



What You Should Know About Sleep

By:

Jeff Bryson, M.S.

Assistant Director of Clinical Services, Mountain View Hospital

What is Sleep?

Before exploring various aspects of sleep, we should first gain an understanding of sleep itself. Sleep is a state of consciousness in distinct contrast to wakefulness, represented by a decrease in bodily movement and awareness to the environment. Keep in mind that sleep is not a simple “zoning out” for a while. In fact, sleep is a very complex and active state of being.

Sleep specialists recognize two broad categories of sleep. These are designated non-rapid eye movement sleep (NREM) and rapid eye movement sleep (REM). This categorization is based on the type of eye movements observed during each category. During NREM sleep, eye movements are not commonly observed. When eye movements do occur they are usually seen around sleep onset and are described as rolling and slow. The presence of frequent and rapidly darting eye movements, on the other hand, define REM sleep. NREM sleep can also be characterized by a slowing of electrical activity in the brain. NREM sleep includes both shallow and deep states of sleep, while REM sleep can be described as a highly active form of sleep.

NREM sleep has four “levels” called stages. The type of electrical activity in

your brain determines these stages. The stages are referred to as NREM stages 1 through 4. The amount of electrical activity in the brain decreases progressively from stage 1 to 4 with stage 4 being the deepest sleep. NREM stage 1 is considered a transition state between wakefulness and sleep. People can be easily awakened during NREM stage 1. In fact, if awakened during this stage people often report that they were not asleep but merely resting peacefully. NREM stage 2 is also considered a form of shallow sleep. Like NREM stage 1, people can still be easily awakened from NREM stage 2. NREM stages 3 and 4 are collectively known as “deep sleep”. This is because it is difficult to awaken people from this state. People who are awakened from NREM stages 3 and 4 usually remain confused and disoriented for a few moments while their brain transition to wakefulness. NREM stages 3 and 4 can also be referred to as “slow wave sleep” because of the characteristic slow, synchronized, rhythmic brain wave activity that is observed on an electroencephalogram (EEG).

The category of REM sleep has only one stage and is referred to simply as “REM.” This stage of sleep is characterized by increased brain wave activity and dreaming. REM sleep is also referred to as “paradoxical sleep” because the

Sleep represents an important part of everyone’s life. Adequate sleep serves a vital role in maintaining our overall mental and physical health. The effects of sleep disturbance can range from slight daily impairment to deadly. Disturbances of sleep can be very dangerous and have been linked to numerous injuries and deaths related to accidents while driving, at home, or on the job.

People spend much of their lives sleeping. In fact, most people spend, on average, 8 hours sleeping each day. Consider that 8 hours each day is the same as one-third of the day. Overall, this means that people spend approximately one-third of their lives asleep. This means that a thirty-year-old person has spent approximately ten years of their life asleep.

electrical activity seen in REM sleep looks very similar to wakefulness. REM sleep is the state of sleep most associated with dreaming and is also called “dream sleep.” To prevent you from acting out your dreams your body becomes paralyzed during the REM period.

The sleep period begins with the transition from being awake to asleep through NREM stage 1. The person will then progress into NREM stages 2, 3 and 4. After experiencing the slow electrical activity of NREM stage 4, the brain will progressively become active again. The person will then go into the night’s first REM stage. The alternating between NREM and REM sleep is called a cycle. One cycle is completed with the end of each REM period. REM episodes occur about every 90 minutes throughout the sleep period. As the sleep period progresses the amount of time spent in each REM stage will increase. NREM sleep changes throughout the night in that after two or three NREM-REM cycles the NREM stages 3 and 4 disappear. In other words, as you progress from bedtime to awakening time you increase REM sleep and decrease deep sleep.

Common Sleep Disturbances

Sleep disturbance is a common symptom in psychiatric illnesses. Sleep disturbance has been well documented in depression, bipolar disorder, schizophrenia, anxiety disorders, personality disorders, and eating disorders. Sleep disturbance is also common in most medical conditions such as chronic pain, allergies, respiratory diseases, cardiovascular disorders, neurological impairments, and endocrine disorders. The types of sleep disturbances can vary across illnesses and individuals.

Some of the more common types of sleep disturbances are insomnia, hypersomnia, nightmares, and bad dreams.

Insomnia

Insomnia literally means “the inability to sleep.” Difficulty falling asleep, staying asleep, and/or the experience of non-restorative sleep can all indicate insomnia. When people say they suffer from insomnia the meaning can be different from one person to the next. There are three major types of insomnia designated as initial insomnia, maintenance insomnia, and terminal insomnia. Initial insomnia refers to difficulty initiating sleep. People with this type of insomnia often complain of not being able to fall asleep for prolonged periods of time after they have gone to bed. Maintenance insomnia describes a condition of disrupted sleep continuity. In other words, you wake up and return to sleep off and on throughout the night. Terminal insomnia does not refer to a condition that it will end your life, only your sleep period. In some cases, people wake up several hours before they desire and complain of not being able to return to sleep.

