



National Sleep Foundation's sleep time duration recommendations: methodology and results summary

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ABSTRACT

Objective: The objective was to conduct a scientifically rigorous update to the National Sleep Foundation's sleep duration recommendations.

Methods: The National Sleep Foundation convened an 18-member multidisciplinary expert panel, representing 12 stakeholder organizations, to evaluate scientific literature concerning sleep duration recommendations. We determined expert recommendations for sufficient sleep durations across the lifespan using the RAND/UCLA Appropriateness Method.

Results: The panel agreed that, for healthy individuals with normal sleep, the appropriate sleep duration for newborns is between 14 and 17 hours, infants between 12 and 15 hours, toddlers between 11 and 14 hours, preschoolers between 10 and 13 hours, and school-aged children between 9 and 11 hours. For teenagers, 8 to 10 hours was considered appropriate, 7 to 9 hours for young adults and adults, and 7 to 8 hours of sleep for older adults.

Conclusions: Sufficient sleep duration requirements vary across the lifespan and from person to person. The recommendations reported here represent guidelines for healthy individuals and those not suffering from a sleep disorder. Sleep durations outside the recommended range may be appropriate, but deviating far from the

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normal range is rare. Individuals who habitually sleep outside the normal range may be exhibiting signs or symptoms of serious health problems or, if done volitionally, may be compromising their health and well-being.

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Introduction

The National Sleep Foundation's (NSF's) mission is to improve health and well-being through sleep health education and advocacy. Notably, the NSF provides the public with the most up-to-date, scientifically rigorous sleep health recommendations. Millions of individuals each year seek guidance regarding sleep duration sufficiency from the NSF website. Additionally, the recommendations are widely cited and distributed by other organizations. To this end, the NSF convened a multidisciplinary expert panel, conducted a systematic literature review, and used the RAND/UCLA Appropriateness Method (RAM)¹ to formulate age-specific sleep duration recommendations.

Participants and methods

The NSF assembled a multidisciplinary expert panel comprised of both sleep experts and experts in other areas of medicine, physiology, and science. This approach provided varying perspectives regarding sleep duration. The 18-member expert panel included 12 representatives selected by stakeholder organizations and 6 sleep experts chosen by the NSF. Stakeholder organizations included the following: American Academy of Pediatrics, American Association of Anatomists, American College of Chest Physicians, American Congress of Obstetricians and Gynecologists, American Geriatrics Society, American Neurological Association, American Physiological Society, American

Table 1

Search terms for literature review.

Primary search terms	Age search terms	Outcome search terms
Sleep time	Infant	Performance
Sleep need	Children	Executive function
Sleep requirement	Child	Cognition
Health sleep	Pre-school child	Mood
Sleep schedule	Preschoolers	Learning
Sufficient sleep	Adolescent	Memory
Insufficient sleep	Teenager	Accidents
Sleep deprivation	Teen	Attention deficit
Sleep restriction	Adult	Academic performance
Short sleeper	Senior	Impulse control
Long sleeper	Elderly	Anxiety
	Developmental	Suicide
	Geriatric	Divorce
	Newborns	Health
	Toddlers	Mortality
	School-age children	Morbidity
		Hypertension
		Stroke
		Cerebrovascular insult
		Heart disease
		Myocardial infarct
		Coronary artery disease
		Diabetes
		Obesity
		Glucose intolerance
		Lipids
		Pain

Table 2

Expert panel recommended sleep durations.

Age	Recommended, h	May be appropriate, h	Not recommended, h
Newborns 0-3 mo	14 to 17	11 to 13 18 to 19	Less than 11 More than 19
Infants 4-11 mo	12 to 15	10 to 11 16 to 18	Less than 10 More than 18
Toddlers 1-2 y	11 to 14	9 to 10 15 to 16	Less than 9 More than 16
Preschoolers 3-5 y	10 to 13	8 to 9 14	Less than 8 More than 14
School-aged children 6-13 y	9 to 11	7 to 8 12	Less than 7 More than 12
Teenagers 14-17 y	8 to 10	7 11	Less than 7 More than 11
Young adults 18-25 y	7 to 9	6 10 to 11	Less than 6 More than 11
Adults 26-64 y	7 to 9	6 10	Less than 6 More than 10
Older adults ≥65 y	7 to 8	5 to 6 9	Less than 5 More than 9

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