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The Effect of Therapeutic Listening® on Bilateral Coordination

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Introduction

Purpose: This study examined the efficacy of the Therapeutic Listening® Bilateral Quickshifts on bilateral coordination in typically developing children.

Background: Therapeutic Listening® (TL) is a high quality sound tool that modifies music to activate the brain and facilitate adaptive function. TL is an intervention often used in pediatric settings to treat a range of communication, attention, listening and sensory processing disorders. The Bilateral Quickshift series was selected for this study, due to the proposed immediate influence of the synchronization between the two hemispheres of the brain on motor organization and bilateral coordination.

Hypothesis: Participants who listen to the Therapeutic Listening® Bilateral Quickshifts will demonstrate improved bilateral coordination compared to participants who listen to white noise.

Research Design & Methods

Participants: Thirty-one, 7 to 11 year old typically developing children from Marin County, CA.

Design: Randomized control, pretest – posttest blind study. Groups were randomized into an experimental group that listened to 15 minutes of Therapeutic Listening® Bilateral Quickshift or a control group that listened to 15 minutes of White Noise (WN) through high quality headphones.

Measures:

- Bruininks-Oseretsky Test of Motor Proficiency-2 -Bilateral Coordination subtest (BOT-2 BL)
- Sensorimotor Performance Analysis (SPA)
- Quick Neurological Screening Test (QNST-3) -Backwards tandem walk & rapid alternating movements
- The Infinity Walk

Results

- Posttest scores on the BOT-2 (BL) were significantly higher than pretest scores for the TL group ($p = .02$) but not the WN group ($p = .39$).
- Positive, but non-significant, trend for the improvement in scores for the TL group compared to the WN group ($p = .33$) (Fig.1).
- A practice effect was observed for both groups on all measures.
- No significant changes were seen between pretest and posttest in either group for QNST-3, SPA, and Infinity Walk scores.

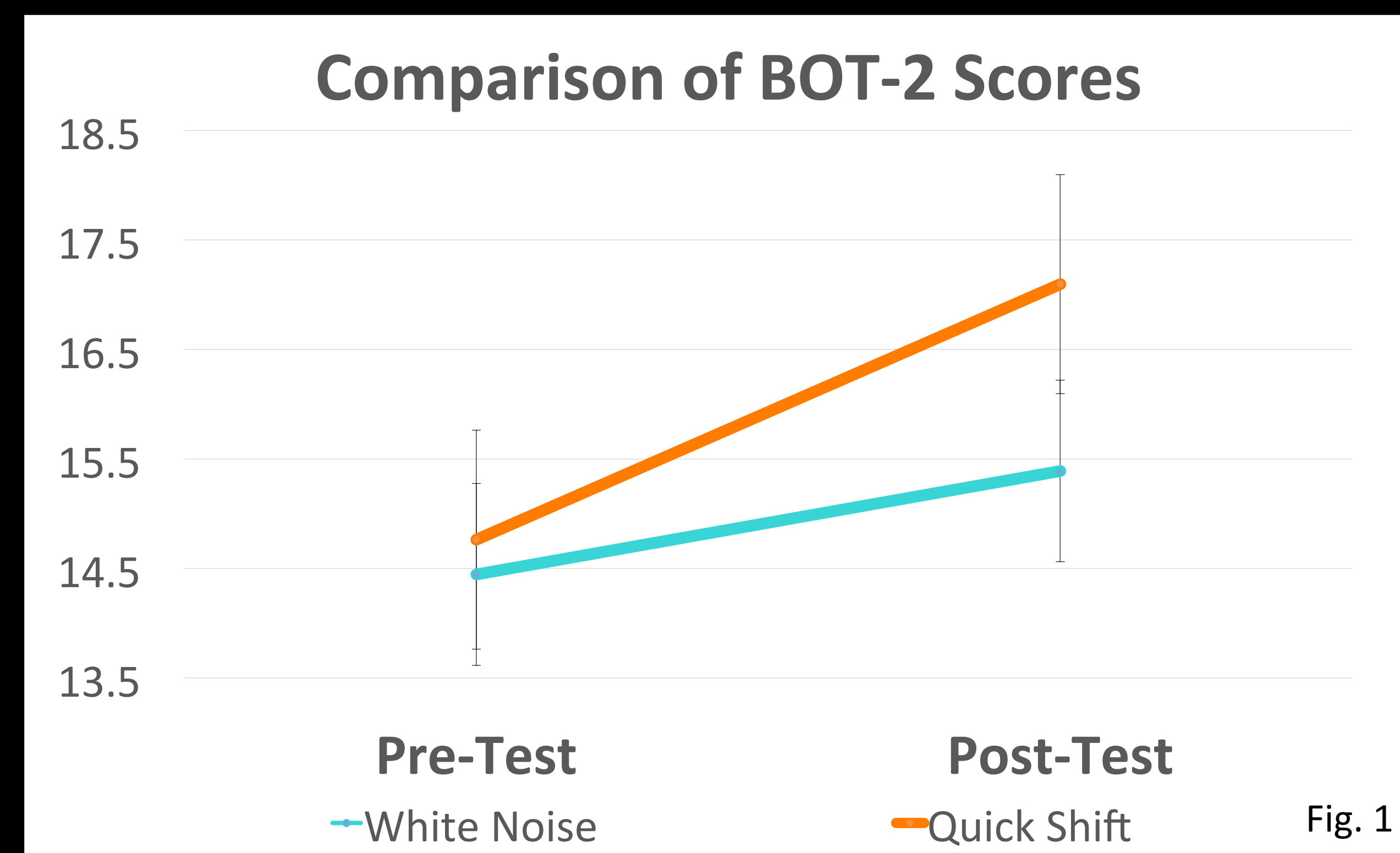


Fig. 1



Discussion

Key Findings:

- Significant improvements in BOT-2 (BL) scores and quality of movement were observed within the TL group between pretest to posttest after a single listening session. Improvements were not seen in WN group.
- Comparison of TL and WN groups yielded no significant differences between groups in changes on BOT-2 (BL) scores from pretest to posttest.
- The study replicated results from Haas and Sequeria-Boesch (2014) a prior study with the same design; typical adults also demonstrated improvement in BOT-2 (BL) scores after listening to the TL Bilateral Quickshift.

Limitations:

- Assessments were not sensitive to detect change.
- A ceiling effect was noted; many typically developing children achieved maximum scores on assessments.
- These factors restricted the probability of finding significant changes in pretest and posttest scores and reduced the power of the study.

Implications for Occupational Therapy

- Results show promise for Therapeutic Listening®; a single 15-minute listening session increased BOT-2 bilateral scores, and improved quality of movement with typical children.
- Further research with a non-typical population and formal examination of quality of movement is needed.

Acknowledgements & References

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References: Frick, S.M., & Young, S.R., (2009). *Listening with the whole body: Clinical concepts and treatment guides for Therapeutic Listening*. Madison, WI: Vital Links.