

Fatigue Risk Management Info sheet: Am I getting enough good quality sleep?



Why read this?

Most adults need between 7 and 9 hours of sleep per night for good sleep health, but research suggests that many of us are not getting the sleep we ideally need. A survey of more than 400,000 adults in the US found that more than a one third of Americans between 18-60 years sleep less than 7 hours per night¹. This information sheet will help you to understand your personal sleep need and the common reasons why so many people are getting inadequate sleep. The information sheet also describes what constitutes good sleep quality and how sleep changes with age.

Sleep duration and quality are both important for good sleep health

Our performance, physical and mental well-being are dependent on our sleep health. There are multiple markers of good sleep health which are described by the RU SATED model² (see below). This information sheet focuses on the fourth and fifth markers, sleep efficiency, which for ease will be called sleep quality, and sleep duration. The other markers of sleep health are explored in other information sheets within the information sheet set.

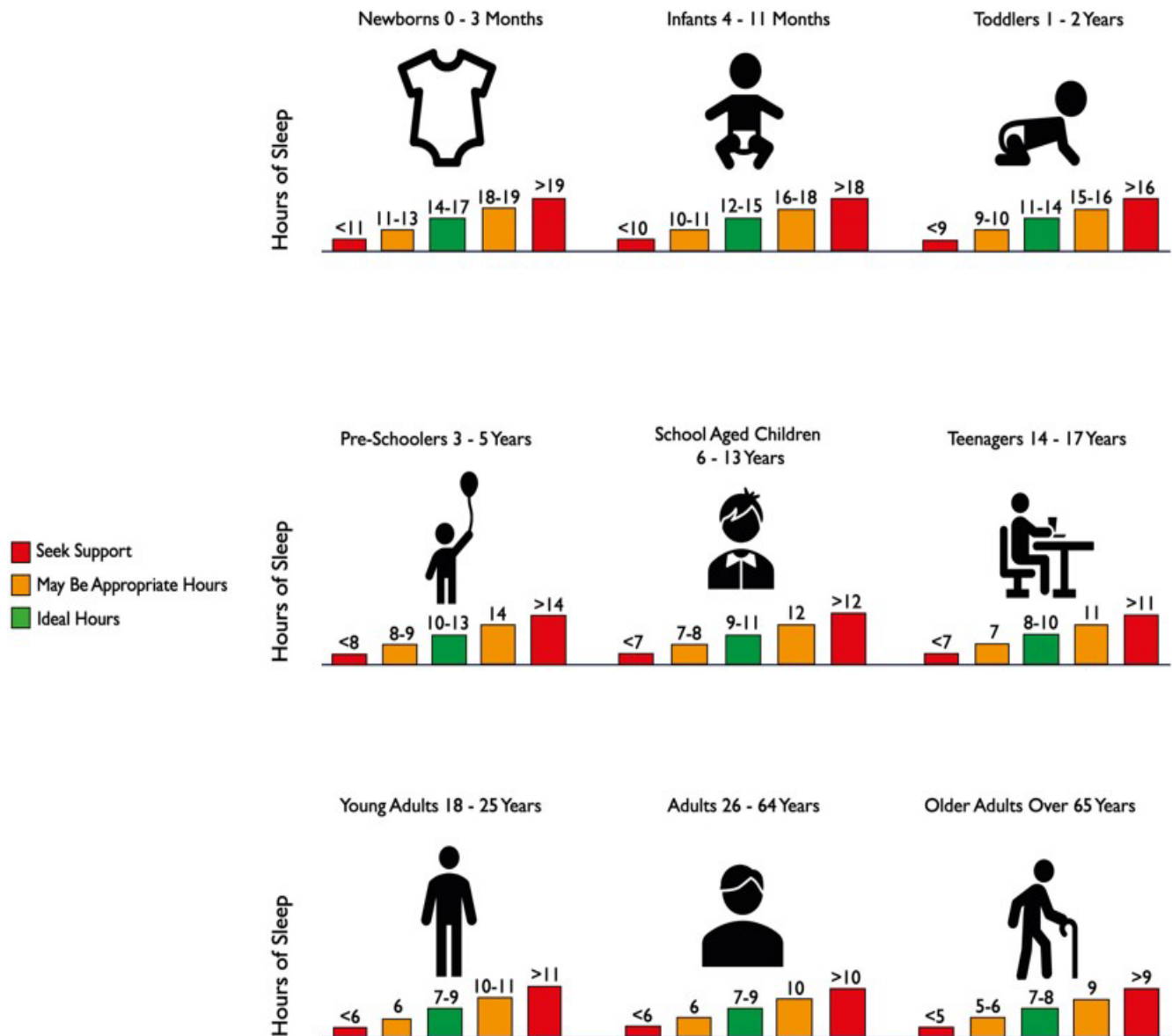
RU SATED model of sleep health

1. **Regularity:** Wake up and fall asleep at about the same time (within one hour) every day.
2. **Satisfaction:** You are satisfied with your sleep.
3. **Alertness:** You stay awake all day without dozing.
4. **Timing:** Your sleep is in sync with the day and night cycle.
5. **Efficiency** (the same as sleep quality): You easily fall asleep, and then stay asleep.
6. **Duration:** You get the individual amount of sleep you need each day.

Do all adults need 8 hours of sleep per day?

The National Sleep Foundation (NSF) has published guidelines on the amount of sleep we need over our lifespan³. These guidelines, based on the work of a multidisciplinary panel of experts who considered research into the relationship between sleep and health, dispel the myth that all adults need eight hours of sleep. For adults 26–64 years old, the ideal sleep range is between seven and nine hours per night, and it may be appropriate for a small number of people to obtain 6-7 or 10-11 hours of sleep a night.

Figure 1. National Sleep Foundation³ Sleep duration recommendations: 'Ideal' and 'may be appropriate' sleep durations per night by age



The NSF recommends that adults seek support if they are obtaining less than 6 hours or more than 11 hours per night. People you could approach for support include your family, line manager or doctor. As Matthew Walker⁴ said, 'the number of people who can survive on 6 hours of sleep or less, without showing any impairment, rounded to a whole number and expressed as a percentage of the population, is 0%'. There are many reasons you might be obtaining less than 6 hours of sleep, including work schedules and family responsibilities. In some national and work cultures, many people claim to be naturally short sleepers and there is bravado in saying you only need 6 hours of sleep or less. However, the reality is that health, safety and performance of most of these individuals are impaired, whether they want to accept this or not.

