

Technical description of the process of sleep

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Technical Writing September 13, 2006 Technical of the Process of Sleep

Unlike what most people believe, sleep is not a passive state of our body, but instead it is an active process involving changes in body mechanisms, particularly the brain and our endocrine system. During sleep state, the endocrine system secretes hormones responsible for repairs of body cells and growth.

Sleep has two basic stages - the non-sleep rapid eye movement (NREM) and rapid eye movement (REM) (Aserinsky, 7). These two (2) stages or state was determined by measuring the electrical changes in the brain using the equipment called electroencephalograms (EEGs) (Sleep, Sleep Disorders, and Biological Rhythms, prg. 9, 3. 1). A report of the brain activity was generated by EEG in forms of electrical pulses recorded as curves and frequencies. For easy discussion, let us call this brain activity record as "brain waves".

Other equipment used in support with EEG, is one that measures eye movements that is called electrooculogram or EOG. The Electromyogram (EMG) on the other hand measures the muscle tension under the chin of a subject. As stated in Sleep-Information about Sleep (3), the practice in studying sleep pattern is EEGs, EOGs, and EMGs are recorded simultaneously on a continuous moving chart paper. This then determines the activities of three (3) aspects - the muscle activity, the brain activity, and eye movements (Sleep, Sleep Disorders, and Biological Rhythms, prg. 11).

The NREM sleep and REM sleep occurs in a cyclic manner during sleep state (Sleep, Sleep Disorders, and Biological Rhythms, prg. 15). They interchangeably happen to an individual during his sleep. Sleep starts with periods of NREM and then REM. NREM state has four different stages as <https://assignbuster.com/technical-description-of-the-process-of-sleep/>

determined by the frequency and amplitude (brain wave's magnitude of periodic variation) of the brain activity. The first NREM stage is characterized by very light sleep. NREM Stage 2 has special brain waves called sleep spindles (burst of brain activity visible on an EEG) and K complexes (brief high-voltage peak in EEG as defined by Wikipedia. org) (Wikipedia, prg. 1). Stage 3 and 4 of NREM is described by slow brain waves and in Stage 4 of NREM, it is hard to wake the person up. NREM stage 4 is deep sleep and cannot easily be awakened by external factors. This is different though with coma where an individual is said to be " asleep" where the person is in a condition that he cannot be awakened even if with a strong stimulus. During NREM, the muscle activity remains active and body function is the same with the wake state. The difference is that there is no eye movement.

The REM sleep on the other hand, is described with strong rapid eye movements or activities (Kohyama, 27, 73-92). Though eyes are not moving constantly, they move vertically and horizontally. There is temporary cessation of movements but it immediately resumes its activity. Accordingly, these eye movement is associated with the dream, a brain activity where visual images exist during sleep state. In REM state, the body's muscle go limp but some of the muscles like those of intestines and blood vessels remains functioning. The sequence of body works during REM are lengthy as the night gets deeper.

The stages and sleep state of individuals varies depending on the condition of the body. Loss of sleep due to ineffective habit results to sleep disorder. And this disorder may affect our normal motor and cognitive function unfavorably.

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