

Goodnight: The Importance of Sleep in Infants & Toddlers Ages 0-2 Years

Njideka L. Osuala, DNP, APRN, FNP-BC, CPN
Nurse Practitioner
Pediatric Sleep Disorders Clinic



© The Children's Mercy Hospital, 2017



Learning Outcomes

- Expand knowledge on the importance of sleep towards overall health and well-being in infants and toddlers ages 0-2 years.
- Understand the best practices to promote good sleep hygiene to achieve optimal health in infants and toddlers ages 0-2 years.

Pediatric Sleep 101

Sleeping



Pediatric Sleep 101

Not Sleeping



Definition of Sleep

Sleep can be defined as a behavioral state characterized by:

- Easy reversibility
- Decreased interaction with and responsivity to the environment
- Reduced motor activity
- Specific postures (lying down, eyes closed)



Sleep Architecture (Stages)

Non-REM

- Stage 1: Changeover from wakefulness to sleep. Sleep is light. Heartbeat, breathing, and eye movements are slow, and muscles relax with occasional, brief twitches. Brain waves begin to slow. This stage has the lowest arousal threshold.
- Stage 2: Period of light sleep before entering deeper sleep. Heart beat and breathing slow, muscles relax further. Body temperature drops and eye movements stop. Brief bursts of brain electrical activity.
- Stage 3: Period of deep sleep, due to highest arousal threshold. Respiration and heartbeat are at the slowest speed. Muscles are very relaxed.

REM

- Also known as “active” sleep. Eyes move rapidly from side to side under closed eyelids. Most dreaming occurs during this stage. Will see more frequent muscle twitches and grimaces in young infants.

Why is Sleep Important?

Sleep is vital for normal pediatric development. The benefits of adequate sleep include:

- Healthy growth and development
- Immune system support
- Proper weight management
- ****Proper brain development****



Sleep & Brain Development

- In the early years of life, there is immense neurological development.
- Newborns spend 50% of their daily sleep in REM.
- Researchers believe REM sleep in infants provides the brain with more stimulation that assists with proper brain development. This results in a better ability to learn and enhanced memory
- NREM sleep (Stage 3, “deep sleep”) is the more restorative type of sleep, and is thought to help preserve the sleep state to allow for optimal neurodevelopment.



Mindell, J.A. & Owens, J.A.(2015)

Pediatric Sleep Recommendations

Ages	Recommended Hours of Sleep Per Day
Newborn 0-3 months	14- 17 hours ¹
Infant 4-12 months	12-16 hours per 24 hours* ²
Toddler 1-2 years	11-14 hours per 24 hours* ²
Preschool 3-5 years	10-13 hours per 24 hours* ²
School Age 6-12 years	9-12 hours per 24 hours ²
Adolescent 13-18 years	8-10 hours per 24 hours ²

*includes naps

Sleep In Newborns

Newborns (0-3 months)

- Sleeping patterns are not established. Sleep is evenly distributed throughout the day.
- Sleep-wake cycle mainly regulated on hunger and satiety.
- Due to immaturity of the circadian sleep-wake system, sleep lacks rhythm and predictability. This lasts the first 10-12 weeks of life
- Regular rhythm of periods of alertness and sleepiness will start by 2-3 months.

Sleep In Newborns: Common Issues

- Active sleep: Movements that occur during REM sleep (grimacing, sucking, snuffling, body movements, etc) can be misinterpreted by caregivers as disturbed sleep or restless sleep.
- Co-sleeping: Is not recommended during the first year of life due to risk of suffocation or strangulation related to unsafe sleeping conditions.
- Sleeping surface/Position: Ensure sleeping environment is safe. Babies need their own sleeping space (crib, bassinet), with a firm mattress that fits. Place baby on back to sleep to reduce risk of SIDS.
- Caregiver sleep: Caregiver sleep also needs to be addressed as well. Encourage caregiver to sleep when the baby is sleeping if possible to ensure they get enough sleep.

