

# Positioning for Children GMFCS Levels IV-V: focus on hip health

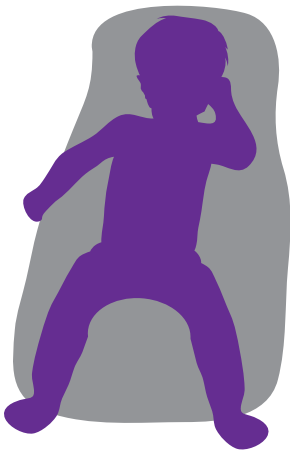
## ABOUT THIS TOOL

Positioning may play a role in the prevention and management of hip displacement/dislocation in children with cerebral palsy, Gross Motor Function Classification System (GMFCS) [1] levels IV-V. Clinical recommendations in this tool are informed by clinical expertise. Recommendations informed by the research evidence are **bolded** with reference(s) in brackets. This tool augments clinical practice and does not replace clinical assessment, judgment and reasoning.

**GUIDING PRINCIPLE:** Aim for symmetry of pelvis, trunk, neck and head in all positions. Change position to encourage motor development and movement.

## INFANTS: AGES 0-2 YEARS

### SUPINE



Use positioning pillows, rolls, wedges and positioning devices that hold their shape.

**INFANTS IN SUPINE:** Introduce early, in hospital if possible.

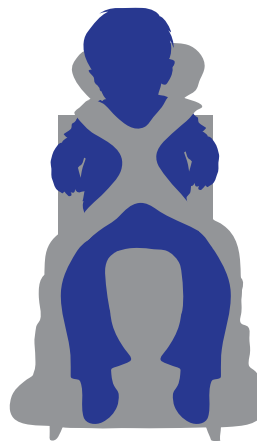
**SUPPORTS:** Laterally at the pelvis, trunk and head, and trough supports under the thighs and calves, heels may be free or supported.

**Avoid asymmetrical lying posture [2].**

**HIP POSITION:** Aim for **hip abduction 15-30° [3]**; hip flexion 10-40°; and hip external rotation 5-30°.

**DOSAGE:** Use daily as per the infant's tolerance.

### SITTING



Adapt commercially available baby highchairs, strollers, and/or use positioning equipment such as floor sitters or small seats.

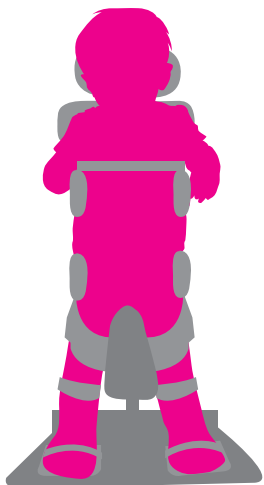
**INFANTS IN SITTING:** Introduce around 5 months as per the infant's tolerance. Gradually bring to more upright position to encourage head control.

**SUPPORTS:** Lateral at the pelvis, trunk and head. Shape pommels and/or seating system to encourage hip abduction and external rotation and aligned foot position.

**HIP POSITION:** Aim for **hip abduction 15-30° [3]** as tolerated and hip external rotation 5-15°.

**DOSAGE:** Use daily as per the infant's tolerance.

### STANDING



Use a supine, prone or upright standing frame.

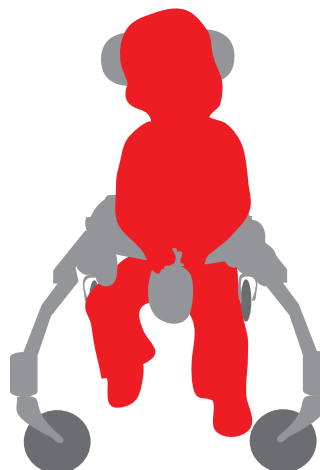
**INFANTS IN STANDING:** Introduce standing after 9-10 months of age.

**SUPPORTS:** Head, trunk, upper limb (via a tray), pelvic, knee (via straps above and below the knee), pommel and foot. Use tilt to provide support and encourage head control.

**HIP POSITION:** Aim for **15°+ of hip abduction [4]**, more if tolerated by the infant.

**DOSAGE:** Use daily as per the infant's tolerance.

### WALKING



Use a supportive walker.

