

CONSENSUS STATEMENT

Recommended Amount of Sleep for Pediatric Populations: A Consensus Statement of the American Academy of Sleep Medicine

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Sleep is essential for optimal health in children and adolescents. Members of the American Academy of Sleep Medicine developed consensus recommendations for the amount of sleep needed to promote optimal health in children and adolescents using a modified RAND Appropriateness Method. The recommendations are summarized here. A manuscript detailing the conference proceedings and the evidence supporting these recommendations will be published in the *Journal of Clinical Sleep Medicine*.

Keywords: pediatric, sleep duration, consensus

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CONSENSUS RECOMMENDATIONS

- **Infants* 4 months to 12 months should sleep 12 to 16 hours per 24 hours (including naps) on a regular basis to promote optimal health.**
- **Children 1 to 2 years of age should sleep 11 to 14 hours per 24 hours (including naps) on a regular basis to promote optimal health.**
- **Children 3 to 5 years of age should sleep 10 to 13 hours per 24 hours (including naps) on a regular basis to promote optimal health.**
- **Children 6 to 12 years of age should sleep 9 to 12 hours per 24 hours on a regular basis to promote optimal health.**
- **Teenagers 13 to 18 years of age should sleep 8 to 10 hours per 24 hours on a regular basis to promote optimal health.**
 - Sleeping the number of recommended hours on a regular basis is associated with better health outcomes including: improved attention, behavior, learning, memory, emotional regulation, quality of life, and mental and physical health.
 - Regularly sleeping fewer than the number of recommended hours is associated with attention, behavior, and learning problems. Insufficient sleep also increases the risk of accidents, injuries, hypertension, obesity, diabetes, and depression. Insufficient sleep in

teenagers is associated with increased risk of self-harm, suicidal thoughts, and suicide attempts.

- Regularly sleeping more than the recommended hours may be associated with adverse health outcomes such as hypertension, diabetes, obesity, and mental health problems.
- Parents who are concerned that their child is sleeping too little or too much should consult their healthcare provider for evaluation of a possible sleep disorder.

* Recommendations for infants younger than 4 months are not included due to the wide range of normal variation in duration and patterns of sleep, and insufficient evidence for associations with health outcomes.

BACKGROUND AND METHODOLOGY

Healthy sleep requires adequate duration, appropriate timing, good quality, regularity, and the absence of sleep disturbances or disorders. Sleep duration is a frequently investigated sleep measure in relation to health. A panel of 13 experts in sleep medicine and research used a modified RAND Appropriateness Method¹ to develop recommendations regarding the sleep duration range that promotes optimal health in children aged 0–18 years. The expert panel reviewed published scientific evidence addressing the relationship between sleep duration and

health using a broad set of National Library of Medicine Medical Subject Headings (MeSH) terms and no date restrictions, which resulted in a total of 864 scientific articles. The process was further guided by the Oxford grading system.² The panel focused on seven health categories with the best available evidence in relation to sleep duration: general health, cardiovascular health, metabolic health, mental health, immunologic function, developmental health, and human performance. Consistent with the RAND Appropriateness Method, multiple rounds of evidence review, discussion, and voting were conducted to arrive at the final recommendations. The process to develop these recommendations was conducted over a 10-month period and concluded with a meeting held February 19–21, 2016 in Chicago, Illinois.

DISCUSSION AND FUTURE DIRECTIONS

Current evidence supports the general recommendations for obtaining an adequate number of hours of sleep per 24 hours on a regular basis to promote optimal health among children aged 4 months to 18 years. Individual variability in sleep need is influenced by genetic, behavioral, medical, and environmental factors. A clearer understanding of the precise biological mechanisms underlying sleep need requires further scientific investigation. These recommendations create a foundation to raise awareness and improve understanding of sleep effects on health. The recommendations provide a basis for:

- Educating children, teenagers, families, school professionals, healthcare providers/trainees, and the general public on the importance of adequate sleep duration for health.
- Encouraging parents and caregivers to help children obtain adequate sleep duration.
- Initiating discussions of social, educational, and economic benefits of adequate sleep duration, thereby informing public policy.
- Promoting research on the role of sleep duration in health and well-being. Research that directly examines the

effects of sleep duration on health may lead to revisions of these recommendations in the future.

These recommendations have been endorsed by the American Academy of Pediatrics, the Sleep Research Society and the American Association of Sleep Technologists.

REFERENCES

1. Fitch K, Bernstein S, Aguilar M et al. The Rand/UCLA appropriateness method user's manual. Santa Monica, CA: Rand, 2001.
2. OCEBM Levels of Evidence Working Group. The Oxford 2011 Levels of Evidence. [cited March 9 2016]. Available from: <http://www.cebm.net/wp-content/uploads/2014/06/OCEBM-Levels-of-Evidence-2.1.pdf>.

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