

The Effect of an Intensive Block of Bobath Therapy on Speech Breathing in a Child with Cerebral Palsy (a pilot study)

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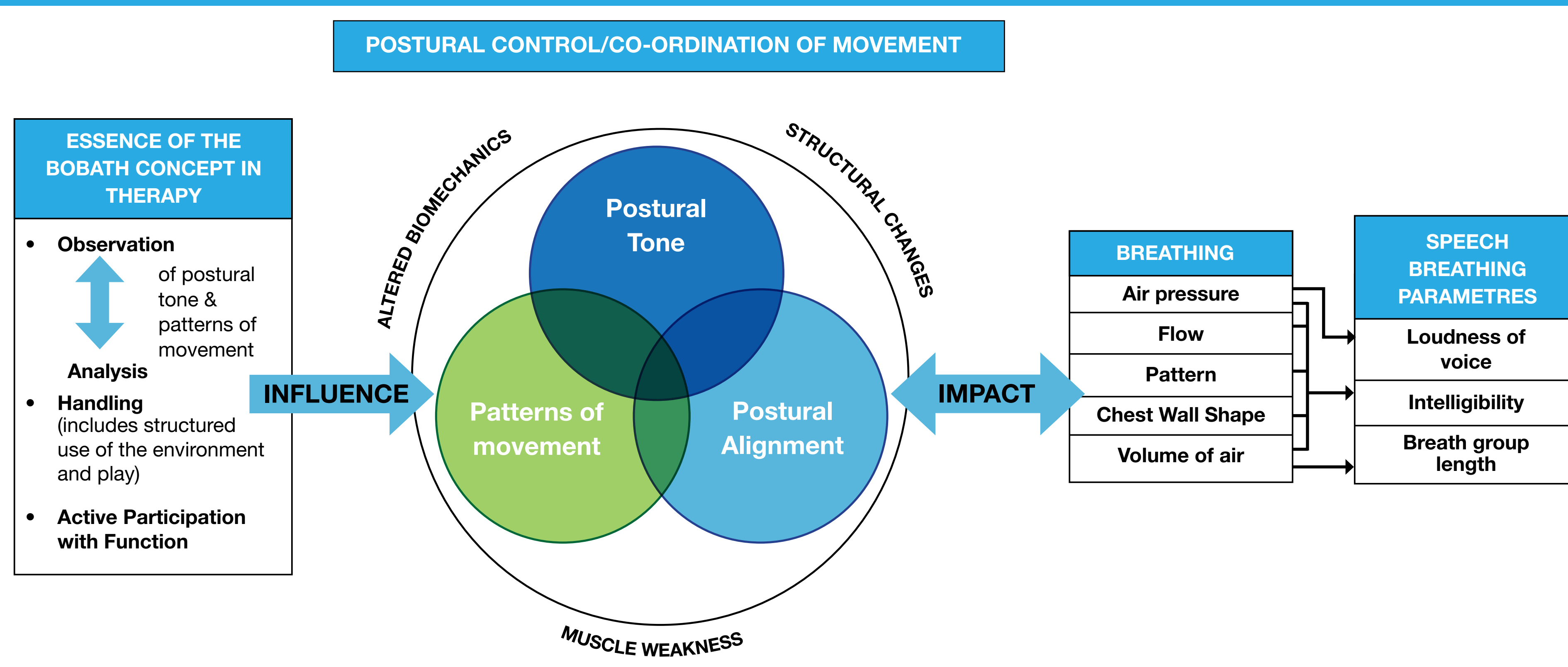
INTRODUCTION

Speech production is a specific act of breathing requiring a flexible, well-controlled and co-ordinated respiratory system to accommodate and adapt to ventilatory and mechanical demands¹. Speech breathing requires a dynamic interplay between relaxation pressure and muscular pressure to support lung volume and air pressure for speech production.

Children with cerebral palsy frequently present with speech breathing difficulties, due to their poor postural control, abnormal muscle tone and reduced ability to co-ordinate the timing and grading of the musculature of the respiratory mechanism^{2,3}.

RATIONALE

To investigate whether an intensive block of Bobath therapy, addressing postural control and co-ordination of movement, impacts on speech breathing and intelligibility



CLIENT: 4 year old

Cerebral palsy - Choreoathetosis

GROSS MOTOR FUNCTION CLASSIFICATION SYSTEM (GMFCS): Level III

Body Function and Structure:

- Fluctuating postural tone
- Involuntary movements – alternating movements – wide ranging proximally and smaller writhing distally
- Decreased proximal stability due to poorly sustained muscle activity, particularly abdominal muscles.
- Asymmetry affecting alignment – postural scoliosis, convex to the right
- Fatigue

Activities:

- Reduced breath group length (number of syllables/ breath)
- Reduced intonation and loudness of voice
- Imprecise articulation

Participation:

- Reduced speech intelligibility.
- Reduced confidence when conversing with peers.