In the vast majority of cases, insomnia is symptom of an illness rather than a primary disorder. In fact, very few people actually experience insomnia as a primary disorder. People with psychiatric or medical illnesses often complain of insomnia. In addition, anyone who is under a great deal of stress will also be at risk for insomnia.

Hypersomnia

Hypersomnia is a condition of sleeping

too much. Most people think that the more sleep you get the more rested you feel. This is rarely the case. Most people who experience hypersomnia feel drowsy and sluggish while they are awake. Hypersomnia is also seen frequently among individuals who experience psychiatric and/or medical illnesses.

Nightmares and Bad Dreams

Nightmares are vivid, emotional, narrative dreams that cause the person to suddenly awaken from the sleep period in a state of panic or terror. Bad dreams are similar to nightmares in that they are usually vivid, emotional narrative dreams but do not result in a sudden panicked arousal from sleep. In both cases, the negative emotions experienced in the dream may persist long after the dream is over.

How Do People Know When They Have Had Enough Sleep?

The exact amount of sleep a person needs varies across individuals and is also affected by their age. Infants spend from 14 to 18 hours in sleep, broken up into multiple sleep periods throughout the 24-hour day. As a person develops from infancy to childhood, they begin to sleep through the night and take naps in the



Sleep

middle of the day. Children typically have more NREM stage 3 and 4 sleep compared to older age groups. The sleep of adolescents resembles that of adults with the exception of a shift in the optimal sleep time. The natural bedtime for adolescents is around 11 p.m. and wake up time is around 8 or 9 a.m. Overall, infants, children, and adolescents need more sleep than adults do. Adults typically need, on average, 8 hours of sleep per 24 hours. Note that 8 hours is an average and that some adults need as little as 5 or 6 hours while others need around 10 hours to feel rested. After age 40 adults begin to experience increased awakenings during each sleep period. Throughout the life span people will decrease the amount of time spent in REM and slow wave sleep. Total time spent in sleep also decreases with age. This means that as each of us age our body's need for sleep changes. The best way to answer the question "how do people know when they have had enough sleep?" is to say that feeling rested and alert during the day is the best indicator.

What Influences Your Sleep?

Sleep is naturally designed to be very fragile and, as a result, numerous factors can influence your sleep in a negative way. Behaviors that you engage in during the day as well as environmental conditions while you sleep can have an impact on your overall sleep quality. These behaviors and environmental conditions are known as "sleep hygiene." Many people inadvertently impair their sleep quality by not following appropriate sleep hygiene practices. Some examples of good sleep hygiene include:

- Maintaining a consistent sleep schedule. This means go to bed and wake up at the same time each day.
- Caffeine and nicotine are stimulants and are not conducive to sleep. It is recommended that these substances be avoided all together. If these substances are used, they should not be used for several hours before bedtime.
- Alcohol will relax you and is used by some as a sleep aid. This is a serious mistake for several reasons. Alcohol may help you fall asleep but it impairs the quality of sleep throughout the night. Deficits in REM and deep sleep are commonly seen in people who use alcohol. Many people use alcohol as a sleep aid, which can be the beginning of a tragic pathway to addiction. People with chronic sleep disturbance are at an increased risk for alcohol addiction because they use the "sleep aid" for a prolonged period of time.
- Exercise is important for everyone. It is recommended that people do 20 to 30 minutes of exercise each day. Exercise during the day can improve your sleep quality but exercise 5 to 6 hours before bedtime may significantly impair it.
- Reduce the amount of light in the room you are sleeping in. Your body uses light as a cue to wake up. The presence of even small amounts of light in room being slept in can negatively alter sleep quality.
- Do not leave the radio or television on during sleep. Many people condition themselves to fall asleep with radio or television. The problem is that changes

in light or noise within the room can activate your brain when it should be resting. Despite what some people believe, your body does not need television or music to sleep.

- Reduce stress in your life. Thinking about worrisome aspects of your life while you are trying to fall asleep will only prolong you falling asleep. Find ways to reduce stress during the day before bedtime. The last hour before bedtime should be spent in a relaxing and recreational activity.
- Temperature is vital to your sleep quality. Your body's temperature changes throughout the sleep period. Sleeping in a room that is too hot or cold can lead to frequent awakenings or non-restorative sleep.
- Many people remain in the bed while they are trying to fall asleep. Ultimately this does more harm than good. This can condition your body to be awake while in the bed making it harder to fall asleep. When you are unable to sleep go to another room and engage in a quiet activity until you feel sleepy again.

Do you feel that you are getting inadequate sleep?

What you do if you have difficulty sleeping or feel sleepy most of the time? Sleep disturbance is a common problem that in most cases can be successfully treated. As mentioned earlier, sleep disturbances are often a symptom of another condition. The first step is to discuss your concerns with a trained health care professional.