



# World Sleep Academy

## Evaluation of Patients

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## INTRODUCTION

Sleep-related complaints are very commonly seen in all medical specialties, and it is essential to differentiate among sleep-related symptoms associated with medication side effects, symptoms secondary to a medical disorder, and symptoms due to a primary sleep disorder.

Sleep complaints include symptoms that occur at night such as snoring, multiple nocturnal awakenings, or sleepwalking. Symptoms can also occur during the day, including excessive daytime sleepiness, fatigue, and cognitive deficits. Symptoms can also occur during wakefulness right before bedtime – such is the case in restless legs syndrome. The presentation of sleep complaints can be chronic or can be recurrent. Some sleep disorders are associated with a strong family history, others can present in infancy, and others are almost exclusively a disorder seen in the elderly. The sleep practitioner must be familiarized with the diagnostic approaches, diagnostic tools, and methods used to identify sleep disorders. Recent advances in technology have allowed us to assess sleep quality, sleep quantity, and daytime symptoms with increasing objectivity. However, we must understand which test is appropriate for which patient, and we must be able to determine if sleep history and physical exam alone are sufficient to provide a diagnosis. Furthermore, patients with complicated disorders that increase risk for a sleep disorder – for example, patients with heart disease, obesity, and neurodegenerative diseases – may need sleep testing while other patients may not. The appropriate selection of patients who need to undergo further testing and the appropriate selection of testing are crucial parts of sleep medicine training.

In this chapter, we will discuss the elements of the patient history, physical exam, common sleep tests, and more advanced sleep testing.

## PATIENT HISTORY

A complete but focused history and physical exam are crucial. The following table is meant to function as templates or examples for the initial evaluation of patients. These examples are designed to be practical and generalizable worldwide and to all age groups.

Chief complaint	Why did you seek help? What is the main complaint that drove the patient to the consultation? Common ones include but are not limited to excessive sleepiness, difficulty initiating or maintaining sleep, loud snoring, and restless legs.

Patients with sleep disorders may seek evaluation or be referred for common complaints like difficulty falling or staying asleep; feeling tired or sleepy during the day; having sleep fragmentation; experiencing restless legs or frequent movements during sleep; or enacting abnormal behaviors during sleep. Certain risk factors such as occupation (like airplane pilots or truck drivers) or medical conditions such as pulmonary hypertension, heart failure, atrial fibrillation, or seizure disorder may also be cause for evaluation.



History of Present Illness (HPI)	<p>Patient's age &amp; biological sex evaluated for:</p> <ul style="list-style-type: none"> <li>• Snoring</li> <li>• Fragmented sleep/ multiple awakenings from sleep</li> <li>• Difficulty initiating sleep and or difficulty maintaining sleep</li> <li>• Excessive sleepiness</li> <li>• Non-restorative sleep</li> <li>• Dry mouth or mouth breathing</li> <li>• Nasal congestion</li> <li>• Morning headaches</li> <li>• Night sweats</li> <li>• Witnessed pauses / apneas</li> <li>• Choking or gasping from sleep</li> </ul>
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The initial history is an important guide for differential diagnosis. For example, an older male patient presenting with sleepiness who snores loudly may signal a diagnosis of sleep-disordered breathing and more specifically obstructive sleep apnea (OSA). A young patient with a lower BMI that endorses anxiety and difficulty falling asleep and staying asleep may signal insomnia, restless legs, or perhaps a circadian rhythm disorder. The initial history of a young patient without other medical disorders and not obese with excessive disruptive sleepiness since childhood may signal a hypersomnia disorder. An older patient that acts out nightmares and kicks and punches from sleep may suggest REM sleep behavior disorder (RBD), and the same symptoms in a young patient may point towards iatrogenic RBD secondary to medications

or perhaps a central nervous system disorder such as multiple sclerosis. Sleep-disordered breathing in older women may present typically with more restless sleep, fragmented sleep, irritability, and night sweats in the peri-menopausal woman; this sleep-disordered breathing may go undiagnosed and untreated for years.

Some patients may be asymptomatic but have medical conditions that are not well controlled and could be explained by a sleep disorder such as OSA. These conditions could be diabetes or refractory hypertension or seizure disorder. In patients with heart failure who may not be particularly sleepy and sleep alone, OSA may require a high index of clinical suspicion based on other risk factors.

A good general question is to ask the patient if they feel sleepy overall. The Epworth Sleepiness Scale (ESS) is a validated tool that is easy to use in clinical practice and can give a sense of how disruptive the sleepiness is during day-to-day activities. Regardless, it is important to evaluate sleepiness during high-risk activities – for example, at work or when driving – and counsel patients to avoid sleepy driving, plan to have a ride, or consider stopping for a nap in a safe place for 20 minutes to improve alertness if they feel sleep while driving. It may be helpful to explain to the patient that we tend to underestimate the degree of sleepiness when driving and how this unnoticed impairment can lead to serious injuries to oneself and others.



