2017

The Effects of Therapeutic Listening on Bilateral Coordination

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Recommended Citation  
Wilson, Avery; Buccat, Mios; Irao, Amanda Grace; Mousley, Morgan; and Munchua, Michael Yra, "The Effects of Therapeutic Listening on Bilateral Coordination" (2017). Student Research Posters. 22.  
https://scholar.dominican.edu/ug-student-posters/22

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**INTRODUCTION**

**Background**
- Therapeutic Listening® is a sound-based treatment developed by Sheila Frick, OTR, rooted in sensory integration.
- The Quickshift series uses binaural beat technology to improve bilateral integration and sensory modulation.
- Therapeutic Listening® is widely used as an occupational therapy intervention yet there is limited research reflecting the qualitative effects (Hall & Case-Smith, 2007).

**Purpose of Study**
- To analyze the quality of bilateral movement through a sensitive qualitative measure in typically developing children.
- This was a continuation study of a previous thesis completed in December 2014.
- **Research question:** For typically developing children, is the Therapeutic Listening® Bilateral Quickshift, when compared with white noise, more effective in improving bilateral coordination as measured by the quality of movement during bilateral tasks?

**RESEARCH METHODOLOGY**

**Design**
- A randomized control pretest-posttest experimental research design

**Participants**
- 31 typically developing children
- **Inclusion criteria:** English-speaking, seven to eleven year olds
- **Exclusion criteria:** no cognitive, mental, or physical disabilities, including sensory processing dysfunction

**Tools**
- Bruininks-Oseretsky Test of Motor Proficiency Second Ed.- Bilateral Motor Coordination Subtest (BOT-2)
- Sensorimotor Performance Analysis (SPA)
- Quick Neurological Screening Test, Third Ed. (QNST)
- Infinity Walk Observation Assessment

**Our Qualitative Coding Tool**
- Analyzed: posture, rhythm, smooth and continuous movement, effort, precision, and arm/leg movements

**RESULTS**

- **Overall global scores on:** rhythm, smooth and continuous, effort and motor planning, and symmetry and synchrony of upper and lower extremities aggregated across all items.
- The effect of the intervention was small but had a slight advantage over the control group for smoothness and rhythmicity.
- Analyzed individual items based on items that approached significance in previous study and after eliminating items with strong ceiling effect
  - Scissor jumps opposite sides
  - Feet and finger tapping opposite sides
  - Spider
  - Backwards tandem walk
  - Infinity walk
- The Quickshift series showed to have a moderate effect on the qualitative movement during bilateral tasks by improving smoothness and rhythmicity for specific tasks.

**DISCUSSION/CONCLUSIONS**

**Overall Conclusions**
- Binaural beats have an effect on bilateral coordination
- Able to qualitatively capture bilateral movement
- When compared to the white noise group, the Therapeutic Listening® group showed a greater improvement in bilateral coordination

**Limitations**
- Low power
- Strong ceiling effect
- Typically developing children
- Inconsistencies in setting, directions, and video quality
- Strong practice effect

**IMPLICATIONS FOR PRACTICE**

- The Quickshift series shows promise as a therapeutic intervention to improve bilateral coordination.
- Incorporating Therapeutic Listening® with different populations
- This study together with the standardized test scores from the previous study have a trending effect

**Future Research**
- Recruit a larger and more diverse sample
- Longer duration
- Consistency in filming and administration of tasks

**ACKNOWLEDGEMENTS**

We would like to thank Julia Wilbarger and Sheila Frick for their support and contribution to our project.