**INFANTS IN WALKERS:** Introduce walking to infants GMFCS IV, after 10 months of age.

**SUPPORTS:** Provide support where needed from the head downwards.

**HIP POSITION:** Aim for active range of motion.

**DOSAGE:** Use daily as per the infant's tolerance.

# Positioning for Children GMFCS Levels IV-V: focus on hip health

## ABOUT THIS TOOL

Positioning may play a role in the prevention and management of hip displacement/dislocation in children with cerebral palsy, Gross Motor Function Classification System (GMFCS) [1] levels IV-V. Clinical recommendations in this tool are informed by clinical expertise. Recommendations informed by the research evidence are **bolded** with reference(s) in brackets. This tool augments clinical practice and does not replace clinical assessment, judgment and reasoning.

**GUIDING PRINCIPLE:** Aim for symmetry of pelvis, trunk, neck and head in all positions. Change position to encourage motor development and movement.

## CHILDREN: AGES 2-6 YEARS

### SUPINE



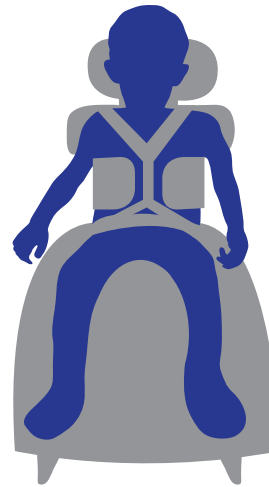
Use positioning pillows, rolls, wedges, padded brackets and positioning devices that hold their shape.

**SUPPORTS:** Laterally at the pelvis, trunk and head, and trough supports under the thighs and calves. Heels may be free or supported

**HIP POSITION:** Aim for **hip abduction 20° [3,5]** and hip flexion 0-15° and hip external rotation 5-15°.

**DOSAGE:** As per the child's tolerance.

### SITTING



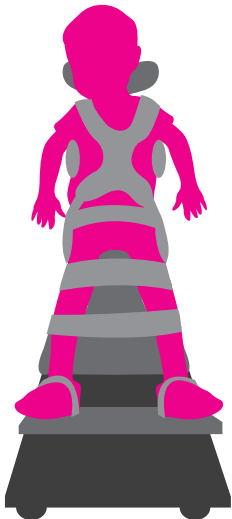
Continue with sitting equipment. Use positioning equipment such as small seats on tilt or wheeled bases. Gradually bring to more upright position to encourage head control or as head control develops.

**SUPPORTS:** At the head, trunk, pelvis, thighs and feet. Shape pommels and/or seating system to encourage hip abduction and external rotation and aligned foot position.

**HIP POSITION:** Aim for **hip abduction 15-30° [3]** as tolerated and hip external rotation 5-10°.

**DOSAGE:** As required for feeding, fine motor activities, interaction and mobility. **Up to 6 hours per day [2].**

### STANDING



Continue with standing. Use a supine, prone or upright standing frame.

**SUPPORTS:** Head, trunk, upper limb (via a tray), pelvic, knee (via straps above and below the knee), pommel and foot. If needed use tilt to provide support and encourage head control.

**HIP POSITION:** Aim for **hip abduction 15-30° [4, 6]. Avoid 0° hip abduction [7].**

**DOSAGE:** Aim for **60-90 minutes per day [3, 5].**

### WALKING



Use a walker that has support where the child needs it, i.e. head, trunk, pelvis, upper limbs (via a tray or forearm supports).

Continue with supported walking with children GMFCS IV. If possible introduce walking with children GMFCS V.

**SUPPORTS:** Provide support where needed from the head downwards, i.e. head, trunk, pelvis, upper limbs (via tray or forearm supports).

**HIP POSITION:** Aim for active range of motion.

**DOSAGE:** As per the child's tolerance.

# Positioning for Children GMFCS Levels IV-V: focus on hip health

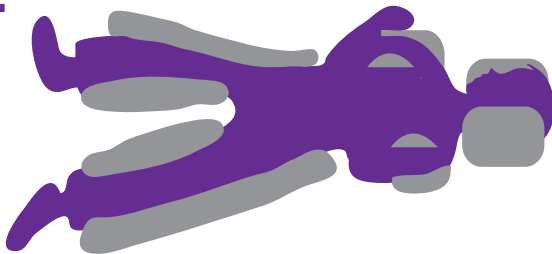
## ABOUT THIS TOOL

Positioning may play a role in the prevention and management of hip displacement/dislocation in children with cerebral palsy, Gross Motor Function Classification System (GMFCS) [1] levels IV-V. Clinical recommendations in this tool are informed by clinical expertise. Recommendations informed by the research evidence are **bolded** with reference(s) in brackets. This tool augments clinical practice and does not replace clinical assessment, judgment and reasoning.