Insomnia assessment	<p>Difficulty initiating sleep: Yes   No</p> <ul style="list-style-type: none"> <li>• If Yes: <math>\geq 3</math> times a week? Yes   No</li> </ul> <p>Difficulty maintaining asleep: Yes   No</p> <ul style="list-style-type: none"> <li>• If Yes: <math>\geq 3</math> times a week? Yes   No</li> </ul>
Sleep habits	<ul style="list-style-type: none"> <li>• Bed time:</li> <li>• Sleep onset latency (SOL):</li> <li>• Wake time:</li> <li>• Estimated total sleep time (TST):</li> <li>• Hypnotics/Sleep Aid?: Yes   No</li> <li>• Number of awakenings:</li> <li>• Naps: Yes (number, duration, time of the day   No</li> <li>• Caffeine: Yes (form/amount)   No</li> </ul>
Sleeping environment and preferences	<ul style="list-style-type: none"> <li>• Sleep Position: Supine   Non-supine Restless sleep</li> <li>• Bedroom lights during sleep?: Yes   No</li> <li>• TV or electronics on: Yes   No</li> </ul>
Insomnia severity index	Refer to the Appendix B

Difficulty falling and staying asleep suggests a diagnosis of insomnia disorder, especially if patients have difficulty with daytime functioning and this is affecting their quality of life. Symptoms that occur more than three times per week for more than three months may be consistent with the International Classification of Sleep Disorders (3rd edition) (or ICSD-3) criteria for a chronic insomnia disorder. Some patients may struggle not only with significant difficulty falling asleep but also waking up in the morning. These patients may have a circadian rhythm disorder called a delayed phase type. Other patients (more common in the elderly) may complain of significant sleepiness in the afternoon, perhaps accidentally dozing off only to wake up very early in the morning and not being able to return to sleep. This is suggestive of circadian rhythm disorder advance phase type. Discerning the meaning of these differences in patient complaints may be obvious in some patients or more difficult in others that could have a combination of several. Clearly, a structured interview can help discern between sleep disorders and guide recommendations for diagnosis and treatment. Providing patients with these questionnaires as they wait to be evaluated may be helpful for discussion during the interview. In addition, understanding environmental factors that could be affecting sleep quality is important given the significant cultural, geographic, socioeconomic, and simple personal variations among patients.



Additional sleep complaints	
Restless legs syndrome	<ul style="list-style-type: none"> <li>Discomfort or abnormal sensations in lower extremities in the evening hours, brought on at rest, alleviated by movement: Yes   No</li> </ul>
Abnormal sleep behaviors	<ul style="list-style-type: none"> <li>Sleep walking/sleep eating: Yes   No</li> <li>Nightmares that are frequent: Yes   No</li> <li>Acting out dreams: Yes   No</li> <li>Abnormal movements: Yes   No</li> </ul>
Narcolepsy	<ul style="list-style-type: none"> <li>Cataplexy (loss of strength with strong emotions): Yes   No</li> <li>Hypnagogic/hypnopompic hallucinations: Yes   No</li> <li>Sleep paralysis: Yes   No</li> <li>Sleep attacks: Yes   No</li> </ul>
Bruxism	Teeth grinding/clenching: Yes   No

A comprehensive sleep evaluation must have questions to rule in or rule out other sleep disorders such as restless legs syndrome (RLS). Patient complaints of discomfort, pain, or other abnormal sensation in the lower extremities that occurs when they are not moving, gets worse at rest and better with movement, and that is usually worse in the evenings or when they are in a constrained space is highly suggestive of RLS. These questions help differentiate RLS from other conditions such as neuropathic pain/arthritis or other musculoskeletal pain which usually gets worse with movement, improves with rest, and does not have a clear circadian rhythm.

In younger patients and children, complaints of abnormal sleep behaviors and the timing of those behaviors – such as sleepwalking or sleep terrors (when the patient wakes up, screams, has significant autonomic discharge with diaphoresis, dilated pupils) and little or no recollection of the event the next day – suggests a non-REM sleep parasomnia. Frequent nightmares with vivid recollection of the dreams – and in older patients especially when dreams involve being attacked and there is kicking, punching, or yelling from sleep (i.e., acting out of the dream) – can be suggestive of a REM parasomnia like nightmare disorder or RBD.

Bruxism is a common occurrence. If this is noted by the patient and is associated with frequent awakenings, temporo-mandibular joint pain, or sleepiness, a referral to a dentist for a mouth guard may be considered; in selected patients, medications (such as benzodiazepines) may also be considered.



The timelines of the symptoms' presence, previous episodes, and childhood symptoms are important in delineating a differential diagnosis and diagnostic plan.

For example:

- In cases of chronic insomnia disorders where symptoms are present for more than three months and patients may have had recurrent episodes in the past
- In cases of hypersomnia, the symptoms may be present since a young age but are being noticed in high school or college
- In pediatric patients when parasomnias will improve with age in the majority of patients
- Or, for example, in cases with RBD, which can be a prodrome (early symptom) to Parkinson's disease and precedes the clinical diagnosis of PD by about 10 years.

*End Sample*

*Manuscript continues pp. 7 through 24.*