

The Process of Sleep in Humans

Many of us really enjoy falling into bed and drifting off to sleep, particularly after a hard days work. How many of us know what our body goes through during this seemingly simple period of inactivity?

Up to the 1950's sleep was regarded as a time when a persons body and mind shut down for the night. What we now know is that various parts of our brain are in fact very active throughout the time we spend asleep. Time spent asleep is important with preparing us for the challenges of the next day. Slowly, we are unraveling these secrets to what exactly goes on.

Our brains contain very high quantities of nerves, better known as neurons, to which signaling chemicals termed neurotransmitters act to enable us to be asleep or awake. Neurotransmitters like norepinephrin and serotonin, released from the brain stem between the lower brain and top of the spinal column, act to make certain sections of our head fully functional whilst we are awake. When we begin to go to sleep there are other neurons at the base of our brains that become active, switching off the activity of the neurons that keep us awake. Throughout the day a chemical known as adenosine is believed to accumulate, it has the effect of making people more and more tired. Once asleep adenosine is known to be broken down.

When asleep people typically pass through five sleep stages:

1: Light sleep where we can be easily disturbed. Eye and muscle movements are slow. Sensations of falling are not uncommon in this stage.

2: Eye movements stop, brain activity slows, infrequent rapid bursts of brain activity exist.

3: Very slow brain activity, frequent small brain activity bursts. Difficult to disturb at this deep sleep level.

4: Only slow brain activity occurs now. No eye or muscle activity. Difficult to disturb at this deep sleep level. If awoken, takes a few minutes to orientate one's self.

REM (rapid eye movement): Increased breathing, more irregular, shallow breathing, rapid random eye movement. Muscles in limbs become paralyzed temporarily. Hear beats increase per minute alongside increased blood pressure. Dreaming is frequent and sometimes vivid.

These sleep stages make up a sleep cycle that is completed roughly every 90-110 minutes. Moving through all the stages from 1 to REM is known to be in one single sleep cycle. Half of our sleep involves stage 2, 20% involves REM, the other stages taking up the remaining 30% of our sleeping time. As the length of time we have been asleep each night increases so does our time during each sleep cycle that we remain in REM, the deep sleep stages of 3 and 4 reducing.

To a certain extent whilst in REM our bodies are unable to regulate their temperatures, unusually hot or cold temperatures can disturb this sleep stage. Losses in REM time tend to involve the next sleep cycles REM being longer so as to regain what REM time was previously lost.

Our bodies have a biological 24-hour time clock known as a circadian rhythm, with peaks of sleepiness occurring every 12 hours i.e. usually at night and around mid-afternoon. Through neurological and hormonal processes light appears to trigger people to remain awake, although light is not always required to achieve this result, e.g. with night shift workers inverting their days work and sleep periods. Increased time spent awake leads to a build-up of time that person needs sleeping.

Whilst asleep it is believed that important restorative and adaptive bodily functions are in progress. Long-term memory is reorganized, tissue is renewed or repaired, the mind is rejuvenated. Younger people tend to have a greater degree of deep sleep than the older population. 6-8 hours of sleep per day is all that the average person requires.

Source: <http://www.articlecircle.com>

About the Author

Sleep is vital for our wellbeing. If you want to know more about what sleep is, and what could be depriving you of your important recharging periods look no further than <http://www.sleepapneafacts.info/Sleep-Apnea-Symptoms-And-Types.php>