# Sleep Disorders

At least 40 million Americans suffer from chronic, long term sleep disorders each year, and an additional 20 million experience occasional sleeping problems. These disorders and the resulting sleep deprivation interfere with work, driving, and social activities. They also account for an estimated $16 billion in medical costs each year, while the indirect costs due to lost productivity and other factors are probably much greater. Doctors have described more than 70 sleep disorders, most of which can be managed effectively once they are correctly diagnosed. The most common sleep disorders are: **Insomnia, Sleep Apnea, Restless Legs Syndrome, and Narcolepsy.**

# Insomnia

Almost everyone occasional suffers from short term insomnia. This problem can result from stress, jet lag, diet, or many other factors. Insomnia almost always affects job performance and well being the next day. About60 million Americans a year have insomnia frequently or for extended periods of time, which leads to even more serious deficits. Insomnia tends to increase with age and affects about 40 % of women and 30% of men. It is often the major disabling symptom of an underlying medical disorder.

For short term insomnia, doctors may prescribe sleeping pills. Most sleeping pills stop working after several weeks of nightly use, however, and long term use can actually interfere with good sleep. Mild insomnia often can be prevented or cured by practicing good sleep habits. For more serious cases of insomnia, researchers are experimenting with light therapy and other ways to alter circadian cycles.

# Sleep Apnea

Sleep apnea is a disorder of interrupted breathing during sleep. It usually occurs in association with fat buildup or loss of muscle tone with aging. These changes allow the wind pipe to collapse during breathing when muscles relax during sleep. This problem, called *obstructive sleep apnea*, is usually associated with loud snoring (though not everyone who snores has this disorder). Sleep apnea also can occur if the neurons that control breathing malfunction during sleep.

During an episode of obstructive apnea, the person’s effort to inhale creates suction that collapses the windpipe. This blocks the air flow for 10 seconds to a minute while the sleeping person struggles to breathe. When the person’s blood oxygen level falls, the brain responds by awakening the person enough to tighten the upper airway muscles and open the windpipe. The person may snort or gasp, then resume snoring. This cycle may be repeated hundreds of times a night. The frequent awakenings that sleep apnea patients experience leave them continually sleepy and may lead to personality changes such as irritability or depression. Sleep apnea also deprives the person of oxygen, which can lead to morning headaches, a loss of interest in sex, or a decline in mental functioning. It also is linked to high blood pressure, irregular heartbeat, and an increased risk of heart attack and stroke. Patients with severe, untreated sleep apnea are two to three times more likely to have automobile accidents than the general population. In some high risk individuals, sleep apnea may even lead to sudden death from respiratory arrest during sleep.

An estimated 18 million Americans have sleep apnea. However, few of them have had the problems diagnosed. Patients with the typical features of sleep apnea, such as loud snoring, obesity, and excessive daytime sleepiness, should undergo evaluation by a sleep specialist and undergo a **polysomnogram**. This test records the patient’s brain waves, heartbeat, and breathing during an entire night. If sleep apnea is diagnosed, several treatments are available. Mild sleep apnea frequently can be overcome through weight loss or by preventing the person from sleeping on his or her back. Other people may need special devices or surgery to correct the obstruction. People with sleep apnea should never take sedatives or sleeping pills, which can prevent them from awakening enough to breathe.

# Restless Legs Syndrome

Restless legs syndrome (RLS), a familial disorder causing unpleasant crawling, prickling, or tingling sensations in the legs and feet and an urge to move them for relief, is emerging as one of the most common sleep disorders, especially among older people. This disorder, which affects as many as 12 million Americans, leads to constant leg movement during the day and insomnia at night. Severe RLS is most common in elderly people, though symptoms may develop at any age. In some cases, it may be linked to other conditions such as anemia, pregnancy, or diabetes.

Many RLS patients also have a disorder known as *periodic limb movement disorder* (PLMD) which causes repetitive jerking movements of the limbs , especially the legs. These movements occur every 20 – 40 seconds and cause repeated awakening and severely fragmented sleep. In one study, RLS and PLMF accounted for a third of the insomnia seen in patients older than 60.

RLS and PLMF often can be relieved by drugs that affect the neurotransmitter dopamine, suggesting that dopamine abnormalities underlie these disorders’ symptoms. Learning how these disorders occur may lead to better therapies in the future.

# Narcolepsy

Narcolepsy affects an estimated 250,000 Americans. Individuals with narcolepsy have frequent “sleep attacks” at various times of the day, even if they have had a normal amount of night time sleep. These attacks last from several seconds to more than 30 minutes. Other major symptoms include disrupted night time sleep and cataplexy (loss of muscle control during emotional situations), plus hallucinations and temporary paralysis at the onset or end of sleep. These symptoms seem to be features of REM sleep that appear during waking, which suggests that narcolepsy is a disorder of sleep regulation. The symptoms of narcolepsy typically appear during adolescence, though it often takes years to obtain a correct diagnosis. The disorder (or at least a predisposition to it) is usually hereditary, but it occasionally is linked to brain damage from a head injury or neurological disease.

Once narcolepsy is diagnosed, stimulants. antidepressants, or other drugs can help control the symptoms. Naps at certain times of the day also may reduce excessive daytime sleepiness. In 1999 reseachers identified a mutated gene called hypocretin receptor 2 that causes narcolepsy in animals. Hypocretin helps maintain wakefulness. Individuals with narcolepsy usually have normal hypocretin receptor genes but reduced levels of hypocretin in their brains. This may lead to a new understanding of how the braind regulates sleep and new ways of preventing or controlling narcolepsy.