

HOW to EVALUATE for POSTURE CARE MANAGEMENT in LYING

General Considerations for Evaluation

User's Habitual Lying Posture or Preferred Position

- Prone, Side-lying, Supine, or a mixture?
- Current use of any postural supports?
- Visually assess symmetry deviations and body distortions
 - Windswept legs?
 - Pelvic rotation or obliquity?
 - Pelvic tilt: posterior or anterior?
 - Lordosis or kyphosis?
 - Lateral spinal curve?
 - Sternal symmetry or chest rotation?
 - Head turning?
 - Position of arms?
 - Position of heels and feet?

Who will be providing care and setting up the positioning system? ^{7, 10}

- Parent, two parents, nursing staff, spouse, etc.
- Willingness to try something new?
- Flexibility? Positioning system will be adapted as needed
- Level of understanding? Knowing the simple biomechanics and reasons for positioning in lying is crucial as the caregiver will be the one setting up the system after bed changes, or as needed for comfort
- Motivation? Are they wanting to prevent/delay surgery? What are their reasons for wanting to try this intervention?
- Level of commitment? Consistency is crucial for this intervention to be affective

Medical Background and Considerations ¹

- Respiration – history of aspirating, use of O₂, CPAP, BiPAP, ventilation?
- Digestion – reflux, tube feedings?
- Circulation concerns?
- Incontinence?
- Medical devices, implants, hardware?

Preparation for Evaluation ¹⁶

- Space:
 - comfortable temperature, space for everyone attending, private/quiet enough?
- Materials:
 - sturdy surface with large enough area to lie down (floor, plinth, mat), box or chair (armless) at correct height (for feet to touch floor)
- Communication:
 - Remember who the evaluation is for – keep them at the forefront and demonstrate respect to the individual throughout assessment
 - Ensure everyone in attendance has been introduced and knows their role
 - Does everyone understand *why* the evaluation is occurring and what it will entail?
 - Determine specific goals that the user and caregivers want to achieve

FORMAL ASSESSMENTS

POSTURE & SYMMETRY MEASURES

Critical Chest Measurements ¹⁵

- Begin by aligning body as much as possible
 - When re-measuring, always duplicate the starting body position
- Measure from coracoid process to ASIS
 - Ipsilateral (blue arrows)
 - Contralateral (red arrows)
- Use a soft tape measure or string to accommodate body's natural curves
- Useful for comparing changes over time

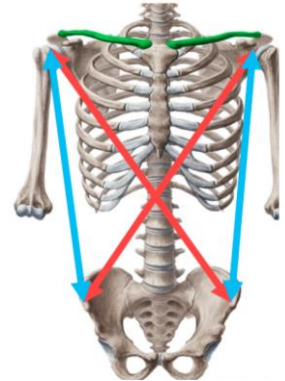


Image from KenHub. Edits by Lee Ann Hoffman

The Posture and Posture Ability Scale (PPAS) ¹⁵

- Available online as a free download
- Assesses both quality of “posture” and level of “postural ability”
- Utilizes 7-point ordinal scale to assess postural ability in
 - Supine, prone, sitting, & standing
- Takes approx. 10 minutes, does not require special equipment – just a camera
- Score assessment through use of photographs
 - Photos in supine taken from different angles
 - From above the body (frontal plane)
 - From the side (sagittal view)
- Excellent interrater reliability, high internal consistency, & good construct validity ^{19, 20}
- Limitations: normed only for cerebral palsy and does not specify severity of postural deviations

Goldsmith Indices of Body Symmetry (GloBS) ^{5, 6}

Please note: This assessment requires additional training and specific measuring tools.

Please refer to [SimpleStuffWorks.com](https://www.simplestuffworks.com) to learn more about this assessment.

