



## 38 Sleep Disorders

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Disturbed sleep is among the most frequent health complaints that physicians encounter. More than one-half of adults in the United States experience at least intermittent sleep disturbance, and only 30% of adult Americans report consistently obtaining a sufficient amount of sleep. The Institute of Medicine has estimated that 50–70 million Americans suffer from a chronic disorder of sleep and wakefulness, which can adversely affect daytime functioning as well as physical and mental health. Over the last 20 years, the field of sleep medicine has emerged as a distinct specialty in response to the impact of sleep disorders and sleep deficiency on overall health.

### PHYSIOLOGY OF SLEEP AND WAKEFULNESS

Given the opportunity, most healthy young adults will sleep 7–8 h per night, although the timing, duration, and internal structure of sleep vary among individuals. In the United States, adults tend to have one consolidated sleep episode each night, although in some cultures sleep may be divided into a mid-afternoon nap and a shortened night sleep. This pattern changes considerably over the life span, as infants and young children sleep considerably more than older people.

The stages of human sleep are defined on the basis of characteristic patterns in the electroencephalogram (EEG), the electrooculogram (EOG—a measure of eye-movement activity), and the surface electromyogram (EMG) measured on the chin, neck, and legs. The continuous recording of these electrophysiologic parameters to define sleep and wakefulness is termed *polysomnography*.

Polysomnographic profiles define two basic states of sleep: (1) rapid eye movement (REM) sleep and (2) non-rapid eye movement (NREM) sleep. NREM sleep is further subdivided into three stages: N1,