Sometimes sleeping more than 11 hours is 'normal' for adults when we are recovering from sleep loss, for example after a week of night shift, or due to a short-term illness (e.g., flu). If you sleep for more than 11 hours on an ongoing basis though, it could be a symptom of poor physical or mental health (e.g., depression), and it is recommended that you discuss this with your doctor.

What about children and older adults?

New-borns, infants, toddlers, children, and teenagers have a relatively greater sleep need because sleep is key to physical and mental development. Sleep is key for learning and memory formation and our brain continues to develop until the age of 30. Most older adults, aged older than 65 years, need 7-8 hours of sleep per day and it is a myth that as we get older, we need less sleep. One reason for this myth is that older adults also become more 'morning type' and tend to fall asleep earlier in the evening and wake earlier. The change in sleep timing can make it seem like older adults are not sleeping as long as they used to, when that is not actually the case. One advantage of being older, can be a relatively quiet house on the weekend which can provide an opportunity to take a nap and top up sleep.

As we age many people do find it more difficult to get good quality sleep though. As we age, we all spend more time in the light sleep stages of sleep, so light or noise wake us more easily. Many older adults take relatively longer to fall asleep and tend to experience more and longer awakenings during the night. These changes in sleep can be due to menopause, enlarged prostate and the increase likelihood of other health difficulties. As our sleep can become more disturbed as we age, it is especially important that we protect it from interference from things like caffeine in the evening.

How can I work how much sleep I personally need?

Sleep need varies between individuals and is genetically determined. You can't change it any more than you can change your eye colour or how tall you are. If you need 9 hours of sleep to be at your best, this is something you will have to factor into how you spend your time.

If you are unsure whether you sleep as much as you need, think about how you feel about 30–45 minutes after you wake up. If you still feel tired, this may be a sign that you have not slept long enough. Relying on an alarm clock to wake up is also a sign of insufficient sleep.

To find out the sleep you ideally need, when you next have a week off work, make sure nothing disturbs your bed and wake up times – not the alarm, dog, family, or exercise. This is difficult but important – you need to get to a stage where you go to bed when you feel sleepy and wake up when your body is ready.

During your week off⁵:

- Keep a record of how long you sleep each night for the whole week.
- Discard the record for the first four nights. Your body is adjusting to the new routine, and there may be some catching up on sleep before you get into your natural sleep rhythm.
- Look at how long you slept the final three nights and calculate the average amount of sleep you obtained. This number is your personal sleep need.
- To determine how long you should spend in bed, add 45 min to your sleep need to allow for the time it takes you to fall asleep and wake-up.

