audiotapes, or individual sessions. Cognitive therapy focuses on deflecting anxiety-producing thoughts and behaviors at bedtime. Stimulus control therapy is based on the idea that people with learned insomnia have become conditioned to associate their beds with wakefulness. Persons involved in this type of therapy are not allowed to remain in bed at night if they can not fall asleep; they are instructed to go to another room and engage in a non-stressful activity until they become sleepy. In the morning, they must arise at a set hour no matter how much or little sleep they have had the night before. Finally, sleep restriction therapy consists of limiting one’s hours in bed to the average number of hours one has generally been sleeping and then gradually increasing them.

The second category of sleep disorder is hypersomnia, or Disorders of Excessive Somnolence. People affected by any type of hypersomnia report abnormal degrees of sleepiness, either at night or in the daytime. While the most common causes are sleep apnea and narcolepsy, hypersomnia may also be caused by physical illness, medications, withdrawal from stimulants, or other psychological disorders. Sleep apnea consists of disrupted breathing which wakens a person repeatedly during the night. Though unaware of the problem while it is occurring, people with sleep apnea are unable to get a good night’s sleep and feel tired and sleepy during the day. The condition is generally caused either by a physical obstruction of the upper airway or an impairment of the brain’s respiration control centers. Common treatment methods include weight loss (obesity is a risk factor for the condition), re-fraining from sleeping on one’s back, and medications that reduce rapid eye movement (REM) sleep. A technique called continuous positive airway pressure (CPAP) pushes air into the sleeper’s throat all night through a small mask, preventing the airway from collapsing. In addition, a surgical procedure is available that modifies the upper airway to allow for freer breathing.

The other main type of hypersomnia is narcolepsy—sudden attacks of REM sleep during waking hours. Many narcoleptics experience additional symptoms including cataplexy (a sudden loss of muscle tone while in a conscious state), hallucinations and other unusual perceptual phenomena, and sleep paralysis, an inability to move for several minutes upon awakening. Between 200,000 and 500,000 Americans are affected by narcolepsy, which is caused by a physiological brain dysfunction that can be inherited or develop after trauma to the brain from disease or injury. Treatments include stimulants to combat daytime sleepiness, tricyclic antidepressants to suppress REM sleep, and other medications to control cataplexy.

Disorders of the Sleep-Wake Schedule—the third type of sleep disturbance—are also called circadian rhythm disorders because they interfere with the 24-hour biological clock that regulates many bodily processes. People with these disorders have trouble adhering to the sleep-wake schedule required by their job or environment, often due to shift work or jet lag. However, some persons suffer from delayed or advanced sleep onset problems with no external aggravating factor. Exposure to bright lights and chronotherapy, a technique for resetting one’s biological clock, have been effective in the treatment of some circadian rhythm disorders.

Parasomnias, the final category of sleep disorder, involve unusual phenomena—nightmares, sleep terrors, and sleepwalking—that occur during sleep or during the period between sleeping and waking. Nightmare and sleep terror disorders are similar in that both occur mainly in children and involve frightening nighttime awakenings (in the case of sleep terrors, the person is awakened from non-REM sleep by feelings of agitation that can last for up to 10 minutes). Both are often outgrown but may be treated with psychotherapy, low-dose benzodiazepines, and, in the case of nightmare disorder, relaxation training. Sleepwalking occurs during the deep non-REM sleep of stages three and four and is also most common in children, who tend to outgrow it after the age of 12. It is also more common among males than females. The greatest danger posed by sleepwalking is injury through falls or other mishaps.

Other features of parasomnias include bruxism (teeth grinding) and enuresis (bedwetting). Both are often stress-related, although enuresis may also be caused by genitourinary disorders, neurological disturbances, or toilet training problems. Bruxism may be relieved through relaxation techniques or the use of a custom-made oral device that discourages grinding or at least prevents tooth damage. Enuresis often responds to the medication imipramine (Tofranil) and various behavior modification techniques. A parasomnia only identified within the past decade is REM sleep behavior disorder. Those affected by this condition—usually middle-aged or older men—engage in vigorous and bizarre physical activities during REM sleep in response to dreams, which are generally of a violent, intense nature. As their actions may injure themselves or their sleeping partners, this disorder, thought to be neurological in nature, has been treated with hypnosis and medications including clonazepam and carbacholam.

