

# Disorders of Sleep

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## INTRODUCTION

Sleep disorders can be classified in various ways. The international classification uses an axial system to define three categories: dyssomnias, parasomnias, and sleep disorders associated with mental or neurologic diseases. From a practical point of view, sleep disorders are better classified by their clinical presentation, which is the approach taken here. This chapter focuses on primary sleep disorders rather than sleep disturbances that result from self-evident medical or psychiatric diseases.

## DISORDERS OF EXCESSIVE DAYTIME SLEEPINESS

### History

A careful sleep history is the starting point. It often uncovers likely causes of excessive daytime sleepiness (EDS), such as medications, systemic illnesses, sleep deprivation, or circadian rhythm disturbances. Most of the causes of EDS (e.g., insufficient sleep time, lifestyle, circadian rhythm disorders) do not require a specialized sleep evaluation. The history can elicit symptoms that suggest specific causes such as sleep-disordered breathing (i.e., sleep apnea) or narcolepsy.

To subjectively quantify EDS, various scales have been developed. The most useful in clinical practice is the Epworth Sleepiness Scale (ESS), which is an extension of the history. The ESS consists of a brief questionnaire on the likelihood of dozing off in eight situations. This yields a score between 0 and 24 (Table 106-1). Although there is no strict cutoff, scores above 10 or 11 indicate sufficiently severe EDS to warrant investigation. In addition to being disabling for the individual, EDS is a public health concern because it impairs performance and may cause motor vehicle and industrial accidents in a way comparable to alcohol intoxication.

### Examination

The examination of patients with EDS should include a general neurologic examination. If sleep-disordered breathing is suspected, the upper airway should also be examined.

### Sleep Studies

Polysomnography (PSG) is an all-night sleep study that measures multiple parameters such as sleep staging, respiration, leg movements, and electrocardiographic patterns. Portable or home adaptations of formal laboratory PSG are increasingly used.

The multiple sleep latency test (MSLT) and the maintenance of wakefulness test (MWT) are used to measure and quantify EDS. They consist of a series of daytime naps during which sleep

latency (i.e., latency to stage N1) is measured and sleep stages are determined. The MSLT is better standardized than the MWT. Normal sleep latency is greater than 12 minutes; latency of less than 5 minutes is evidence for severe sleepiness.

## SLEEP-DISORDERED BREATHING

### Definition and Epidemiology

Sleep-disordered breathing encompasses a spectrum of conditions typified by the most common: obstructive sleep apnea (OSA). The spectrum of obstructive disease extends from primary, isolated, or trivial snoring to upper airway resistance syndrome (i.e., compensated OSA) to OSA of mild, moderate, or severe degree. The degree is determined by PSG.

OSA has a prevalence of about 2% to 4%. It affects more men than women, and the incidence increases with age. Central sleep apnea is much less well defined. It has the same definitions but has no evidence of obstruction.

### Pathophysiology

The pathophysiology of OSA is recurrent upper airway closure or collapse with resulting oxygen desaturation leading to arousals. Obstruction typically occurs at the level of the nasopharynx

**TABLE 106-1** EPWORTH SLEEPINESS SCALE

How likely are you to doze off or fall asleep in the following situations in contrast to just feeling tired? The situations refer to your usual way of life.

Even if you have not done some of these things recently, try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation.

0 = would never doze

1 = slight chance of dozing

2 = moderate chance of dozing

3 = high chance of dozing

What is your chance of dozing in the following situations?

Sitting and reading \_\_\_\_\_

Watching TV \_\_\_\_\_

Sitting and inactive in a public place  
(theater or meeting) \_\_\_\_\_

As a passenger in a car for an hour  
without a break \_\_\_\_\_

Lying down to rest in the afternoon  
when possible \_\_\_\_\_

Sitting and talking to someone \_\_\_\_\_

Sitting quietly after lunch (without  
alcohol) \_\_\_\_\_

In a car while stopped for a few  
minutes in traffic \_\_\_\_\_

Total \_\_\_\_\_

Modified from Johns MW: A new method for measuring daytime sleepiness: the Epworth Sleepiness Scale, *Sleep* 14:540–545, 1991.