



Sleep has a major impact on overall health and quality of life, including the way you look, feel, and perform on a daily basis. Your body needs sleep to repair muscles, consolidate memories, and regulate hormones and appetite.

Even though sufficient sleep is increasingly recognized as an essential aspect of chronic disease prevention and health promotion, many people do not get enough sleep or suffer from sleep problems.

The Importance of Sleep

Poor sleep has a negative impact on quality of life. It can lead to accidents, impaired job performance, and relationship stress. Insufficient sleep causes distress, and impairs alertness, concentration, and memory. It is also associated with poor health and a number of chronic diseases and conditions, such as diabetes, cardiovascular diseases, obesity, and depression.

Sufficient sleep positively affects:

- **Learning and memory.** Sleep helps the brain commit new information to memory through a process called memory consolidation.
- **Metabolism and weight.** Adequate sleep helps with weight control. Chronic sleep deprivation may cause weight gain by affecting the way your body processes and stores carbohydrates, and by altering levels of hormones that affect your appetite.

- **Safety.** A good night's sleep reduces accidents. Sleep debt contributes to a greater tendency to fall asleep during the daytime. These lapses may cause falls and mistakes such as medical errors, air traffic mishaps, and road accidents.
- **Mood.** Sufficient sleep reduces irritability, impatience, inability to concentrate, and moodiness. Too little sleep can leave you too tired to do the things you like to do.
- **Cardiovascular health.** Getting enough sleep improves heart health. Serious sleep disorders have been linked to hypertension, increased stress hormone levels, and irregular heartbeat.
- **Disease.** Enough sleep helps fight disease. Sleep deprivation alters immune function, including the activity of the body's killer cells. Keeping up with sleep may also help fight cancer.

Sleep Needs Based on Age

As early as 3 to 6 months, most infants have developed a sleep-wake cycle. Sleep is extremely important for children because it directly affects both physical and mental development. Teens and young adults are



Sleep Needs Throughout the Lifespan

The amount of sleep needed to function varies from individual to individual, and is determined by genetics and hereditary. According to the National Sleep Foundation, the average hours of recommended sleep by age include:

Infants

- Birth to 2 months need 10.5 to 18 hours
- 2 to 12 months need 14 to 15 hours

Toddlers/Children

- 12 to 18 months need 13 to 15 hours
- 18 months to 3 years need 12 to 14 hours
- 3 to 5 years old need 11 to 13 hours
- 5 to 12 years old need 9 to 11 hours

Adolescents

- at least 8.5 to 9.5 hours

Adults

- 7 to 9 hours

a high risk population for sleepiness, leaving them vulnerable to injury and injury-related death, especially in vehicle crashes due to lapses in attention, delayed responses, drowsiness, and fatigue.

Starting in young adulthood and as you continue to age, it is not uncommon for sleep to become less satisfying and less restorative. This is in part because sleep tends to mirror overall health. If health is sound, for example, sleep is often good and vice versa. Increasing age is associated with daily demands that can cause stress in addition to higher risk for health conditions such as high blood pressure, stroke, and other heart problems.

In general, adults are increasingly decreasing their sleep hours, unaware of the ramifications on overall health. Many senior adults may have more time for sleep but they are not getting it either. Seniors are more likely to get up in the middle of the night to go to the bathroom, they may be distracted from sleep due to various aging issues such as muscle aches, illness, or a sick spouse. Restless nights, day naps, earlier bed and wake-up times can also throw off the sleep rhythm.

States of Sleep

As we sleep, we pass through two alternating states. Each state is important for experiencing satisfying and restorative sleep.

- **Non-Rapid Eye Movement (NREM) or “quiet” sleep.** During the deep states of NREM sleep,

blood supply to the muscles is increased, energy is restored, tissue growth and repair occur, and important hormones are released for growth and development.

- **Rapid Eye Movement (REM) or “active” sleep.** During REM sleep, the brain is active and dreaming occurs. Your body becomes immobile, and breathing and heart rates are irregular.

Why Can't I Sleep?

It is normal to experience an occasional problem with sleeping. It is not normal to feel sleepy during the day, to have problems getting to sleep at night, or to wake up without feeling refreshed. If you are having trouble sleeping, examine your symptoms to determine if your sleeping problem is just a minor, passing annoyance instead of a sign of a more serious sleep disorder or underlying medical condition. If you are experiencing any of the following symptoms on a regular basis you may be dealing with a sleep disorder and should contact a health-care provider:

- Daytime sleepiness
- Irritability or moodiness
- Difficulty staying awake when sitting still, watching television, or reading
- Falling asleep or feeling tired while driving
- Difficulty concentrating
- Told by others that you look tired
- Slow reaction time
- Trouble controlling your emotions
- Feeling the need to take a nap almost every day
- Dependent on caffeinated beverages to keep yourself going

Common Sleep Disorders

If sleep problems are a regular occurrence and interfere with your daily life, you may be suffering from a sleep disorder.

Some common sleep disorders include:

- **Insomnia**, the most common sleeping disorder, is the inability to get the amount of sleep you need to wake up feeling rested and refreshed. It is often a symptom of another problem, such as stress, anxiety, depression, or an underlying

health condition. It can also be caused by lifestyle choices, including the medications you take, lack of exercise, jet lag, or even the amount of coffee you drink.

