

Demonstrating the Treatment Effect of Manual Therapy on  
Speech Outcomes in Children with Spastic Cerebral Palsy  
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**Rationale & Objective** – Clinicians have to rely on inconclusive research, anecdotal reports, and clinical experience to justify the use of manual therapy to treat structural limitations of the rib cage (hereafter called manual therapy) to increase respiratory support for speech in children with severe motor impairments. This study aimed to determine whether there was a treatment effect for a manual therapy protocol on speech outcomes in children with spastic cerebral palsy (CP).

**Methods** – This Phase 2 prospective study used a single-subject experimental design (SSED) (ABAB). Participants included five children with spastic CP between 4 and 6 years old. Treatment included five intercostal stretches administered in five 15-minute sessions. Treatment dosage was derived from Phase 1 results. During the withdrawal phase, a sham treatment was administered at the same dosage. Primary outcome measures included changes in sound pressure level (dB SPL) and maximum phonation duration (MPD) of /a/. Secondary treatment outcome measures included speech intelligibility, syllables per breath unit (SBU), and chest structure measurements.

**Results** – In addition to visual inspection and effect size, trend, level, variability, % of non-overlapping data, and immediacy of effect were combined to support or refute the effect for each variable to increase the strength of evidence for SSED studies (Kratochwill et al., 2010). Increased dB SPL demonstrated large effect sizes for all participants (1.32 to 7.17). MPD effects were inconclusive. Two secondary outcomes showed consistent increases—SBU and ribcage circumference, while the other two—increased speech intelligibility and reduced abdominal protrusion did not.

**Conclusions** –This is the first known study to demonstrate the treatment efficacy of manual therapy on speech outcomes in children with spastic cerebral palsy. While the results are promising, and the strength of evidence relatively strong, this research needs to continue.