

YOUR POSITIONING TOOLKIT: WHAT'S INCLUDED

Neurodevelopmentally supportive positioning promotes both neuroprotective age-appropriate developmental care and trauma informed care.¹⁻⁵ It positively influences physiologic function and stability, sensory development, neurobehavioral organization, skin integrity, thermoregulation, bone density, and sleep, optimizing growth, brain development and neonatal developmental outcomes.⁶⁻¹⁴ Based on a synthesis of available evidence, including work by the National Association of Neonatal Therapists, DandleLION Medical has created the 5 Key Tenets of Neurodevelopmentally Supportive Positioning™ (5 Tenets™).^{6, 15-18} The 5 Tenets™ can be viewed as the gold standard for positioning – flexion, midline alignment, containment, 360 degrees of proprioception, and free movement with recoil.

Based on the 5 Tenets, the **Positioning Competency Toolkit** was developed to support standardization of best practice. The tool kit includes an introductory *Neurodevelopmentally Supportive Positioning* educational video, a visual overview of the 5 Tenets, the Positioning Competency Tool to assess caregiver skill, and the NeoNAPP assessment of positioning equipment effectiveness. Applications of the Positioning Competency Toolkit may include, but are not limited to:

1. Unit based clinical orientation
2. Clinical skills competency training
3. Quality improvement projects designed to improve positioning practices

Aim or Intent

The Positioning Competency Toolkit, created by the multi-disciplinary Dandle•LION Clinical Education team, is a multimedia resource designed to enhance positioning practice that can be used with any positioning system or device.

TOOL 1	POSITIONING PEARLS EDUCATIONAL VIDEO SERIES starting with the “Neurodevelopmentally Supportive Positioning” educational overview video that introduces the 5 Key Tenets and the importance of neurodevelopmental care for best outcomes.
TOOL 2	THE 5 KEY TENETS OVERVIEW document describes the role of each of the 5 Tenets, provides a comparison to the womb, and describes benefits of neurodevelopmentally supportive positioning.
TOOL 3	POSITIONING COMPETENCY TOOL assesses a clinician’s ability to position an infant in a neurodevelopmentally protective/supportive manner, using the 5 Tenets.
TOOL 4	NEONATAL NEURODEVELOPMENTAL ASSESSMENT OF POSTURE AND POSITIONING (NeoNAPP) provides an objective assessment of how well a baby’s position aligns with each of the 5 Tenets.

THE POSITIONING COMPETENCY TOOLKIT

How to Use the Toolkit

Begin by watching **Neurodevelopmentally Supportive Positioning** discussing the principles of the 5 Tenets™. The video should ideally accompany more in-depth education on neurodevelopmentally supportive care and serves as a just-in-time in-service training prior to use of the NeoNAPP. The **5 Key Tenets Overview** document serves as a visual aid and ongoing refresher about the importance of each Tenet.

The **Positioning Competency Tool** is a pre- and/or post-educational **assessment of caregiver skill**. The tool examines positioning techniques and encourages proper flow of care to promote neurodevelopmental integrity. A total of 16 care parameters are presented. Clinicians are scored between zero and four on each parameter, reflecting novice to expert-level proficiency.

The **NeoNAPP** is used to **assess a baby's position** based on the 5 Tenets, by comparing the baby's position to pictorial examples. Scores on each tenet can range from 0 (absence of the tenet) to 2 (successful attainment of the tenet). Clinical implications for the total score are listed at the bottom of the tool.

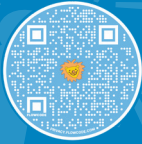
Note: It may not be clinically feasible to completely provide all 5 Tenets due to clinical acuity, medical equipment, or a lack of available positioning tools. Clinicians should aim to provide as many of the 5 Tenets as possible, as completely as possible given the baby's specific clinical circumstances. This tool can be used to measure practice at a specific point in time, or on an ongoing basis to continually evaluate positioning practice. (e.g., during developmental care rounds).

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DANDLE·LION POSITIONING PEARLS



Scan Here:



This library was created to equip NICU clinicians with evidence-based positioning strategies to support babies during specific clinical scenarios. Each video utilizes the 5 Key Tenets of Neurodevelopmentally Supportive Positioning™

<https://vimeo.com/showcase/positioningpearls>



NEURODEVELOPMENTALLY SUPPORTIVE POSITIONING

This video introduces clinicians to the 5 Key Tenets of Neurodevelopmentally Supportive Positioning™ as the foundation for evidence-based positioning strategies in the NICU.



POSITIONING THE NEWLY ADMITTED PRETERM INFANT

This video will provide clinicians with neurodevelopmentally-supportive positioning strategies for preterm infants on admission and during early hospitalization.



