How can sleep help my baby? Newborns spend most of their time asleep. Sleep is required to maintain growth and health in humans. Most full-term newborns sleep about 16 - 20 hours each day. Although losing a bit of sleep does not affect most adults, even a small lack of sleep has a huge effect on babies. For babies born early (premature), sleep promotes the extra growth and changes that are still needed by the brain and other body systems. But, there are unique issues that affect the ability of premature babies to benefit from sleep. Taking a brief look at what happens during the sleep period helps us understand how to address the special sleep needs of infants born early.

Sleep: the basics
While in the womb, the fetus has regular cycles of sleep and movement. These cycles are linked to physical changes. For instance, between 28 - 34 weeks, changes in the baby’s heart rate are linked to dreaming during sleep. In most humans, the timing of being awake or asleep is controlled by the amount of light received. Light affects a gland in the brain (called the pineal gland), which then sets off a sequence of events in the body that affect the need for sleep. This whole process is called circadian [sur-KEY-de-uhn] rhythm. You could think of this as a natural body rhythm needed for growth and health. Since the need for sleep builds up over time, the body forces you to fall asleep even if you try to stay awake. If you don’t obtain the type of restful sleep your body needs, this natural body rhythm can be disrupted.

Knowing that sleep, growth and health are linked, you can get a picture of your baby’s growth and health by watching how he or she sleeps. To do this, your health care team looks at the baby’s sleep cycles, known as active sleep (AS) and quiet sleep (QS). These cycles begin to appear between 27 - 32 weeks in the womb. Each cycle consists of a group of behaviors that show how your baby is able to respond to the world around him or her.

Your baby has many cycles of active sleep (AS) and quiet sleep (QS) every day. As the baby matures and his or her nerve network becomes more complete, the QS cycle takes over as the main form of sleep. For most full-term babies, the QS cycle takes over around 2 to 3 months after birth. This may take longer to occur in babies born early.
Here’s what happens during the sleep cycles:

**Drowsy**
- baby is moving from awake to asleep
- baby’s movements may seem more smooth and with a few mild startles or jerks
- eyes open and close, but eyeballs appear dull and eyelids look heavy

**Quiet Sleep (QS)**
- called the *sorting time* — baby’s brain sorts through input it receives while awake, which helps strengthen the complex network of nerves
- is the cycle that is most needed for rest and healing
- signs of QS may include:
  - even, rhythmic breathing
  - little to no body movement
  - lack of eye movement
  (premature babies still may make some noises and movements during QS, but these are less clear than during the AS cycle)

**Active Sleep (AS)**
- also called awake sleep or REM sleep
- baby dreams during this cycle, the brain is very active and its network of nerves continues to grow and connect with other parts of the body
- signs of AS may include:
  - uneven or fast/slow breathing
  - face movements (smile, frown, grimace) and sounds (sucking, whimper)
  - twitching arms, legs, hands and/or feet
  - sucking and swallowing motions
- in full-term babies, AS is the main part of the sleep period for the first few months after birth

How does sleep differ in babies born early? The unique needs that affect every premature baby also affect his or her sleep cycles. Sleep is affected not only by being in the NICU itself, but also by the changes that still must occur in the baby’s body. Ways in which sleep differs for premature babies include:

- A premature baby may move more quickly between being awake and being asleep.
- Moving between being awake or asleep (called *transitioning*) is harder for premature babies and full-term infants who have severe health problems. These babies also have trouble holding or remaining in either state. This is one way to help assess the baby’s growth and health.
- Sleep may be disrupted by care tasks in the NICU, by certain medicines, and/or by health problems in the baby, such as ►apnea or other breathing problems. If the rhythm of awake/asleep stages is disrupted (for instance, by staying awake too long), the baby is likely to have a shorter QS cycle during the sleep period. Often, NICU nurses group the baby’s care tasks to avoid waking the baby too often.
Other special needs during sleep: Placing your baby on his or her back to sleep has been shown to be safe for most babies. Yet, this can cause a premature baby’s soft skull to become slightly out of shape, a problem known as positional plagiocephaly [pley-jeu-SHAYF-uh-lee]. This problem often goes away as the child grows older, but it can remain in some children. This problem can sometimes be avoided by gently turning the baby’s head, from time to time, during sleep. Do not roll your baby onto his or her side during sleep because this may increase the risk for SIDS (see below). Talk to your baby’s doctor and nurse if you have questions about this problem and how to treat it.

Do premature babies have a higher risk for sudden infant death syndrome (SIDS)?
For many years, SIDS has been a leading cause of death among all newborns. It is still not fully known what causes SIDS, but the rate of SIDS has begun to decline in the U.S. Babies born before 37 weeks have a higher risk for SIDS. Parents now are advised to follow certain steps* to help avoid SIDS. The list below includes some ways to address the special sleep needs of premature babies:

✓ DO
✓ Place your baby on his or her back for sleeping. Studies** show that sleeping on the back is safer than sleeping on the tummy. Sleeping on the tummy increases the risk for SIDS in most babies, especially in premature babies.
✓ Give your baby a firm surface for sleeping (the baby cannot keep his or her airway clear when lying on a soft bed). Use a crib that meets safety guidelines.
✓ Talk with your doctor or nurse about whether to use a pacifier during sleep (a pacifier may help the baby keep his or her airway open while sleeping).
✓ Allow your baby some time on his or her tummy while awake to help increase skills in pushing up. Watch your baby closely during this time, then turn him or her onto his or her back to go to sleep, or if you need to step away from the crib.
✓ Tell other caregivers (grandparents, babysitters) not to place the baby on his or her tummy or side for sleeping (the rate of SIDS increases if a child who is used to sleeping on his or her back is placed on the tummy or side for sleep).
✓ Set up a sleep routine for your baby. Have your baby sleep in the same place and put him or her into bed when drowsy, not fully asleep. Try not to get into the habit of letting your baby sleep only while you are holding him or her.