If you could be suffering from insomnia or a mood disorder, you should speak to your doctor before taking these steps to work out your sleep need.

How do I know if I have good sleep quality?

Sleep quantity and sleep quality are both important for sleep health. Good sleep quality is uninterrupted sleep which allows the body and mind to restore. After a good night's sleep, we can feel energised, in a positive mood, our mind is focused, and we are satisfied with our sleep. Adults with good sleep quality spend 85% or more of the time they are in bed asleep. In other words, they only spend about an hour in bed lying awake, which includes the time it takes to fall asleep and the awakenings most of us experience during the night.

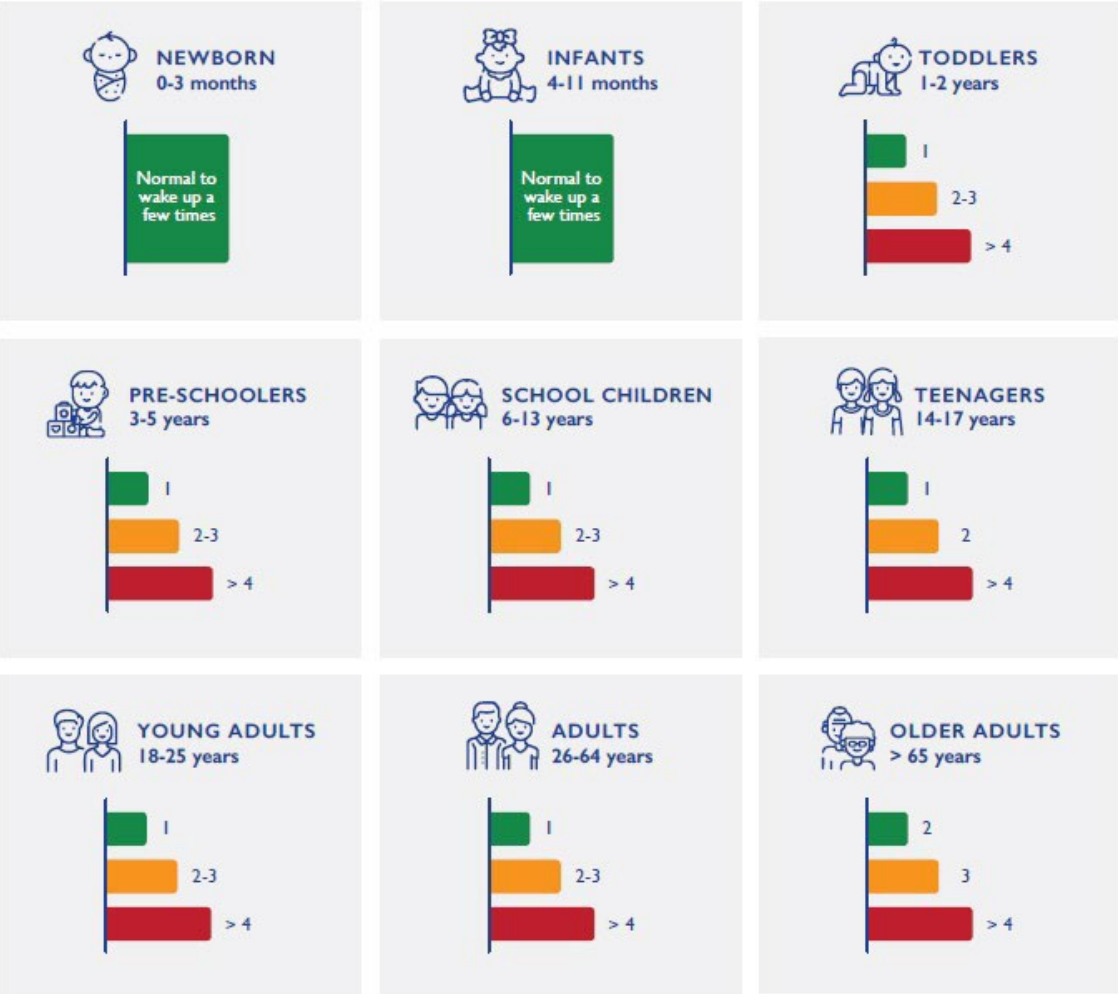
When we experience poor sleep quality this can involve difficulty falling asleep, not being able to get back to sleep after waking at night, and waking up too early, all of which are associated with poor sleep health⁵. If we spend too much time in bed awake, it can make us anxious about not sleeping. In turn, anxiety can have a negative impact on our sleep quality.