Further Reading
Smell

The sense that perceives odor by means of the nose and olfactory nerve.

Olfaction is one of the two chemical senses: smell and taste. Both arise from interaction between chemical and receptor cells. In olfaction, the chemical is volatile, or airborne. Breathed in through the nostrils or taken in via the throat by chewing and swallowing, it passes through either the nose or an opening in the palate at the back of the mouth, and moves toward receptor cells located in the lining of the nasal passage. As the chemical moves past the receptor cells, part of it is absorbed into the uppermost surface of the nasal passages called the olfactory epithelium, located at the top of the nasal cavity. There, two one-inch-square patches of tissue covered with mucus dissolve the chemical, stimulating the receptors, which lie under the mucus. The chemical molecules bind to the receptors, triggering impulses that travel to the brain. There are thousands of different receptors in the cells of the nasal cavity that can detect as many as 10,000 different odors. Each receptor contains hair-like structures, or cilia, which are probably the initial point of contact with olfactory stimuli. Research suggests that the sensitivity of the olfactory system is related to the number of both receptors and cilia. For example, a dog has 20 times as many receptor cells as a human and over 10 times as many cilia per receptor.

The cribriform plate forms the roof of the nasal cavity. The olfactory nerve passes through openings in this bone and ends in the olfactory bulb, a neural structure at the base of the brain. From there, olfactory signals are diffused throughout the brain to areas including the amygdala, hippocampus, pyriform cortex (located at the base of the temporal lobe), and the hypothalamus. Olfaction is the only sense that does not involve the thalamus. Olfaction messages are especially intensive in the amygdala, a part of the brain responsible for emotions, which may help the unusual power of certain smells to trigger emotions and recollections based on memories from the past. Further, a person’s reaction to smell is mediated by context. For example, the same smell present in body odor is responsible for the flavor of cheese. In the first case, the smell is perceived as negative, in the second, it is positive. In humans, olfaction intensifies the taste of food, warns of potentially dangerous food, as well as other dangers (such as fire), and triggers associations involving memory and emotion. Olfaction is an especially important sense in many animals. A predator may use it to detect prey, while prey may use it to avoid predators. It also has a role in the mating process through chemicals called pheromones, which can cause ovulation in females or signal a male that a female is in a sexually receptive state. Although the existence of human pheromones has not been verified, olfaction still plays a role in human sexual attraction, as well as in parenting. Mothers can usually identify their newborn infants by smell, and breast-feeding babies can distinguish between the smell of their mothers and that of other breast-feeding women. Researchers have also found that children are able to recognize their siblings by smell and parents can use smell to distinguish among their own children. However, as people age the sense of smell diminishes, especially for men. By age 80, many men have almost no ability to detect odors. The intensity of a particular odor is strongly affected by adaptation. Odors may become undetectable after only a brief period of exposure. The sense of smell also plays an important role in the discrimination of flavors, a fact demonstrated by the reduced sense of taste in people with colds. The enjoyment of food actually comes more from odors detected by the olfactory system than from the functioning of the taste system. The olfactory and gustatory (taste) pathways are known to converge in parts of the brain, although it is not known exactly how the two systems work together. While an aversion to certain flavors (such as bitter flavors) is innate, associations with odors are learned.

Social competence

Mastering the social, emotional, and cognitive skills and behaviors needed to succeed as a member of society.

Social competence refers to the social, emotional, and cognitive skills and behaviors that children need for successful social adaptation. Despite this simple definition, social competence is an elusive concept, because the skills and behaviors required for healthy social development vary with the age of the child and with the demands of particular situations. A socially competent preschool child behaves in a much different manner than a socially competent adolescent; conversely, the same behaviors (e.g., aggression, shyness) have different implications for social adaptation depending upon the age of the child and the particulars of the social context.

A child’s social competence depends upon a number of factors including the child’s social skills, social awareness, and self-confidence. Social skills is a term used to describe the child’s knowledge of, and ability to use, a variety of social behaviors that are appropriate to a given interpersonal situation and that are pleasing to others in each situation. The capacity to inhibit egocentric,