Mindell, J.A. & Owens, J.A.(2015)

Sleep In Infants

Infants (4-12 months)

- Sleeps 12-14 hours a day total (varies with individual infant). Naps 1-4 times a day, which decreases as the infant grows. Naps last 30 min. to 2 hours.
- Begins to achieve gross motor milestones (rolling over, pulling to stand), which may temporarily disrupt sleep.
- Separation anxiety may develop around 6 months, causing increased resistance to bedtime and night awakenings.
- Most infants are sleeping through the night on a regular basis by 9 months.

Sleep In Infants: Common Issues

Sleep onset association-Conditions that are present when sleep occurs and which the infant becomes conditioned or accustomed in order to fall asleep. Example: Being rocked to sleep or pacifier. Recommend putting infant to sleep drowsy, but awake to allow sleep regulation.

Night feedings- Do not improve sleep, and most healthy infants is not physiologically necessary after 6 months. Can actually disrupt sleep, if night awakenings occur due to learned behavior. Recommend weaning off night feedings at 6 months if infant is healthy.

Nighttime arousals- Will occur in infancy due to normal sleep-wake cycle in infants. Infants can wake briefly on average of 2-6 times during the night.

- Self-soother vs non-self-soother
- Caregiver intervention vs nonintervention

Sleep In Infants: Best Practices

- Infants benefit from regular sleep schedule, with set naptimes and bedtime. This should be based on the infants natural sleep preference as well as family lifestyle.
- By age 3 months, it is recommended that a consistent bedtime routine is established.
- As with newborns, caregivers are encouraged to nap or rest when the infant is sleeping.

Sleep In Toddlers

Toddlers (1-2 years)

- Total sleep time is 11 to 13 hours (varies with individual).
- Naps about 2-3 hours.

Sleep In Toddlers: Common Issues

- Development of imagination and fantasy may result in increased nighttime fears.
- Emergence of drive for autonomy and independence may result in increased bedtime resistance.
- Separation anxiety is common, and is associated with bedtime difficulties and increased night awakenings.
- Naps should not be restricted, however naps too close to bedtime can delay sleep onset.
- Signs of sleep deprivation in a toddler include hyperactivity and irritability.

Mindell, J.A. & Owens, J.A.(2015)

Sleep In Toddlers: Best Practices

- Set bedtime routines continue to be important to ensure optimal sleep.
- It is not recommended to put toddlers to bed with a bottle due to increased risk of ear infections, learned behavior, dental caries, and also can cause night awakening due to a full bladder.
- It is recommended to keep toddlers sleeping in crib until age 3, or when there is a safety concern related to falling while climbing out of the crib.

Special Considerations

When to see your provider:

- Concern for a physiologic sleep disorder such as obstructive sleep apnea or periodic limb movement disorder.
- Disrupted sleep schedule that does not improve with home intervention.

References

American Academy of Pediatrics (2016) <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/American-Academy-of-Pediatrics-Supports-Childhood-Sleep-Guidelines.aspx>. Retrieved March 21, 2017.

Hirshkowitz, M., Whiton, K, Albert, S.M., Alessi, C., Bruni, O., DonCarlos, L., Hazen, N., Herman, J., Katz, E.S., Kheirandish-Gozal, L., Neubauer, D.N., O'Donnell, A.E., Ohayon, M., Peever, J., Rawding, R., Sachdeva, R.C., Setters, B., Vitiello, M.V., Ware, J.C., Adams Hillard, P.J. (2015) National Sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep Health, Journal of the National Sleep Foundation*. 1(1), 40–43. MD<http://www.sleephealthjournal.org/article/S2352-7218%2815%2900015-7/fulltext>. Retrieved June 14, 2017.

Journal of Clinical Sleep Medicine. Consensus Statement of the American Academy of Sleep Medicine on the Recommended Amount of Sleep for Healthy Children: Methodology and Discussion 2016;12(11):1549–1561
<http://www.aasmnet.org/Resources/pdf/Pediatricsleepdurationmethods.pdf> Retrieved March 21, 2017.

Mindell, Jodi A, Owens, Judith A. (2015). A Clinical Guide to Pediatric Sleep Diagnosis and Management of Sleep Problems 3rd edition ISBN-13 978-1-4511-9300-8.

The End

Any questions?????