

# From Distention to Stability: NeoBellyBand Performance Improvement Project

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## Purpose

The NeoBellyBand<sup>4</sup> is designed to address **three** primary goals:

1. Reduce abdominal distention
2. Enhance abdominal wall function
3. Mitigate the adverse effects of CPAP belly

"CPAP belly," a condition characterized by abdominal distention due to aerophagia (swallowing of air), leads to overstretching and inactivity of the abdominal wall, as well as dilation of the intestinal tract. These musculoskeletal changes can disrupt normal ventilation and stooling patterns, contribute to abnormal thoracoabdominal development, and reduce overall comfort. Over time, these effects may negatively influence developmental outcomes, including cardiopulmonary endurance for feeding, motor development, and postural control.<sup>1,3</sup>

## Background

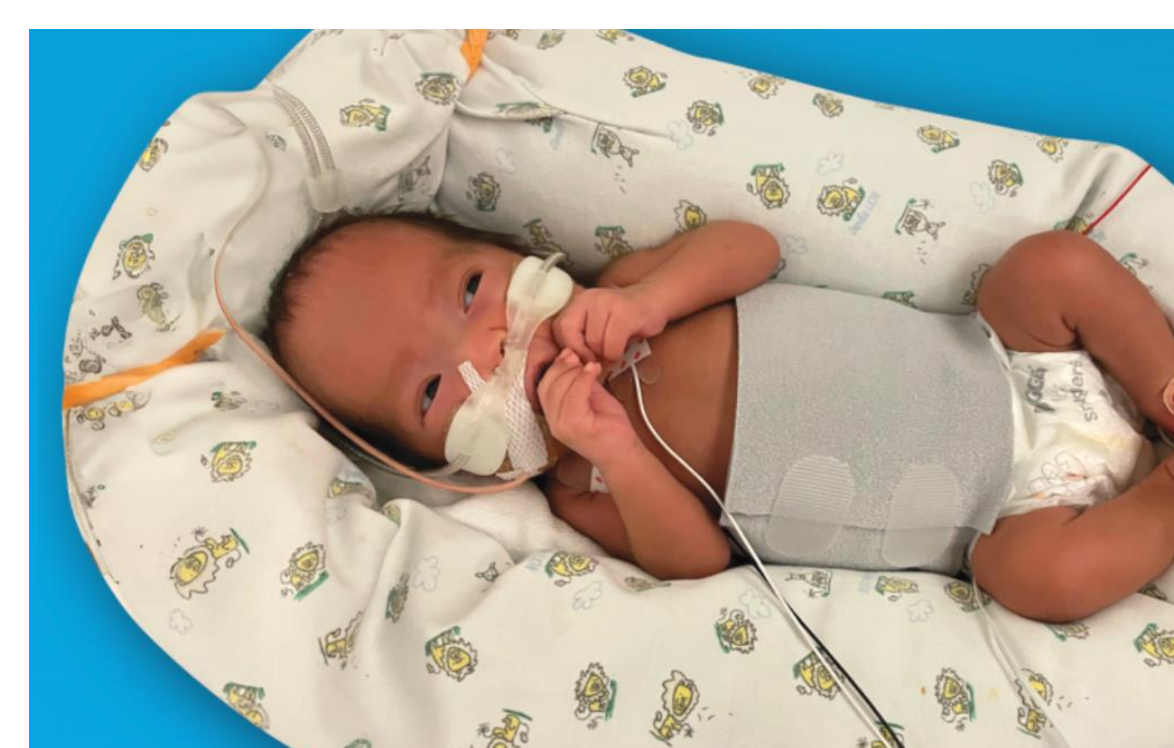
Current treatment options for "CPAP belly" include:

- Prone positioning
- OG venting

The NeoBellyBand, created by Ginny McGill, PT, DPT, CNT, NTMTC

### NeoBellyBand features:

- Medical-grade blend of fabric and soft foam inlay that has been used safely on premature skin
- Outer fabric that is Velcro receptive and adjustable
- NeoBellyBand provides a boundary, it is NOT compressive



## Initiative Details

NeoBellyBand trial was initiated to assess the effectiveness of the intervention for reducing abdominal distention and enhancing abdominal wall development.

### Patient inclusion criteria

- **AGE:** >28w PMA
- **Medical Status:** physiological stable, without GI pathology or significant comorbidity, good skin integrity
- **Respiratory Status:** Currently on CPAP
- Identified as having AC/HC >75% percentile<sup>6</sup>

### Wearing Protocol

- 24H wearing schedule
- Skin checks Q3
- Can remove for skin to skin
- Wean off once CPAP is removed

