The 41st Wink

Better Sleep For Life

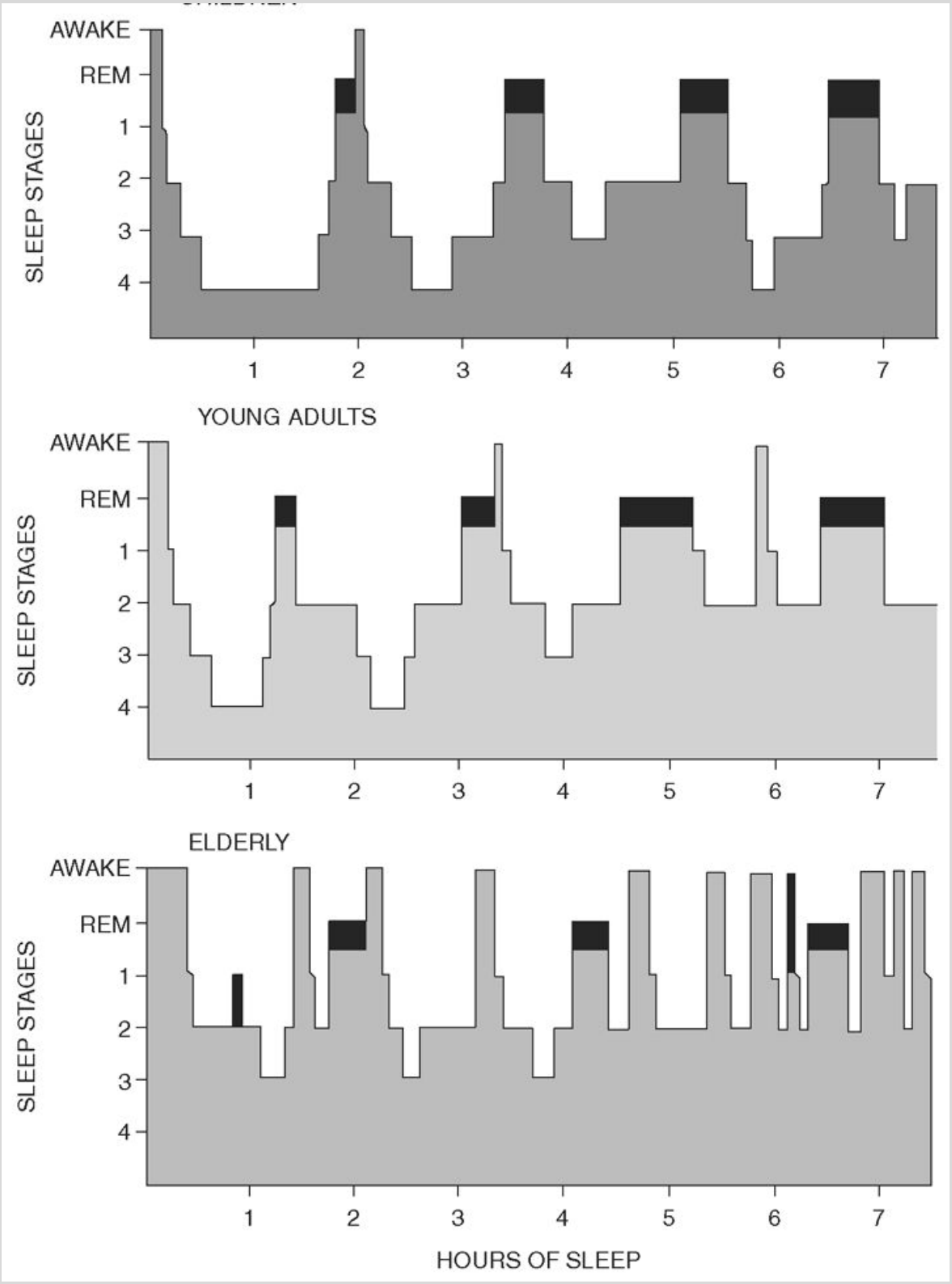
www.the41stwink.com
the41stwink@gmail.com

UNDERSTANDING YOUR CHILD'S SLEEP CYCLE

Until about 70 years ago, scientists believed that as we drift off to sleep, our brains and bodies would shutdown and enter a simple dormant state. What has since been learned is that sleep is a more complex and active process than previously understood.

