

READING 1: "SLEEP"

Sleep is a physiological state characterised by the loss of consciousness and a very marked slowing of the various functions of the mind and body. Periods of sleep are recurrent and necessary for the preservation of life. It is during such periods that the body apparently recuperates or regenerates from the effects of waking activity.

Although many theories have been advanced to explain the physiological causes of sleep, scientists have not been able to provide any experimental support to prove any of them. These theories are quite varied and include such concepts as the accumulation in the body of "fatigue toxins" or changes in the activity of the circulatory and the nervous systems. In fact, modern scientists now believe that it is a combination of bodily changes and not any single factor that causes sleep. It's true that experiments have shown that certain factors produce sleep, such as the accumulation of lactic acid in the body as a by-product of extensive muscular activity. However, the form of sleep produced by this physiological process not regarded as normal sleep.

One of the most typical changes occurring in sleep is a diminution of respiration. The breathing rate becomes much slower and the actual breathing becomes quite shallow than during wakefulness; circulatory activity is lessened and the rate of heartbeat slows down. It is clear from experiments conducted on sleeping subjects that sleep does not entirely depend upon the lowered rate of circulation. A sleeping person's blood pressure may be increased by loud noises without awakening him or her. Other changes occurring in sleep include lowering of the body temperature, relaxation of skeletal and visceral muscles, and alteration of the pattern of the electric discharges of the brain as measured by an encephalograph. Studies have shown that, although the muscles are relaxed during sleep, they are not all relaxed at the same time, and a certain amount of activity and movement occurs. In fact, the average sleeper changes his position

about once every 17 minutes during his sleeping period.

The senses continue to function during sleep, but are much less sensitive than during the waking portions of the day. This sensitivity also varies at different times during sleep depending on the level of consciousness. The amount of noise required to wake a sleeping person, for example, increases sharply during the first hour of sleep and decreases sharply during the second hour; it is approximately constant during the rest of the sleeping period. The metabolism of the body follows a similar pattern with a marked increase of calorie production during the earlier part of the sleeping period. The occurrence of dreams is evidence that the activity of the higher centres of the brain also continues during sleep, but whether such cerebral activity continues throughout sleep or happens only sporadically is not known.

The amount of sleep necessary for the individual varies both with the individual and with the individual's age, decreasing as he or she grows older. Rough average figures are 11 hours per day at 6 years, 10 hours at 10 years, 9 hours at 15, 8 hours at 20, slightly less at 25, and 7 hours at 69. Many individuals have norms of sleep that are larger or smaller than these figures, but the claims made by some persons that they require only 2 to 4 hours of sleep each night have never been substantiated.

Insomnia, or the inability to sleep is often the result of psychoneurotic difficulties. *Somnambulism* or sleepwalking, and *somniloquy* or sleep talking, are also psychoneurotic phenomena. Although many people believe that coffee, and the drug caffeine which is its active principle, inhibit or prevent sleep, experiments have actually proved that for most normal people they do not have this effect.

READING 2

Three hours sleep 'ideal', says doctor

By Jason Brown

MELBOURNE -- Believe it or not, most people don't need more than five or six hours' sleep and the best time to sleep is from 3 a.m. to 7 a.m. and 12 p.m. to 3 p.m. This information was reported by a respected Australian doctor Thursday at the Annual Sleep Conference in Melbourne.

Dr. James Russel of the Australian Biomedical Institute for the Study of Life and Sports said two three-hour periods of sleep a day were "ideal."

Russel conducted experiments on night workers at an industrial plant by attaching electrodes to their skulls which measured sleep and alertness. He concluded from his findings that night workers should take 20-minute sleep breaks between 3 a.m. and 7 a.m. to counter tiredness.

This was suggested by the fact that in the early hours of the morning and early afternoon, body temperatures fell, showing that the body slowed down forming "gateways to sleep."

People going to sleep at these times fell into sleep much quicker than at other times and it was a slow, deep, relaxing, and recuperative type of sleep.

There are three sleep "cycles" -- falling to sleep, deep sleep and dreaming -- repeated over an average eight hours in bed.

The most productive sleep is gained during the first two cycles, as those are the deepest.

This means that sleeping for just two or three hours has the most restorative benefits. Waking up should be spontaneous. "Provoked wakening" by an alarm often occurs during mid-cycle deep sleep which makes it difficult to get up.

Stimulants such as coffee, cigarettes and chocolate were "useless and dangerous." Amphetamines and similar drugs could increase alertness but might lead to "very dangerous collapse" when they wore off.

Companies who employ workers at night need to accept that these workers can not do as much work as those working during the day and that they should be allowed to take three or four 20-minute "sleep breaks" between 3 a.m. and 7 a.m. as these will give the worker very good recuperative benefits.