Environmental Factors:

- Noisy nursery environment
- Increased contact with unfamiliar people

Personal Factors:

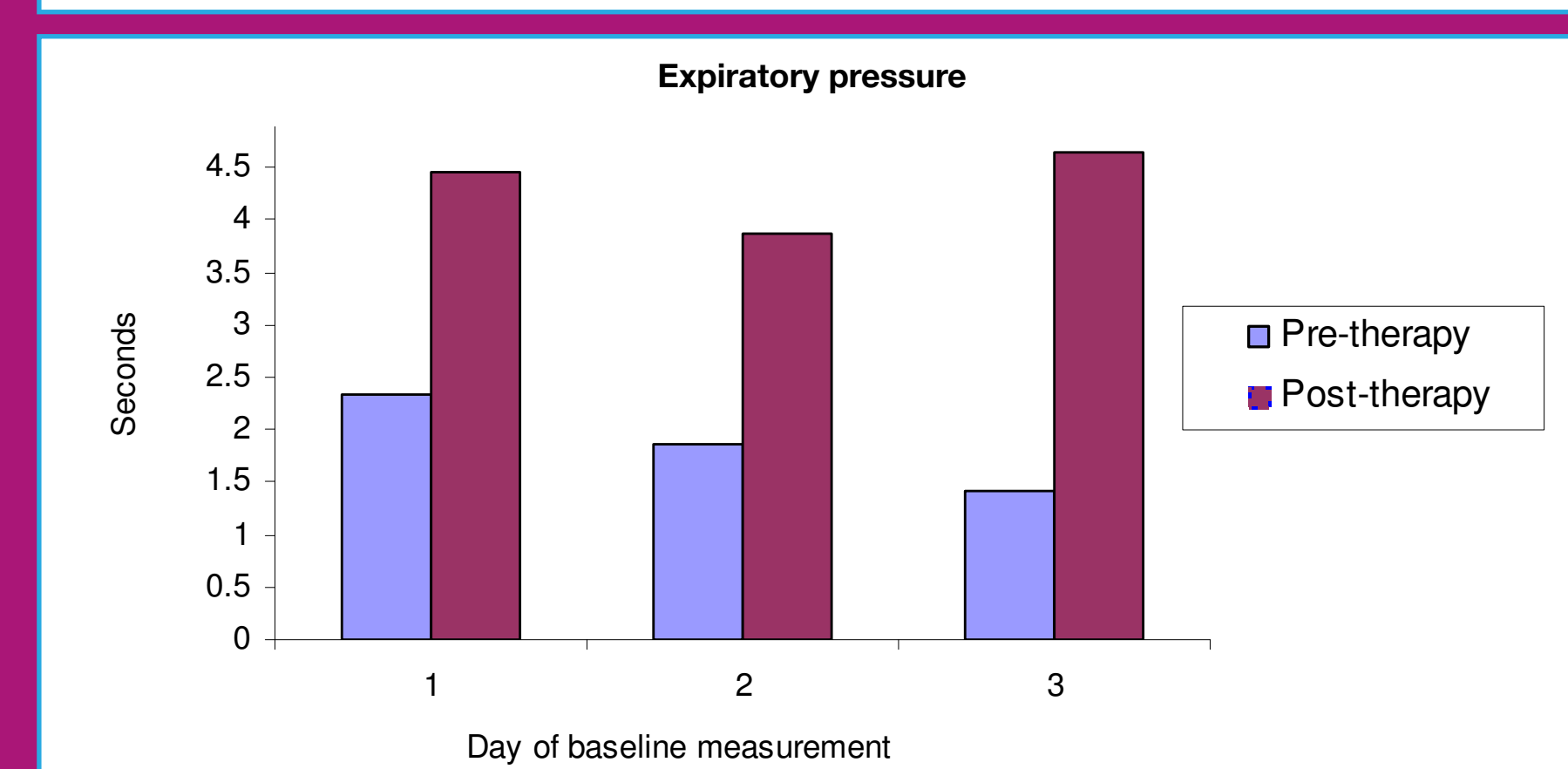
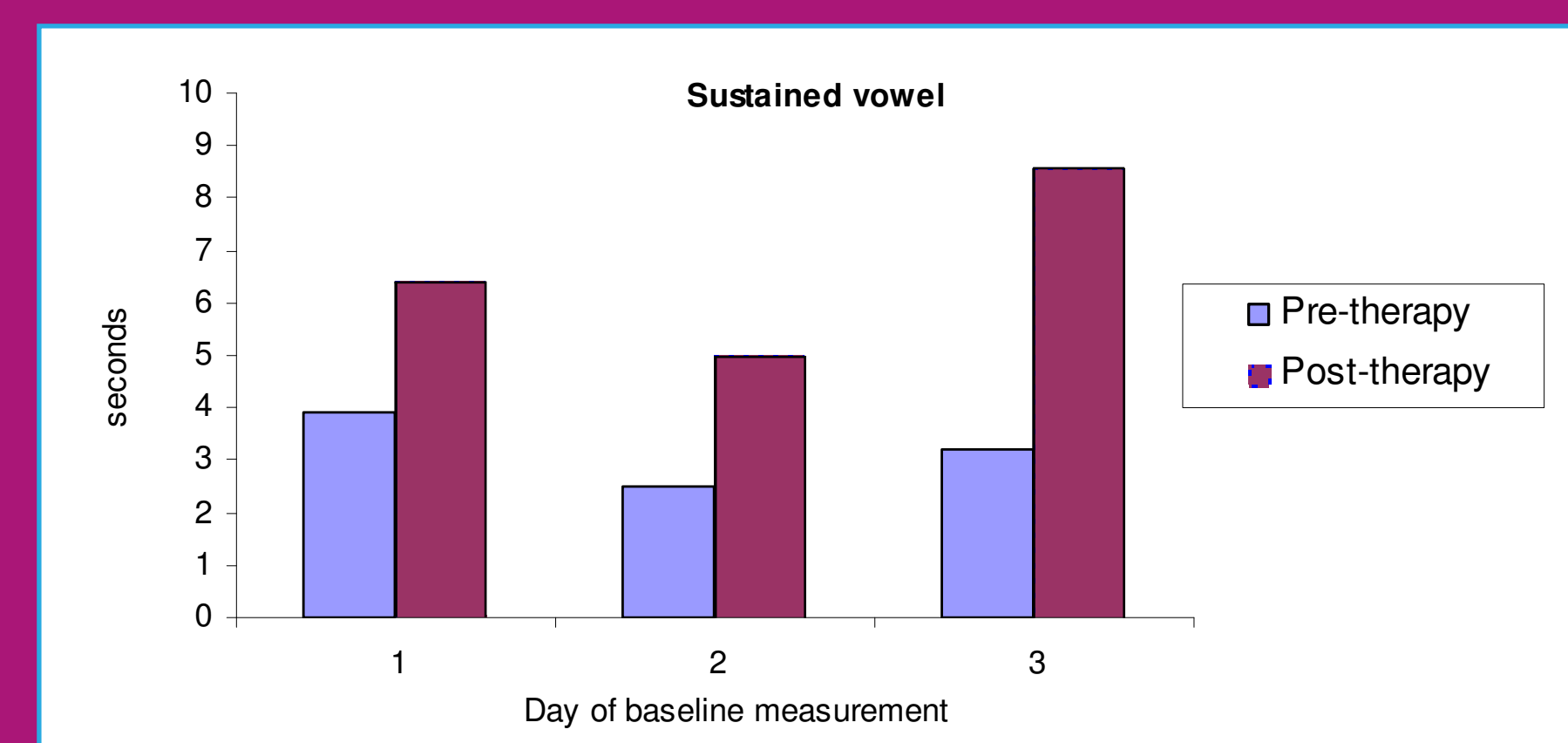
- Confidence
- Aware of speech difficulties and difference in comparison to peers