As we sleep, our brain cycles through patterns of activity which can be divided into distinct stages. In an adult with healthy sleep, as long as there is no interruption, this cycle repeats every 90 to 110 minutes until we awaken. First, there is the non-rapid eye movement or Non-REM stage, which can be described as a period of deep sleep. In adults, this Non-REM stage can be further divided into 4 phases. The Non-REM stage is followed by the shorter rapid eye movement or REM stage, a period of active sleep which is characterized by dreaming.

The sleep cycle of infants and young children up to ages 3 or 4 differs from that of adults. With quality sleep an essential factor in early childhood development, these differences are important to note for the conscientious parent.



Sleep Architecture Comparison – Children, Young Adults, Elderly

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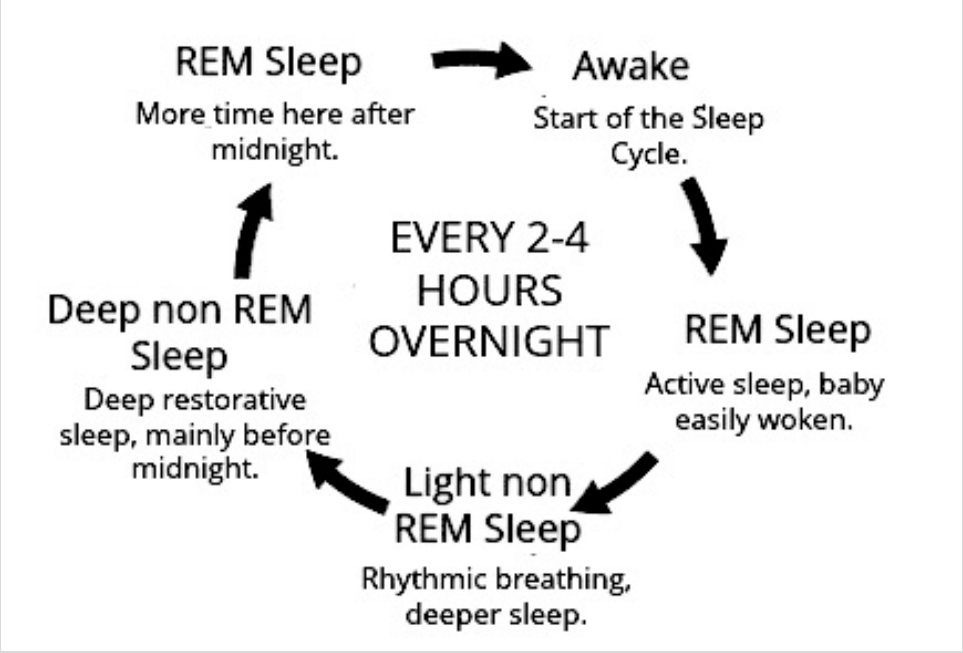
Newborn sleep facts

- Newborns (babies up to 12 months of age) have a simple sleep cycle, averaging 45 minutes during the day and 2 – 4 hours at night for the first nine months of life. The newborn sleep cycle has only two stages – active and quiet sleep.
- When a newborn first falls asleep, they enter active sleep (similar to adults' REM sleep). During this stage, newborns are also more likely to wake up. A newborn will typically spend about 50% of their sleep cycle in this stage (as opposed to an adult spending only 20%).
- About halfway through the sleep cycle, the newborn falls into quiet sleep. This is characterised by slower, rhythmic breathing, less movement and no eyelid fluttering. At the end of the sleep cycle, the newborn will either wake up or return to active sleep.
- It is not uncommon for newborns, particularly those still in the 4th trimester (the first 3 or 4 months of life) to cat-nap and wake up frequently (45 minutes or less of sleep time), no matter the time of day or night. They simply wake up as one sleep cycle ends.

- Newborns typically start to produce melatonin (sleep hormone) at 8 to 10 weeks old. This helps to establish sleep cycles, lengthens naps and can make attempts to consolidate sleep (transition from one cycle to the next without interruption) easier.
- The duration of your child's sleep cycle will increase as they get older. It will start to resemble that of an adult as they approach their 3rd or 4th birthday.
- REM and non-REM sleep duration will change as your child's nervous system matures. The younger the child, the longer their brain will remain in the active (REM) stage of sleep. Why is this important? REM sleep (when we dream) is lighter and easier to be woken up from.
- 'Premature' babies (those born before 30 weeks of gestation) may initially spend up to 70% of their sleep in the REM stage, while infants born 'on time' may initially spend only 50% in the REM stage. Five year old children however, will typically have a 70/30 distribution between Non-REM and REM sleep.