POSITIONING DURING PHOTOTHERAPY

This video will provide NICU clinicians with neurodevelopmentally-supportive positioning strategies for babies undergoing phototherapy.



POSTOPERATIVE POSITIONING

This video will provide clinicians with neurodevelopmentally-supportive positioning strategies for babies in the postoperative period.



POSITIONING ON ECMO AND HFOV

This video will provide clinicians with neurodevelopmentally-supportive positioning strategies for babies on ECMO and HFOV.



POSITIONING DURING CPAP

This video will provide clinicians with neurodevelopmentally-supportive positioning strategies for babies on non-invasive ventilation, like CPAP.



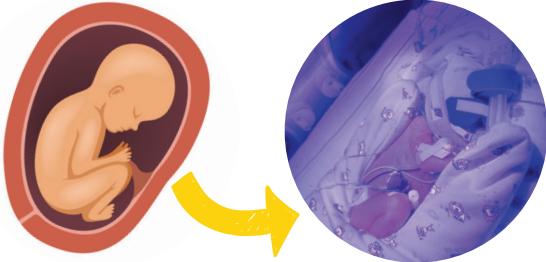
POSITIONING SUPPORT FOR NAS

This video will provide clinicians with neurodevelopmentally-supportive positioning strategies for babies with Neonatal Abstinence Syndrome (NAS) or Neonatal Opioid-Withdrawal Syndrome (NOWS).















5 KEY TENETS OF NEURODEVELOPMENTALLY SUPPORTIVE POSITIONING™



Infant positioning that mimics the intrauterine position positively impacts healthy development of future motor milestones, while having a substantial effect on neurodevelopment of preterm infants. The DandleLION positioning system promotes healthy development of the brain and body by more closely mimicking the womb, using 5 Key Tenets of Neurodevelopmentally Supportive Positioning™.



A baby undergoes phototherapy with positioning support from two Dandle PALs, promoting a flexed, contained, midline posture while providing proprioceptive input. The baby's posture closely aligns with the position in the womb.

		Womb	Traditional Positioning Aids	
1	<p>FLEXION Arms And Legs Flexed, With Spinal Flexion From Head To Hips <i>At rest inside the womb, babies are flexed. During activity they demonstrate continued flexion of the spine with intermittent extension of the arms and legs.</i></p>			
2	<p>CONTAINMENT Supportive Boundaries Surrounding The Infant On All Sides <i>The immature muscular development of the preterm infant makes them unable to independently perpetuate the flexion bias. Containment promotes a flexed posture.</i></p>			
3	<p>MIDLINE ALIGNMENT Symmetrical Posture Oriented To Midline Including Head & Neck <i>Reducing asymmetry in the premature infant is essential, as symmetrical movement and responses are crucial for early development and later milestone accomplishment.</i></p>			
4	<p>360° OF PROPRIOCEPTION Responsive Boundaries That Resist Excessive Extension <i>The muscular uterus creates a consistent proprioceptive feedback loop, promoting a flexed posture while allowing nearly full extension of the arms and legs.</i></p>			
5	<p>FREE MOVEMENT & RECOIL Unrestricted Movement Guided Back To Flexion And Midline <i>The womb provides freedom of movement within defined boundaries, facilitating development of proprioception. Normal skeletal and motor development require a flexed resting posture with extension toward dynamic boundaries, which promote recoil back to a flexed, self-regulating state.</i></p>			

BENEFITS OF THE DANDLE•LION POSITIONING SYSTEM



FRONTLINE CLINICIANS REPORT IMPROVED DURATION AND QUALITY OF SLEEP, WHICH HAS BEEN SHOWN TO RESULT IN:

- Caloric preservation and improved linear growth
- Protected brain development
- Decreased respiratory support
- Increased parent satisfaction

ADDITIONAL CLINICAL BENEFITS MAY INCLUDE:

- Decreased procedural touch time spent repositioning babies to achieve state organization and sleep
- Decreased nuisance alarms caused by movement, discomfort, or agitation

HOSPITALS REPORT A VARIETY OF BENEFITS, INCLUDING:

- Range of sizes and products that can be individualized to meet each baby's unique needs
- Versatility allowing for customization to each unit's census, acuity, and culture
- Washable, reusable, and disposable options to accommodate each facility's laundry capabilities

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Clinician Name:

Date:

Assessed by:

- KEY TO COMPETENCY LEVELS:**
- 0 – Minimal experience
 - 1 – Minimal experience, can describe related principles
 - 2 – Comfortable performing with resource available
 - 3 – Competent to perform independently
 - 4 – Expert, able to act as resource to others

Prior to caregiving activities:

0 1 2 3 4

Protect eyes from direct light or changes in environmental lighting

Provide a tactile cue to indicate initiation of cares (e.g., hand hug)

After caregiving activities, position baby using the 5 Tenets:

FLEXION

Round the shoulders forward

Facilitate spinal flexion from head to hips ('C' curve)

Flex the hips into posterior pelvic tilt with slight abduction

Flex the knees and ankles, supporting foot bracing and alignment

CONTAINMENT

Provide circumferential boundaries around all sides of the baby

Ensure positioners are nestled against the baby to reduce startling/waking

MIDLINE ALIGNMENT

Ensure head is in less than 45 degrees of lateral rotation (or less than 75 degrees in prone)

Move hands to chest or face

Bring elbows and knees toward the midline of the body

Bring feet together

PROPRIOCEPTIVE INPUT

Provide proprioceptive feedback with a fabric pouch or covering when clinically appropriate (goal is 360 degrees of proprioception)

FREE MOVEMENT WITH RECOIL

Ensure positioners allow extension and promote a return to flexion

After positioning is complete:


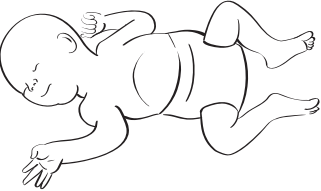


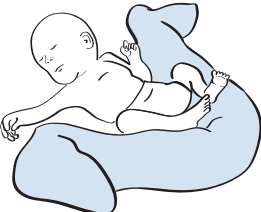

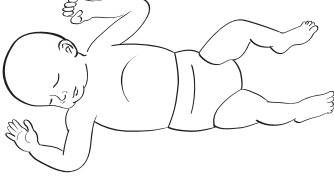
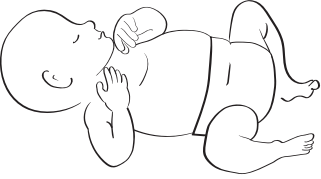



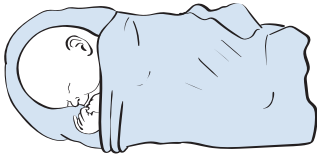
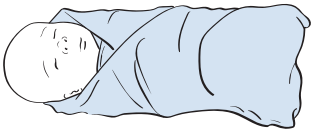

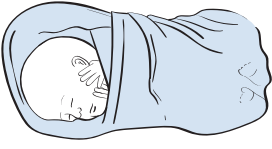
Provide a tactile cue to indicate conclusion of touch time (e.g., hand hug)

Independent performance according to this tool indicates successful competency in providing the 5 Key Tenets of Neurodevelopmentally Supportive Positioning™:

Flexion · Containment · Midline Alignment · 360 degrees of proprioceptive input · Free movement with recoil

NEONATAL NEURODEVELOPMENTAL ASSESSMENT OF POSTURE AND POSITIONING (NeoNAPP)

Gestational Age at Birth: _____ Corrected Gestational Age: _____ DOL: _____ Prone Supine Side-Lying

Key Tenets	0	1	2	SCORE
FLEXION Arms and legs flexed, spinal flexion in a "C" Curve from head to hips	 Extremities in extension, Spinal extension	 Extremities partially flexed, Hands away from body, Partial spinal flexion	 Extremities flexed, Hands near face or chest, Complete spinal flexion with posterior pelvic tilt.	
CONTAINMENT Supportive circumferential boundaries surrounding the infant on all sides	 Boundary absent, or in bed but away from baby	 Boundary partially in contact with baby	 Boundary present and in contact with baby on all sides	
MIDLINE ALIGNMENT Posture oriented symmetrically to midline of body, including head and neck	 Extremities extended away from midline, Asymmetry of extremities, Head turned more than 45° in supine	 Extremities partially toward midline, Partial symmetry of extremities, Head turned less than 45° in supine	 Head, neck, and extremities at midline of body, Symmetry of extremities	
360° OF PROPRICEPTION Responsive covering that gently resists excessive extension	 Proprioceptive input absent or misplaced	 Partial proprioceptive input provided	 Proprioceptive input encases baby, mimicking the womb	
FREE MOVEMENT WITH RECOIL Baby able to extend extremities against gentle pressure that encourages a return to flexion	 Baby unable to move freely due to static boundaries, such as tight hospital blankets	 Baby can move freely but no recoil provided e.g., straps that easily loosen with movement	 Baby can move freely with recoil provided by 3-way stretch fabric	
CLINICAL IMPLICATIONS FOR NeoNAPP SCORE: < 7 Needs Improvement - Increase positional support. 7 - 9 Good - Ensure midline alignment, flexion and containment. 10 Optimal - Maintain and document position.			TOTAL SCORE:	