✗ DON’T
✗ Do not use a crib bumper.
✗ Do not leave loose items in a crib.
✗ Do not allow your baby to sleep on the couch or recliner, or on any surface not approved for infant sleeping.
✗ Do not smoke around your baby.
✗ Do not sleep with your baby in bed with you (the baby can sleep in the same room as parents, but not in the parent’s bed).
✗ Do not over-dress the baby or wrap him or her tightly in blankets as this may cause the baby to become too warm.

What can parents do to help their baby sleep? There are things you can do in the NICU and at home to help support restful sleep, and promote growth and healing for your baby.

In the NICU

- Ask about cycled lighting — The process of dimming lights at certain times to mimic day and night cycles. For babies older than 32 weeks, cycled lighting helps the baby’s body set up his or her internal body clock (the circadian rhythm). Studies* show that for infants older than 32 weeks, cycled lighting increases the babies’ activity during the day, helps them gain weight, and helps them have more restful sleep at night. Since every NICU differs in design and function, talk to your baby’s health care team to see if this might help your baby.

- Ask about ►kangaroo care — A special way to hold your baby, skin to skin. This can help your baby fall asleep, make the sleep more restful, and can help the baby sleep longer.

- Stay with your baby until he or she is asleep and watch for a few moments. This can help your baby stay asleep longer.

- Learn your baby’s unique patterns for waking up and going to sleep. Before care tasks, such as feeding, help your baby to wake up gradually. You can do this by gently stroking and talking to your baby and by increasing the light in the room.

At home

For parents and their premature babies, ►going home can be a happy event, as well as a big step with unique challenges. Here are a few tips to help your baby adjust to sleeping when you go home.

- Decrease noise and light — Because the baby’s network of nerves still are growing and changing, premature babies are less able to tune out sound and light, which may cause them to wake often during the night.

- Keep a calm and quiet area — A busy or crowded area can disrupt the baby’s ability to sleep and, again, to tune out all the action around him or her. Limit the number of visitors for a while to avoid too much activity around your baby.

- Give your baby time to adjust — Moving from the NICU to home is a change for your baby, which can sometimes be a challenge. Your baby may need a week or more to adjust to the change in routine and in patterns of care, as well as to the new sights, sounds, and smells. At first, you may find that your baby cries more at home than in the NICU. With time, your baby will adjust to these changes. Playing soft music and providing a night-light for the first few nights at home may help your baby adjust. Gently decrease your use of these during the first week, so your baby won’t need to have these in order to sleep.

• Use slow, gentle movements during care tasks. Keep care tasks brief to avoid making the baby too tired. For instance, avoid bathing, diapering and feeding all at one time. Give your baby time to rest and recover after doing these tasks.
• Avoid drinking alcohol and smoking — Alcohol in the mother’s milk can decrease the length of time your baby sleeps and the amount of time your baby spends in the QS cycle. Smoking increases your baby’s risk for SIDS.
• Refer to the tips on the next page for help with nighttime sleeping.
• Remain aware of your baby’s cues, the signs that tell you when your baby is ready to fall asleep or to wake up. Record answers to the questions below to help you get started. Sometimes it can be hard to know what these cues are, so talk with your baby’s health care team for more help with learning your baby’s sleeping cues.

**My baby’s unique cues for sleep**

What are my baby’s patterns when he or she falls asleep? ____________________________

How long does my baby sleep? ____________________________

What are my baby’s unique movements during active sleep (AS)? ____________________________

What are my baby’s unique movements during quiet sleep (QS)? ____________________________

What support in bed helps my baby remain asleep? ____________________________

What helps my baby recover after care tasks? ____________________________

What helps my baby move gently from sleeping to waking up? ____________________________
Nighttime sleeping tips for babies born early

When you take your baby home, you may have many of the same questions about sleep as other parents of newborns: How often will my baby wake? Should I let her cry when she wakes? What if I put him down to sleep and he wakes right up again? What can I do to calm my baby? While there is no single answer for every baby, there are some basic tips that can help your baby (and you) achieve a restful sleep.

• Premature babies have more cycles of sleeping and waking periods throughout the day than full-term babies. A full-term newborn sleeps about 16 to 17 hours per day and wakes every 3 to 4 hours throughout the day and night. A premature baby will wake more often and stay awake for a shorter time. It is the baby’s changing network of nerves (the nervous system) that affects these cycles. While full-term babies may move easily from one state to another, premature babies often need more help with this.

• As your baby matures, he or she will begin to sleep more during the night than during the day. This often begins around 3 to 4 months of age in full-term newborns, but often begins around 7 months for babies born early.

• Premature babies wake more often during the night.* By 8 to 9 months, most full-term infants can sleep through the night without waking the parents. At this age, babies continue to wake through the night, but learn how to fall back to sleep without help from the parents (called self-soothing). Most premature babies will require more time to learn these self-soothing skills. Many factors affect self-soothing, such as the baby’s bedtime routine and the room where he or she sleeps. It is also affected by the growth and change in the baby’s network of nerves. As this network matures, the baby will improve at self-soothing.

• Crying does not always mean your baby is hungry. You may notice that your baby’s cry sounds different with different problems. When your baby cries at night, also check the baby’s body temperature, position in bed, and diaper. And keep in mind that many premature babies need extra help getting back to sleep.


This information is for educational purposes only and is not intended to substitute for professional medical advice. Always consult with a health care professional if you have any questions about the health of your baby.

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