor skills affected by tremor contribute to lower levels of independence\(^5\)

- PD patients experience an overall lower quality of life\(^6\)
Basal Ganglia Stimulation

- Deep brain structure responsible for executing voluntary movement\textsuperscript{7}

- Dopaminergic medication improves intensive, but not coordinative deficits\textsuperscript{8}

- Proprioceptive processing deficits with basal ganglia\textsuperscript{9}
Promoting Proprioceptive Feedback

- Proprioception compromised in early PD stages\(^3\)

- Haptic robotic apparatus promote tremor modulation\(^4\)

- Proprioceptive feedback from closed-loop system\(^3\)
Sensory Integration Through Weighted Apparatus

- Weighted vest for sensory integration therapy\(^{10}\)

- Weighted compression sleeve in patients with PD\(^{11}\)
Weighted Compression Sleeve

- Allows for proprioceptive feedback
- Could stimulate basal ganglia outflow
- New application of compression garments
Hypothesis

- Men and women with Parkinson’s Disease displaying tremor will have a suppressed tremor amplitude due to proprioceptive feedback when wearing a weighted compression sleeve, compared to those wearing a weighted sleeve, a compression sleeve, and an unweighted sleeve with no compression.
Study Participants

• Questionnaire for equal functional level

• Ages 50-70 with tremor for at least 1 year

• Exclusion criteria

• 25-30 participants with PD chosen
Conducting the Study

- Randomly assigned to one of four groups
- Pegboard set tests fine motor skills
- ANOVA
- Weighted compression sleeve most effective
Future Directions

- Larger scale
- Used for other tremors
- Used on other limbs
References