**GUIDING PRINCIPLE:** Aim for symmetry of pelvis, trunk, neck and head in all positions.

## CHILDREN: AGES 6 TO SKELETAL MATURITY

### SUPINE



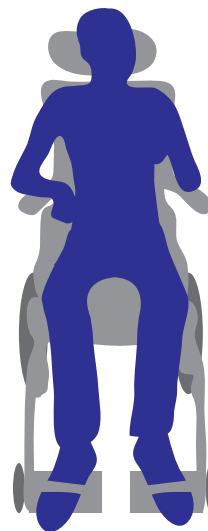
Use positioning pillows, rolls, wedges, padded brackets and/or positioning devices that hold their shape.

**SUPPORTS:** Laterally at the pelvis, trunk and head, and trough supports under the thighs and calves. Heels may be free or supported

**HIP POSITION:** Aim for **hip abduction 20° [5]**; hip flexion 0-10°; and hip external rotation 5-15°.

**DOSAGE:** As per the child's tolerance.

### SITTING



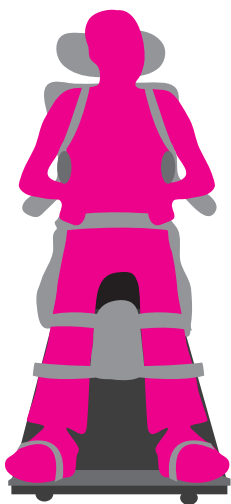
Continue with sitting equipment secured on wheeled bases.

**SUPPORTS:** At the head, trunk, pelvis, thighs and feet. Shapeommel and/or seating system to encourage hip abduction and external rotation and aligned foot position.

**HIP POSITION:** Aim for hip abduction 15-30° as tolerated or within available comfortable passive range of movement; and hip external rotation 5-10°.

**DOSAGE:** As required for feeding, fine motor activities, interaction and mobility.

### STANDING



Continue with standing. Use a supine, prone or upright standing frame.

**SUPPORTS:** Head, trunk, upper limb via a tray, pelvic, knee (via straps above and below),ommel and foot. If needed use tilt to provide support and encourage head control.

**HIP POSITION:** Aim for **hip abduction 15-30° [6]**. **Avoid 0° hip abduction [7]**.

**DOSAGE:** Recommended daily for 60-90 minutes.

### WALKING



Continue with supported walking with children GMFCS IV; if possible continue walking with children GMFCS V.

**SUPPORTS:** Head, trunk, upper limb via a tray, pelvic, knee (via straps above and below),ommel and foot. If needed, use tilt to provide support and encourage head control.

**HIP POSITION:** Aim for active range of motion.

**DOSAGE:** As per the child's tolerance.

# Positioning for Children GMFCS Levels IV-V: focus on hip health



3644 Slocan Street, Vancouver, BC, V5M 3E8

## REFERENCES

1. Palisano, R., Rosenbaum, P., Walter, S., Russell, D., Wood, E., & Galuppi, B. (1997). Development and reliability of a system to classify gross motor function in children with cerebral palsy. *Developmental Medicine & Child Neurology*, 39, 214-223.
2. Porter, D., Michael, S., & Kirkwood, C. (2008). Is there a relationship between preferred posture and positioning in early life and the direction of subsequent asymmetrical postural deformity in non ambulant people with cerebral palsy? *Child: care, health and development*, 35,5, 635-641
3. Poutney, T., Mandy, A., Green, E & Gard, P. (2009). Hip subluxation and dislocation in cerebral palsy – a prospective study on the effectiveness of postural management programmes. *Physiotherapy Research International*, 14 (2), 116-127
4. Pales, G. S., Smith, B.A., & Glickman, L.B. (2013). Systematic Review and Evidence-Based Clinical Recommendations for Dosing of Pediatric Supported Standing Programs. *Pediatric Physical Therapy*, 232-247
5. Hankinson, J. & Morton, R.E. (2002). Use of a lying hip abduction system in children with bilateral cerebral palsy; a pilot study. *Developmental Medicine and Child Neurology*, 44, 177-180
6. Martinsson, C., & Himmelmann, K. (2011) Effect of weight-bearing in abduction and extension on hip stability in children with cerebral palsy. *Pediatric Journal of Physical Therapy*, 23, 150-157
7. Dalen, Y., Saaf, M., Rignertz, H., Kelfbeck, B., Mattsson, E. & Haglund-Ackerlind, Y. (2010). Effects of standing on bone density and hip dislocation in children with severe cerebral palsy. *Advances in Physiotherapy*, 12, 187-193