The NSF ⁶ has described the 'normal' indicators of good sleep quality for different age groups, shown in Figure 2. For adults with good sleep quality, it is normal to take up to 30 minutes to fall asleep. However, falling asleep in under 5 minutes is a sign that you may be sleep deprived. It is also normal to wake-up for 5-20 a few times per night. If you cannot fall asleep within 30 minutes, it is a good idea to get out of bed and do something relaxing before attempting to fall asleep again. Adults should speak to their doctor if they are usually taking more than 45 minutes to fall asleep when they initially go to bed, waking more than 4 times per night, and taking more than 20 minutes to fall asleep after waking during the night.

Figure 2. National Sleep Foundation Sleep quality indicators⁵



FIGURE 2b | Number of awakenings longer than 5 minutes



What are the reasons we experience poor sleep quantity and quality?

The reasons for sleep loss are seemingly endless and include factors related to our work, home life, social life and society. Many of the factors contribute to social jetlag, which occurs when we don't keep a regular sleep and wake schedule, which matches our body's natural 24h biological rhythm. In other words, when we stay up late watching television, work shift work, sleep at different times on workdays and days off, or wake during the night to care for a young child. The symptoms of social jetlag are the same as when you travel across time zones. We feel tired, moody and hungry at the wrong times. The consequence of inconsistent bedtimes and sleep loss is reduced sleep health.

Other examples of common causes of poor sleep quantity and sleep loss and quality include:

- The pressures of work, family, social relationships, and financial concerns can trigger insomnia (sleeping too little)
- Having intrusive thoughts that prevent us from falling asleep, for example thoughts about what you must do tomorrow, next week, month and year
- Sharing a bed with someone who snores, has insomnia or works shift work
- Living in an urban area where lighting at night, for example from streetlights, promotes alertness and disrupts sleep
- Sleeping in a bedroom that is not conducive to sleep e.g., living on a road with noisy traffic, an uncomfortable bed, a bedroom that is too hot, cold, bright or unventilated, or where you don't feel safe
- Drinking alcohol or caffeine in the afternoon or evening
- Strenuous exercise close to bedtime

While some of the causes of sleep difficulties can be relatively easily improved, for example you can easily try to wear an eye mask at night to block out light, other causes of sleep loss are more difficult or impossible to improve. Saying that, most of us don't experience sleep loss for one simple reason, rather there are a combination of factors. For example, an individual may have a long drive to get to and from work, work long hours, volunteer for overtime and not yet have got around to putting up heavy light blocking curtains in their bedroom and consume eight coffees per day. What are the changes this individual could make to improve their sleep, and how could you improve your sleep?

To summarise

Hopefully this information sheet has got you thinking about the quantity and quality of sleep you regularly obtain and how this compares to the NSF guidelines for healthy sleep. If you aren't getting your sleep need, try not to get anxious or make sudden large changes, as this can inadvertently cause sleep disruption. Instead, try to address the unique set of causes of sleep loss in your life one by one.

What should I read next?

If you have realized you are not getting enough sleep, the following information sheets are useful:

- 'How to adjust my daily patterns of light exposure, meals and exercise to improve sleep '
- 'How to change your sleep habits in order to get more sleep'

References

- 1 Liu Y, Wheaton AG, Chapman DP, Cunningham TJ, Lu, H, Croft, J (2014). Prevalence of healthy sleep duration among adults — United States, 2014. *Morbidity and Mortality Weekly Report*; 65:137-141.
- 2 Buysse, D. J. (2014). Sleep health: Can we define it? Does it matter? *Sleep*, 37(1), 9-17.
- 3 Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., & Neubauer, D. N. (2015). National Sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep Health*, 1(1), 40-43.
- 4 Walker, M. (2018). 'Why we sleep'. Penguin books.
- 5 Espie, C. (2017). *An Introduction to Coping with Insomnia and Sleep Problems*. Hachette UK.
- 6 Ohayon, M., Wickwire, E. M., Hirshkowitz, M., Albert, S. M., Avidan, A., Daly, F. J., & Hazen, N. (2017). National Sleep Foundation's sleep quality recommendations: First report. *Sleep Health*, 3(1), 6-19.

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Our Fatigue Risk Management Team help organisations manage the risks associated with fatigue and workload and specialise in delivering fatigue risk management solutions for companies whose employees are involved in safety critical work, such as aviation, the petrochemical industry, road transport and the emergency services. Their work provides organisations with the evidence needed to ensure that the businesses operating within an acceptable risk threshold.

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