

Effects of External Vibration Stimulation on Internal Rotation

Range of Motion and Hamstring Strength



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Introduction

- Whole body and localized vibration therapy have gained increased use in the fitness community, clinical setting, and research
- Efficacy as a modality option is yet to be determined^{1,2}

Objective

- Evaluate the effects of localized vibration treatment (LVT) to the sacral region on shoulder internal rotation (IR) range of motion (ROM) and isometric hamstring strength³

Participants

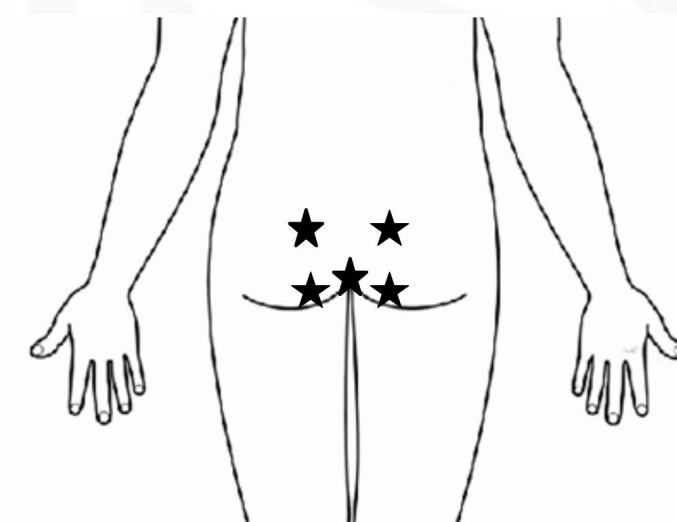
- 50 Concordia University DPT Students
 - 28 females
 - 22 males
 - Age: 22-33 (Avg. 24)

Methods

- Baseline dominant extremity shoulder IR ROM measured in supine with manual goniometry
- Baseline hamstring strength measurements in prone using MicroFET™ (hand held dynamometer), taken post 1 practice test
- Therapeutic intervention: application of LVT using the Hypervolt Plus® tool to 5 predetermined landmarks on sacral region for 40 seconds total
- Post-therapeutic intervention measurements
 - Prone hamstring strength using MicroFET™
 - Supine shoulder IR ROM with manual goniometry

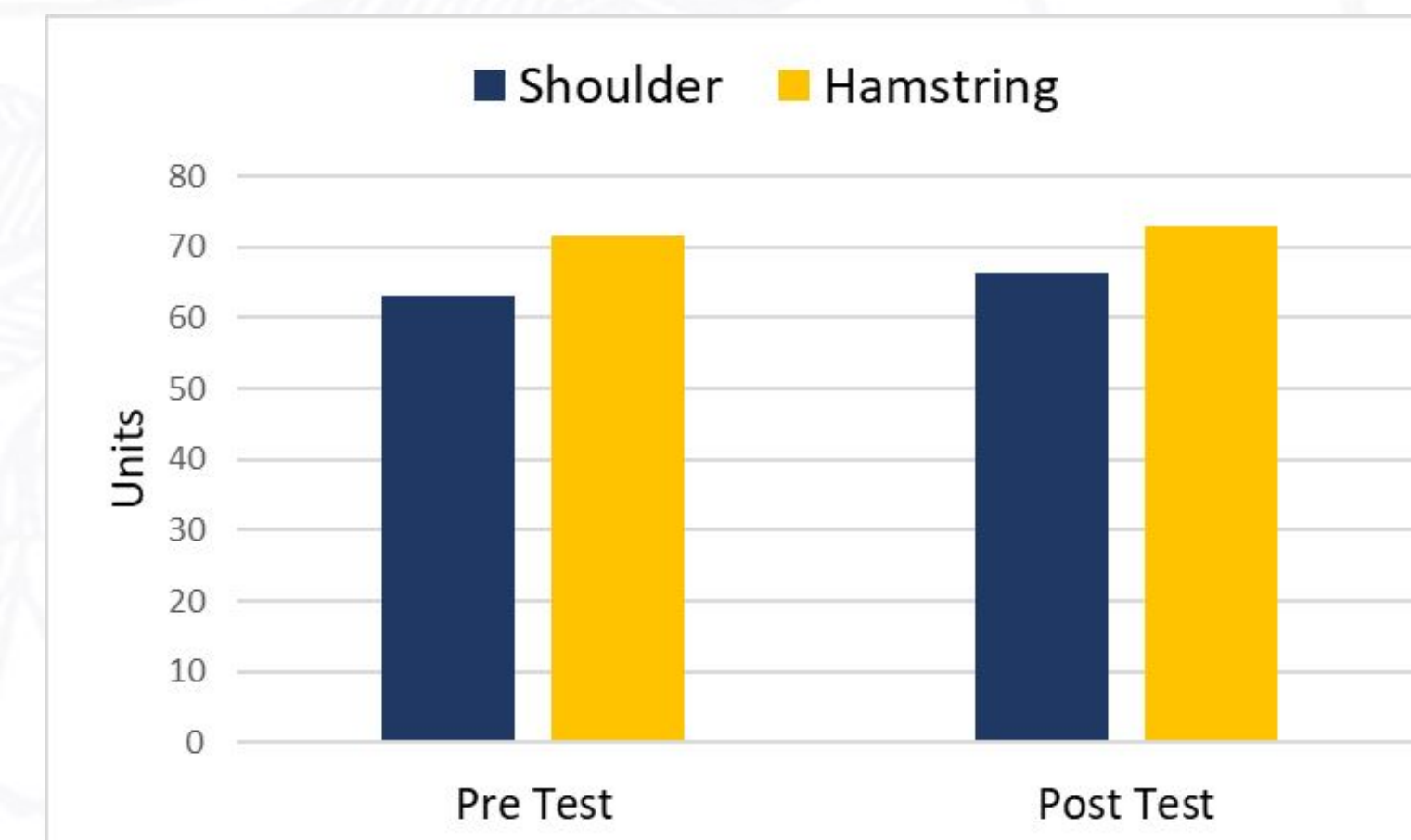


 Hyperice



Results

- Statistical significance ($p < 0.05$) was demonstrated for increased shoulder IR (mean difference 3.5 degrees)
- Hamstring strength did not rise to statistical significance ($p=0.09$)



Conclusion

- Vibration stimulation to neural dense area such as the sacral region can improve shoulder internal rotation range of motion.

Clinical Relevance

- Potential acute gains in ROM and strength to allow for greater effectiveness in subsequent PT interventions
- In sport training, LVT could be used as a quick and effective tool for increased athletic performance⁴

Future Research

- Procedural modifications may improve outcomes
- Pelvis stabilization methods may demonstrate clinically significant improvements in hamstring strength
- Incremental testing post LVT delivery to assess duration of effects

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- Dr. Mark Hernandez, PT
- Integrative Dry Needling
- Hyperice

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