- *Continuing Education Course: <https://www.postureandmobility.com/courses-1>*
- *Free/Quick Training YouTube videos: “Simple Stuff Works Association”*
- Non-invasive outcome measure of body movement and critical body proportions
 - Chest Depth/Width ratio (norm = 0.65 to 0.85)
 - Chest Right/Left ratio (1.0 indicates no rotational distortion)
 - Symmetry of Pelvic Rotation
 - Measure of Hip Abduction/External Rotation

SLEEP QUALITY ASSESSMENTS

Pittsburgh Sleep Quality Index (PSQI) ^{2, 4}

- Available online as free download
- 24 questions assessing subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction

Children's Sleep Habits Questionnaire (CSHQ) ¹²

- Abbreviated version available online as free download
- Abbreviated: 22 questions to be completed by caregiver
- Domains: bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night wakings, parasomnias, sleep-disordered breathing, and daytime sleepiness

PAIN ASSESSMENTS

Paediatric Pain Profile (PPP) ⁸

- Available as free download from www.pppprofile.org.uk
- Designed for individuals who have difficulty communicating their pain
- Uses assessment of behavior to determine pain, rather than verbal report
- Goals of Assessment
 - “make it easier to describe and record pain behaviors”
 - “make it easier to monitor pain and the effectiveness of treatments”
 - Make it easier to communicate any concerns about your child's pain to professionals”
- Compares between “good” days and “bad” days of pain
- 20 question assessment to be completed by caregiver
- Score: ranges from 0 to 60, score of 14 or higher indicates moderate to severe pain
- The PPP has been found valid & reliable for children, but Hunt et al. (2004) explains that it can also be useful for adults

Pain Assessment IN Advanced Dementia (PAINAD) ¹³

- Uses assessment of behavior to determine pain, rather than verbal report
- Observe the individual at rest and during movement
- Free download available at <https://geriatricpain.org/sites/geriatricpain.org/files/2020-06/PAINAD.pdf>

Pain Intensity Scales

- Each of these scales requires the individual to respond (verbally, pointing, gesturing, blinking, etc.)
- Assess the *INTENSITY* of pain

Numeric Rating Scale ¹¹

- Can be used with all ages, but must be able to understand numeric values
- Pain ratings from 0 (no pain) to 10 (worst pain possible)

Pain Thermometer Scale ¹⁴

- Provides visual aid to rate pain intensity
- Helpful for individuals with moderate – severe cognitive impairment
- Uses same numeric scale (0-10), with simple descriptions such as “mild pain, moderate pain,” etc.

Faces Pain Scale ³

- Provides visual aid of faces who express different levels of pain
- Can be used for all ages, including individuals with mild to moderate cognitive impairments
- Uses numeric scale (0-10), with each even number representing a different face
 - Faces do not have smiles or tears – measuring how person *feels*, not how their face *looks*

There are other assessments of pain available, considering the user's cognitive and verbal abilities, use clinical judgement to determine which is best.

INFORMAL ASSESSMENTS

Photographs ⁹

- Seated (with and without postural supports if possible)
- Preferred lying posture
- Supine
 - From above (frontal view)
 - From side (sagittal view)
 - From soles of feet (transverse view)
- Quick and subjective measure
- Visual record of postural change over time
- Take photo of person in the supported position once system has been created

User/Caregiver Report ^{6,9}

- Informal observations
- Perceived changes in function
- Changes in ADLs

OTHER OUTCOME MEASURES

X-Ray Measurements - If available from physician

- Cobb Angle – measurement of scoliosis curve
- Reimer's Hip Migration percentage – measurement of hip subluxation & dislocation ^{17, 18}
- If physician has taken x-ray images before implementation of positioning system, images can be compared later on to identify improvement
- *Disclaimer: results could be influenced by positioning of user when images are taken*

DOCUMENTATION

CPT Codes for 24/7 Posture Care Management

Evaluation / Re-evaluation

- 97166 / 97167: OT Evaluation (mod/high complexity)
- 97162 / 97163: PT Evaluation (mod/high complexity)
- 97168: OT Re-Evaluation
- 97164: PT Re-Evaluation

Treatment

- 97530: Therapeutic Activity
 - Dynamic activities that improve functional performance
- 97112: Neuromuscular Re-education
 - Addresses balance, posture, motor control, ergonomics, etc.
- 97535: Self-Care/Home Management Training
 - Addresses use of adaptive equipment/technology, safety, wound-care, safe sleeping positions, safe home environment

