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INSOMNIA

Insomnia is the inability to sleep well. It is one of the most common problems seen in medical practice and a source of much stress. The ability to sleep well is important for healthy living. Most people have had some difficulty with sleep at one time or the other.

Insomnia may be transient (short term- lasts from a single night to a few weeks) intermittent (on and off- short term, which happens from time to time) or chronic (on-going- occurs at least 3 nights a week over a month or more).

We spend nearly one third of our lives sleeping but how much do we really know about sleep. Sleep is the natural state of rest observed throughout the animal kingdom, in all mammals and birds, and in many reptiles, amphibians, and fish. In humans, regular sleep is necessary for survival. While sleep is essential for survival, there is no credible scientific evidence to back the purpose of sleep. Scientists are working day and night, trying to understand sleep and dreams better. A major break through may lead us to a better understanding of ageing, disease, even the soul.

Measurement of eye movement during sleep is used to divide sleep into two broad types: rapid eye movement (REM) and non-rapid eye movement (NREM) sleep. Each type has a distinct set of associated physiological, neurological and psychological features. Sleep proceeds in cycles of REM and NREM phases. In humans, each cycle is approximately 90 to 120 minutes. Drugs such as alcohol and sleeping pills can suppress certain stages of sleep. This can result in a sleep that exhibits loss of consciousness but does not fulfill its physiological functions. The quality of sleep is as important as the quantity. You could therefore still be tired after having slept for several hours.

NREM accounts for 75–80% of total sleep time in normal human adults. In NREM sleep, the body is active and the brain is inactive, and there is relatively little dreaming. Stages 1 & 2 of NREM are considered 'light sleep', and 3 & 4 'deep sleep'. REM sleep is characterized by rapid eye movements and relative absence of muscle tone. Dreams are an important part of sleep and occur during the REM phase. They are sensory images, caused by the random firing of neurons in the cerebral cortex, in a sequence which the sleeper/dreamer usually perceives more as an apparent participant than an observer. The forebrain then creates a story in an attempt to reconcile and make sense of the nonsensical sensory information presented to it, hence the odd nature of many dreams. Scientists believe that dreams are a requirement for organization and consolidation of recent memory and experience. Nightmares, sleep walking, sleep talking and bed wetting occur during the third and fourth stage of NREM sleep. The optimal amount of sleep is not a meaningful concept unless the timing of that sleep is seen in relation to an individual's circadian rhythms. Circadian rhythms are important in determining the sleeping and feeding patterns of all animals, including human beings. The word circadian comes from the Latin *circa diem* meaning about a day. The internal clock that drives the daily activities of all living things, from wild flowers to whales, is wound by the Earth's rotation. The 24-hour cycle, tied to one turn of the planet on its axis, embodies a biological clock mimicked by timepieces invented to measure the human day. The most well known circadian rhythm is the human sleep cycle.

The sleep/wake cycle in humans is dependent on light and temperature. A change in these

could shift or disrupt the cycle. External factors that affect the circadian rhythm are called zeitgebers. These could be anything from an alarm clock to meal times. Many health problems are associated with a disturbance in the sleep circadian rhythm. They are often temporary. They include Seasonal Affective Disorder (SAD) where the rhythm is disturbed due to the change in length of day, delayed sleep phase syndrome (DSPS) which is caused by a circadian rhythm abnormality causing the sufferer's body to want to sleep later than normal. More temporary problems include jet lag and problems caused by those working late shifts. Circadian rhythms are controlled by a circadian pacemaker, or a biological clock. This "clock" is the section of the brain known as the suprachiasmatic nucleus (SCN). The SCN is a pair of structures that contain about 20,000 neurons and is located in the hypothalamus above where the optic nerves cross. This proximity to the optic nerve explains its reaction to light. A person's major sleep episode is relatively inefficient and inadequate when it occurs at the "wrong" time of the day. Light resets the biological clock. Our biological clock can be affected by almost any kind of external time cue, such as the beeping of an alarm clock, the clatter of a garbage truck, or the timing of meals. The continuous exposure to artificial light, in addition to the stress that is a part of modern living continues to reset the biological clock and causes sleep disturbance.

Melatonin is a hormone produced in the body. It helps regulate your sleep cycle. When you are exposed to light in the morning, melatonin levels decrease. At night, when it is dark, these levels increase, making you sleepy and drowsy. Melatonin may be the anti-aging hormone even though this has not been confirmed. Psychiatrists have found that people who live the longest sleep for seven to eight hours each night. Sleep is nature's chief restorer and inadequate or poor quality sleep can adversely affect almost all organs and functions in your body. The beauty of your skin, digestion, the strength in your hands and legs, the quality of your hair, and your ability to defend yourself against infections, are all dependent on adequate and good sleep. Six-Seven hours of uninterrupted sleep, at night, in a dark room on a clinically comfortable bed, in the right posture, makes it a lot easier to cope with stress and prevent many of the stress related health problems that are so common today. A clinically comfortable bed is a 3 inch mattress, which is not too hard (not the orthopedic mattress which has become a status symbol these days) and not too soft, placed on a hard surface, with a 3-6 inch soft pillow. The right posture is on

your sides with your knees drawn up towards the abdomen or on your back with your knees folded up and supported by a pillow or two underneath. In both these positions the musculoskeletal system is maximally relaxed. Sufficient sleep benefits alertness, memory and problem solving, and overall health, as well as reducing the risk of accidents. Cognitive performance declines with fewer than eight hours of sleep. Lack of sleep can more than double the risk of cardiovascular disease and increase the risk of weight gain, hypertension and Type II diabetes. Sleep deprivation early in life can result in behavioral problems, permanent sleep disruption, and decreased brain mass. Children need a greater amount of sleep than adults to function correctly. A new born baby needs nearly 18 hours of sleep as compared to 11 hours for a 5 year old child and about 7-9 hours for an adult. Sleep requirement does not decrease with age. Many people have trouble sleeping, and this may stem from a number of issues, including: an uncomfortable bed, stress from family, job and/or personal issues, environmental conditions (excessive heat, cold, pollution, noise, bright light, loud noises), environmental surroundings (tidiness of room, odors, cleanliness of room), poor body positioning, illness, pain, medicine and drugs (Some medications may cause insomnia, or result in dependency on a drug to fall asleep; others, including recreational drugs, are stimulants that may make sleep difficult or impossible), and improper sleep timing.

It has been confirmed that work is the single biggest factor troubling sleep and that the more one works, the less one sleeps. Do not take your work to bed. If you think you are not sleeping well try to go to sleep at the same time each night and get up at the same time each morning. Do not take naps after 3 p.m. Avoid caffeine, nicotine, and alcohol late in the day or at night try. Get regular exercise. Exercise during the day, at least five to six hours before bedtime. Make sure you eat dinner at least two to three hours before bedtime. Keep your bedroom dark, quiet, and cool. Follow a routine to help relax and wind down before sleep, such as reading a book, or taking a bath. If you can't fall asleep within thirty to forty-five minutes or don't feel drowsy, get up and read or do something that is not too active until you feel sleepy. Then try going back to bed. Of all the restoration mechanisms in built in our bodies, sleep is the most comprehensive. If you plan your sleep, just as well as you plan all other activities, you could restore yourself almost completely both emotionally and physically. The best bridge, it is said, between despair and hope is a good night's sleep

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