### Data collection

- Weekly head circumference
- Bi-weekly abdominal girth measurements

### Sample Size

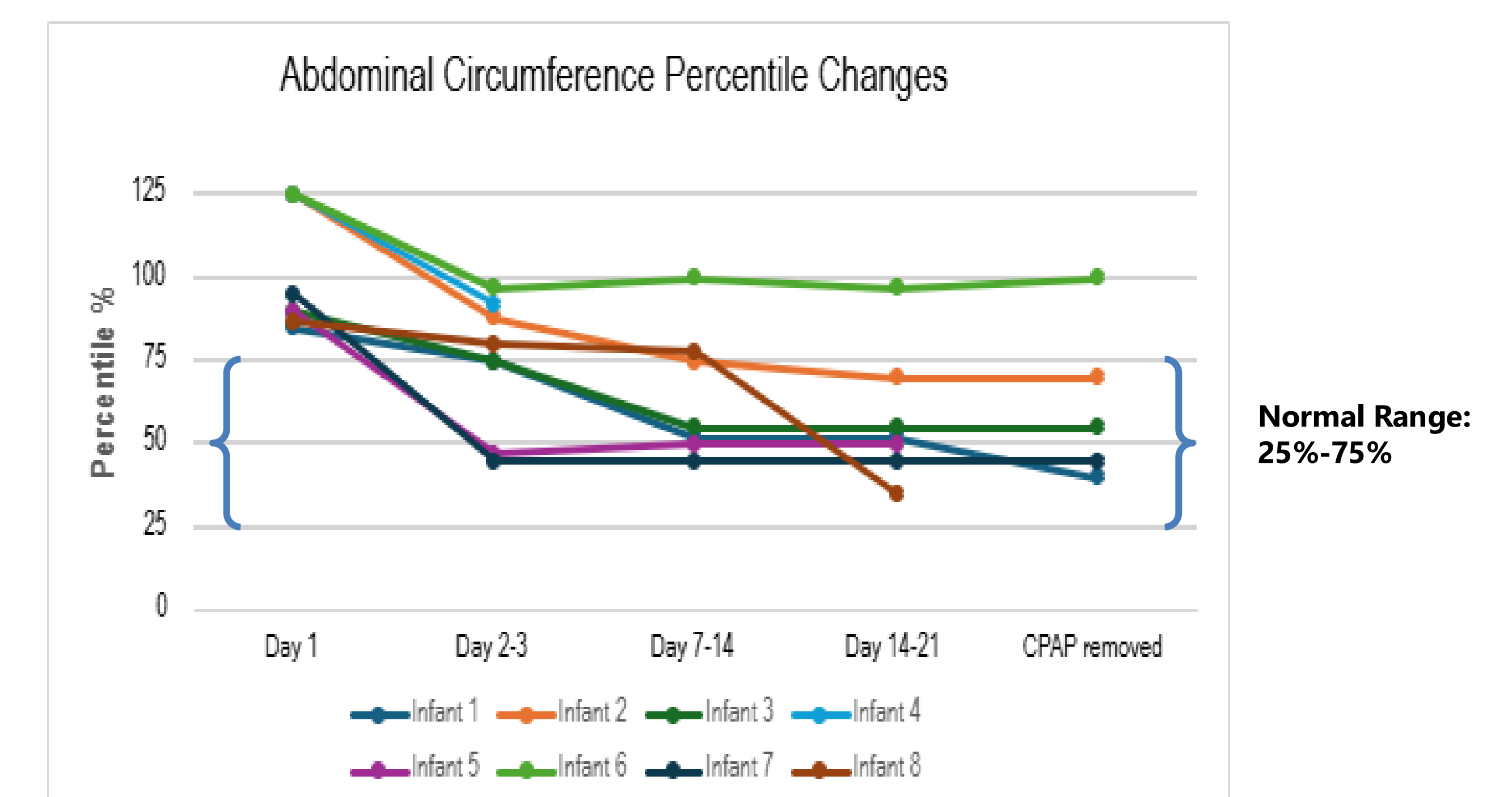
- Total of **8 Patients** were included in the trial
- 1 patient removed from trial out of therapy discretion from GI vulnerabilities



Scan the QR code to view improved breathing patterns in the infant shown above.

## Outcomes

- **6 infants:** Abdominal circumference (AC) normalized within 2 days to 1 week of intervention
- **1 infant:** AC remained above normal; however, notable qualitative improvements were observed
- **1 infant:** Discontinued from trial after 2 days due to gastrointestinal vulnerabilities, per clinical discretion



- All infants had qualitative improvements in stooling patterns, abdominal appearance, and overall comfort
- High parental satisfaction
- No adverse effects were reported

## Next Steps

- OT/PT will implement this treatment when clinically indicated and prescribed by a provider, ensure that all clinical criteria are met, appropriately measure and fit the NeoBellyBand, and monitor outcomes throughout use
- Guidelines for use and contraindications will remain consistent with those established in the original trial protocol

## References

1. <https://dandelionmedical.com/neobellyband/>
2. Brunherotti, Marisa & Martinez, Francisco. (2013). Response of oxygen saturation in preterm infants receiving rib cage stabilization with an elastic band in two body positions: A randomized clinical trial. 10.1590/S1413-35552012005000082
3. Gu, H., Seekins, J., Ritter, V. et al. Characterizing continuous positive airway pressure (CPAP) Belly Syndrome in preterm infants in the neonatal intensive care unit (NICU). J Perinatol (2024). <https://doi.org/10.1038/s41372-024-01918-2>
4. McGill VE. Neonatal abdominal support to address CPAP belly: Two cases report and literature review. J Neonatal Perinatal Med. 2022;15(4):831-836. doi: 10.3233/NPM-221047. PMID: 36031911.
5. Santos JX, Silva PYF, da Cruz MCL, Vasconcelos e Silva BF, Azevedo IG, Pereira SA. Real-time changes in rib cage expansion and use of abdominal mechanical stimulation in newborns: a quasi-experimental study. Rev Paul Pediatr. 2023;42:e2023032. doi:10.1590/1984-0462/2024/42/2023032.
6. Setruk H, Nogué E, Desenfants A, Prodhomme O, Filleron A, Nagot N, Cambonie G. Reference Values for Abdominal Circumference in Premature Infants. Front Pediatr. 2020 Feb 13;8:37. doi: 10.3389/fped.2020.00037. PMID: 32117842; PMCID: PMC7033386.