REFERENCES

1. Ágústsson, A., Sveinsson, T., Pope, P., & Rodby-Bousquet, E. (2019). Preferred posture in lying and its association with scoliosis and windswept hips in adults with cerebral palsy. *Disability and Rehabilitation*, 41(26), 3198-3202.
2. Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index (PSQI): A new instrument for psychiatric research and practice. *Psychiatry Research*, 28(2), 193-213.
3. Faces Pain Scale – Revised Home. *International Association for the Study of Pain*. Retrieved from <https://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1519#:~:text=The%20Faces%20Pain%20Scale%20%E2%80%93%20Revised,0%2Dto%2D10%20metric>.
4. Fung, C., Wiseman-Hakes, C., Stergiou-Kita, M., Nguyen, M., & Colantonio, A. (2013). Time to wake up: Bridging the gap between theory and practice for sleep in occupational therapy. *British Journal of Occupational Therapy*, 76(8), 384-386.
5. Goldsmith, L., Golding, R. M., Garstang R. A., & Macrae, A. W. (1992). A technique to measure windswept deformity. *Physiotherapy*, 78(4), 235-242.
6. Hill, S. & Goldsmith, J. (2010). Biomechanics and prevention of body shape distortion. *Tizard Learning Disability Review*, 15(2), 15-29.
7. Hoffman, L. A. (2016). 24-hour posture management: Challenges to implementation. *Mobility Management*, 2016. Retrieved from <https://mobilitymgmt.com/articles/2016/09/01/posture-management.aspx>
8. Hunt, A., Goldman, A., Seers, K., Crichton, N., Mastroyannopoulou, K., Moffat, V., Oulton, K. & Brady, M. (2004). Clinical validation of the Paediatric Pain Profile. *Developmental Medicine & Child Neurology*, 46(1), 9-18.
9. Kittelson-Aldred, T. (2019). Montana postural care project: Pilot program in a frontier state. *Proceedings of the International Seating Symposium*, 35, 287-289.
10. Kittelson-Aldred, T., & Hoffman, L. (2017). 24-hour posture care management: Supporting people night and day. *Rehab Management*, 30(6), 39-41.
11. Numeric Rating Scale (NRS). *PainScale*. Retrieved from <https://www.painscale.com/article/numeric-rating-scale-nrs>
12. Owens, J. A., Spirito, A., & McGuinn, M. (2000). The Children's Sleep Habits Questionnaire (CSHQ): Psychometric properties of a survey instrument for school-aged children. *Sleep*, 23(8), 1-9.
13. Pain Assessment IN Advanced Dementia (PAINAD). *GeriatricPain.org*. Retrieved from <https://geriatricpain.org/sites/geriatricpain.org/files/2020-06/PAINAD.pdf>
14. Pain Thermometer Scale. *GeriatricPain.org*. Retrieved from <https://geriatricpain.org/sites/geriatricpain.org/files/2021-04/Pain%20Thermometer%20Scale.pdf>
15. Pope, P. M. (2007). *Severe and complex neurological disability: Management of the Physical Condition*. Elsevier Limited.
16. Pountney, T. E., Mulcahy, C. M., Clarke, S. M., & Green, E. M. (2000). *The Chailey approach to postural management: An explanation of the theoretical aspects of posture management and their practical application through treatment and equipment*. Active Design Ltd.
17. Pountney, T., Mandy, A., Green, E., & Gard, P. (2001). Management of hip dislocation with postural management. *Child: Care, Health & Development*, 28(2), 179-185.
18. Pountney, 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.
19. Rodby-Bousquet, E., Ágústsson, A., Jonsdottir, G., Czuba, T., Johansson, A. C., & Hagglund, G. (2014). Interrater reliability and construct validity of the posture and postural ability scale in adults with cerebral palsy in supine, prone, sitting, and standing positions. *Clinical Rehabilitation*, 28(1), 82-90.
20. Rodby-Bousquet, E, Persson-Bunke, M., & Czuba, T. (2016). Psychometric evaluation of the posture and postural ability scale for children with cerebral palsy. *Clinical Rehabilitation*, 30(7), 697-704.