- **Sleep apnea** is a serious, and potentially life-threatening, sleep disorder in which your breathing temporarily stops during sleep due to blockage of the upper airways. These pauses in breathing interrupt your sleep, leading to many awakenings each hour. While most people with sleep apnea don't remember these awakenings, they feel the effects in other ways, such as exhaustion during the day, irritability, and depression, and decreased productivity. Loud, chronic snoring, gasping, snorting, or choking during sleep, and waking up with shortness of breath, chest pains, headaches, nasal congestion, or a dry throat are symptoms of sleep apnea.
- **Restless leg syndrome** causes an almost irresistible urge to move your legs and sometimes arms. The urge to move is due to uncomfortable, tingly, aching, or creeping sensations that are triggered by rest and often get worse at night. Moving, stretching, or massaging your legs can make the sensations temporarily better.
- **Narcolepsy** involves excessive, uncontrollable daytime sleepiness. It is caused by a dysfunction of the brain mechanism that controls sleeping and waking. If you have narcolepsy, you may have "sleep attacks" while in the middle of talking, working, or even driving.
- **Disruptions of circadian rhythms** have been linked to a variety of sleeping problems and sleep disorders, including insomnia, jet lag, and shift work sleep difficulties. They have also been linked to depression, bipolar disorder, and seasonal affective disorder. Circadian rhythms act as an internal biological clock that regulates the 24-hour sleep-wake cycle. Circadian rhythms are cued by light. When the sun comes up in the morning, the brain tells the body that it is time to wake up. At night, when there is less light, your brain triggers the release of melatonin, a hormone that makes you sleepy. When circadian rhythms are disrupted or thrown off, you may feel groggy, disoriented, and sleepy at inconvenient times.

Recommendations to Help You Sleep

To get the most out of sleeping, both quantity and quality are important.

- Use your bed for sleep and sex only. Avoid reading, conversation, or television watching in bed.
- Use relaxation training to reduce tension.
- Restrict time in bed if time spent in bed is lying awake.
- Try therapy to help modify attitudes and beliefs that may contribute to poor sleep.
- Exercise in the afternoon or early evening — not within a few hours of bedtime.
- Avoid caffeine, nicotine, and alcohol at least 3 to 4 hours before going to bed.
- Try to go to bed at the same time every night and wake up at the same time every morning.
- Keep in mind that daytime naps affect nighttime sleep.
- If you cannot fall asleep within 20 minutes, get out of bed and participate in a quiet, relaxing activity. Go back to bed when you are sleepy.
- Eat a balanced diet, and don't eat heavy meals before bedtime.
- Practice relaxation techniques — such as deep breathing, visualization, or meditation — at bedtime.
- Keep a sleep journal to keep track of activities, food and drink, emotional circumstances, or other factors that might influence how well you sleep.
- Keep a steady room temperature in your bedroom (not too warm).
- Make the bedroom a safe place, with locks on the door, a smoke alarm, telephone, and good lighting within reach of the bed.
- If you snore, avoid sleeping on your back and elevate your head.
- Get treatment for allergies, colds, or sinus problems.
- Wake up to the sun, or use bright lights in the morning to reset the body's biological clock.
- Do not lie in bed once awake in the morning.

Conclusion

When you sleep well, you wake up feeling refreshed and alert for your daily activities. Sleep prepares you to concentrate, make decisions, and fully engage in school, work, and social activities. Ignoring sleep problems and disorders can lead to poor health, accidents, impaired job performance, and relationship stress. Sleep is a necessity for feeling your best, staying healthy, performing at your best, and maximizing your potential for optimal aging throughout the lifespan.

References

Center for Disease Control and Prevention. (2010). Sleep and sleep disorders. Retrieved 8/1/12 from www.cdc.gov/Features/Sleep

Harvard Health Publications Harvard Medical School (2006) Importance of Sleep: Six reasons not to scrimp on sleep. Retrieved 6-10-13 from http://www.health.harvard.edu/press_releases/importance_of_sleep_and_health

Mindell, J.; Kuhn, B.; Lewin, D.; Meltzer, L.; Sadeh, A. (2006) Behavioral Treatment of Bedtime Problems and night Wakings in Infants and young Children. *Pediatric Sleep Vol 29* (10) p. 1263-1276

Smith, M., Robinson, L., & Segal, R. (2012). Sleep disorders and sleeping problems: Symptoms, treatment, and help for common sleep disorders. Retrieved 8/26/12 from www.helpguide.org/life/sleep_disorders.htm

National Sleep Foundation. (2011). Sleep topics. Retrieved 8/26/12 from www.sleepfoundation.org/

Vgontzas, A.; Fernandez-Mendoza, J.; Bixler, E.; Singareddy, R.; Shaffer, M.; Calhoun, S.; Liao, D.; Basta, M.; & Chrousos, G. (2012) Persistent Insomnia: the Role of Objective Short Sleep Duration and Mental Health. *Sleep Vol 35* (1) p. 61-68

WebMD. (2012). Sleep Disorders Health Center. Retrieved 8/26/12 from www.webmd.com/sleep-disorders/features/adult-sleep-needs-and-habits?page=2



Adapted and used with permission of the University of Arkansas Research and Extension, and the University of Kentucky College of Agriculture.

Authors

Erin Yelland, Ph.D., CFLE, Assistant Professor and Extension Specialist, Adult Development and Aging, K-State Research and Extension

Amy F. Hosier, Associate Professor, University of Kentucky

LaVona S. Traywick, Associate Professor, University of Arkansas

Reviewers

Dr. Rosalie Otters, University of Arkansas

Dr. Lisa Washburn, University of Arkansas



Publications from Kansas State University are available at www.ksre.ksu.edu

Publications are reviewed or revised annually by appropriate faculty to reflect current research and practice. Date shown is that of publication or last revision. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit author, *Keys to Embracing Aging: Sleep*, Kansas State University, December 2015.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, John D. Floros, Director.

MF3266 December 2015