Newborn's Daytime Sleep Cycle

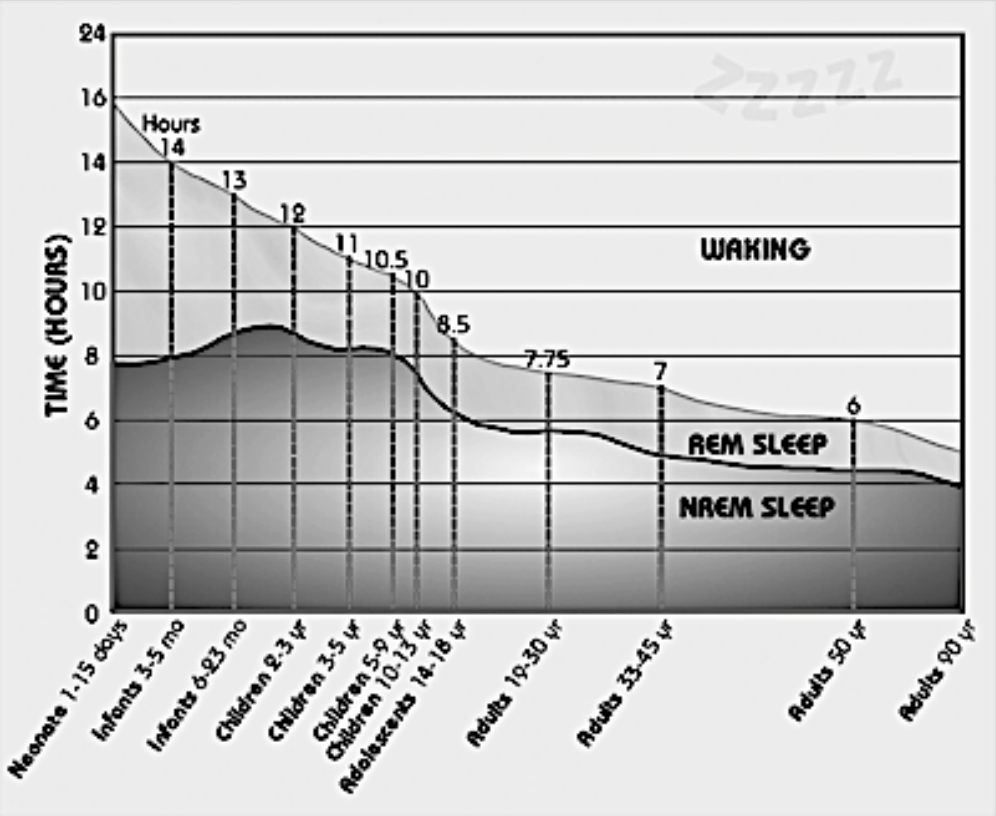


Newborn's Night-time Sleep Cycle

Best practices for parents of newborns and toddlers include:

- Manage awake time

If you are struggling with short naps and frequent night time wake ups, you may be keeping your child awake for too long. Common symptoms of an overtired child include waking up after 30 mins from a nap and waking up frequently, even as often as every 45 mins after falling asleep at night. The table below shows average recommended awake-time duration (time between naps / bed) for various age ranges.



Changes in sleep needs through the lifespan

- Wait before you rush in

Children tend to be quite vocal in their sleep, particularly when transitioning between sleep cycles. They may cry out, moan, grunt, squeal, thrash about, etc. and though it may seem they are awake or distressed, they may actually be in an active sleep stage. Your well-intentioned efforts to go into their bedroom and help may actually wake them up. Developing the ability to discern the signs of true wakefulness as well as the patience to wait before intervening, will be beneficial in the long term as it can help your little one learn how to resettle on their own.

- Optimise the sleep environment

Another behaviour you may have noticed is the propensity of your child to wake up in the early morning hours (between 4am and 6am). For adults and children alike, each consecutive sleep cycle (from night to day) increases the proportion of time spent in REM sleep. With the REM stage the more active phase of sleep, it becomes easier to be woken up the longer we have been in bed. You can decrease the likelihood of your child waking too early by taking steps to restrict external noises and light from disturbing your child, as well as providing a proper room temperature.

- Allow your child's internal clock to recalibrate

Finally, say your beloved child decides to start their day at 5.30am. You go in, turn on the lights, crank up the radio, serve breakfast and play with them. Their circadian rhythm, or internal clock, thinks its morning. A bit early, right? External modulation through social interaction, light, food and temperature affect the internal clock, which regulates the sleep-wake cycle. By progressively delaying your response to their morning wakefulness, you will allow their internal clock to recalibrate to a more desirable setting.

Sources:

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