Managing Sleep Health in a Primary Care Setting CME Program

December 2nd, 2016 | Asheville, NC
North Carolina Academy of Family Physicians’ Winter Family Physicians Weekend

Earn up to 3 AMA PRA Category 1 Credits™

Learning Objectives

• Define sleep health and summarize its clinical importance.
• Communicate risk factors associated with not getting enough sleep.
• Explain the sleep/wake cycle and circadian rhythms.
• Identify common sleep disorders in primary care.
• Use appropriate diagnostic tools to assess patients’ sleep health.

The Importance of Sleep Health

Faculty – Paul Doghramji, MD
• Family Physician, Collegeville Family Practice

Disclosures
• I have the following relevant financial relationship(s) with one or more commercial interests to disclose:
  • Merck, Speakers Bureau, Faculty, Peer Reviewer

Outline

• What is sleep?
• Sleep stages
• Sleep neurophysiology
• Dreaming
Sleep comprises one third of our adult life. It is essential for normal functioning. Without it, we experience memory lapses, have difficulty with concentration, experience mood alterations, become more prone to accidents, perform poorly at work, and experience breaches in interpersonal relationships. Animals deprived of sleep will experience metabolic abnormalities and eventually die. Despite all of this information, however, we do not fully understand the why's of sleep.

Scientists have yet to determine how physical and psychological restorative processes are coordinated during sleep and why such a behaviorally disconnected state is necessary to accomplish these tasks.

Recent evidence indicates that the clearance of beta-amyloid, a neurotoxic waste product that accumulates in the brain during wakefulness, is enhanced during sleep. This and similar information suggest that the restorative function of sleep is a result of its importance in maintaining metabolic homeostasis through the removal of toxins that accumulate during wakefulness.
Sleep Perspectives

- Behavioral
  - Reversible
  - Perceptual disengagement from, and unresponsiveness to, the environment

- Neurophysiological
  - Two distinct states: REM sleep and NREM
  - Actively produced, not a result of passive inactivity
  - Highly regulated by homeostatic and circadian processes
  - Produces changes in the entire organism, not just the CNS

- Teleological
  - Necessary for survival; deprivation leads to functional impairments and eventual death
  - Important for clearance of neurotoxic waste products (e.g., beta amyloid) that accumulate in the brain during wakefulness


Why is sleep important?

- Cognition and performance
- Mood regulation
- Mental health
- Physical health
- Safety

Sleep Loss and Health: Physiologic Studies

- In the laboratory setting, short-term sleep restriction leads to a variety of adverse physiologic sequelae, including
  - Impaired glucose control
  - Increased cortisol
  - Increased blood pressure
  - Sympathetic activation
  - Increased appetite
  - Increased CRP
  - Immune function

  These data suggest that sleep restriction may have health consequences (obesity, diabetes, cardiovascular disease)


SLEEP ≠ REST

Outline

- What is sleep?
- Sleep stages
- Sleep physiology
- Dreaming
Two States of Sleep

- Rapid eye movement (REM) sleep
  - Time when dreaming occurs
  - "Active brain in a paralyzed body"
- Non-REM sleep
  - Divided into three stages based primarily on EEG pattern

Sleep Stage Characteristics

<table>
<thead>
<tr>
<th></th>
<th>NREM</th>
<th>REM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate</td>
<td>Steady</td>
<td>Variable</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>Steady</td>
<td>Labile</td>
</tr>
<tr>
<td>Respiration</td>
<td>Regular</td>
<td>Irregular</td>
</tr>
<tr>
<td>Skeletal muscle tone</td>
<td>Normal</td>
<td>Decreased</td>
</tr>
<tr>
<td>Thermoregulation</td>
<td>Waking modes</td>
<td>Decreased</td>
</tr>
<tr>
<td>Penile tumescence</td>
<td>Infrequent</td>
<td>Frequent</td>
</tr>
<tr>
<td>Mental activity</td>
<td>Limited</td>
<td>Dreaming</td>
</tr>
<tr>
<td>Brain O2 consumption</td>
<td>Decreased</td>
<td>Waking level</td>
</tr>
</tbody>
</table>