MAIN OUTCOMES

The results indicated:

- Increased duration of a sustained vowel

- Increased expiratory pressure at the mouth
- No significant improvements in speech intelligibility



HYPOTHESIS

An intensive block of eight sessions of Bobath Therapy focusing on improving postural stability and alignment, reducing fluctuating tone and involuntary movements, will show improvements in the client's speech breathing (loudness of voice and syllables per breath length) and intelligibility.

METHODOLOGY

- Design:** Single-subject ABA design
- Intervention:** Three week therapy block – 8 sessions, approximately 75 minutes long. Bobath trained Speech and Language Therapist and Physiotherapist.

MEASUREMENTS

- Loudness of an open vowel – Sound Level Meter
- Maximum expiratory pressure (cmH2O) – water bubble manometry¹
- Sustained phonation of an open vowel – digital recording.
- Breath group length from digital recordings of short narratives and the naming of familiar multisyllabic words.
- Speech intelligibility from digital recordings of short narratives and the naming of familiar multisyllabic words.

CONCLUSION

In order to impact speech intelligibility, an intensive block of Bobath Therapy should be augmented with a more direct approach to specifically target speech production, such as, voice loudness and breath group length in speech activities.

ACKNOWLEDGEMENTS:

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INTERVENTION

- Weight bearing through limbs to reduce involuntary movements and promote improved trunk activity.
- Improve proximal stability.
- Improve grading of movement and ability to sustain midrange positions.

Reference List

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