Sleep and Age

- Neonates: Mainly REM
- Teens to middle age
  - Stage N1: 5%
  - Stage N2: 45%
  - Stage N3: 25%
  - REM: 25%
- Elderly
  - Delta sleep decreases and stage 1 sleep increases
  - REM latency decreases
  - Sleep continuity decreases
Outline

- What is sleep?
- Sleep stages
- Sleep physiology
- Dreaming

Hypocretin

- Hypothalamic peptides
  - Localized in the dorsolateral hypothalamus
  - Wide projections throughout the brain
  - Projections found in the spinal column
- Peptide neurotransmitters
  - Arousal
  - Locomotion
  - Metabolism
  - Increase blood pressure/heart rate

Two Process Model of Sleep Regulation


Flip Flop Switch Model of Arousal and Sleep

Outline

• What is sleep?
• Sleep stages
• Factors affecting sleep architecture
• Sleep physiology
• Dreaming

When do we dream?

• Dreaming occurs in all stages of sleep.
• Reported in 80 percent of persons who are awakened during REM sleep and sleep onset (N1 and N2)
• Reported in 40 percent of persons who are awakened from a deep sleep

REM and Non-REM Dreams

• Dreams during REM sleep tend to be bizarre and detailed, with storyline plot associations.
• Dreams in deep sleep are more diffuse (e.g., dreams about a color or an emotion).
• Dreams of stages N1 and N2 are simpler, shorter and have fewer associations than the dreams of REM sleep.
• Highest recall seems to occur during sleep stages with electroencephalographic patterns that are most like those in the waking state

REM and Dreaming

REM (Dream) Theories

• Some researchers: dreams have no function.
• Others: dreams are the nocturnal continuation of conscious thought processing during the day or a reprogramming of the central nervous system for the next day’s conscious functioning.(1)
• Evidence suggests that dreaming, like most other physiologic events, is important for learning and memory processing, gives cognitive feedback about a person’s mental functioning and helps a person adapt to emotional and physical stress.(2)


Frightening Dreams

J.F. PAGEL, M.D., University of Colorado Medical School, Pueblo, Colorado
Sleepiness

Terminology:

• Sleepiness
  • Tendency to fall asleep or the inability to stay awake
  • Improved by sleep
  • Normal at usual sleep time or normal nap time
• Excessive Sleepiness: A symptom
  • Difficulty maintaining wakefulness and increased propensity to fall asleep, even in inappropriate circumstances
  • AKA: drowsiness, pathologic sleepiness, abnormal daytime sleepiness

Sleepiness Complaints Differ By Gender

• Men
  • "I'm tired"
  • "My memory is bad"
  • "Lack of energy"
  • Less likely to say, "sleepy": Last choice

• Women
  • "Sleepy": First choice in women
  • "Insomnia"
  • More likely to have depression and hypothyroidism

But Patients Also Mean Other Things, "TIRED"

• Sleepiness
  • Tendency to fall asleep or the inability to stay awake
  • Improved by sleep
• Fatigue
  • Sensation of weariness, tiredness, exhaustion, loss of energy; the desire to rest
  • Improved by rest, exertion makes it worse
• Lack of motivation
  • "I don't feel like doing anything..."

Sleepiness in America

% of US Adults Reporting that They Are So Sleepy it Interferes with Their Daily Activities

Prevalence of ES Worldwide ESS Scores >10

N=35,327 survey respondents aged 39 ± 15.3 years.

ES, excessive sleepiness; ESS, Epworth Sleepiness Scale.


How to Diagnose the Cause of Sleepiness

• Get detailed sleep/wake history
• Determine whether sleepy, fatigued, or depression
• Quantify the degree of sleepiness: ESS
• Start probing for the causes, looking for clues
• Insufficient Sleep Syndrome: doesn’t get enough sleep
• OSA: loud snoring, waking up choking, witnesses apneas, waking up with sore throat or headache, enuresis, nocturia
• RLS: uncomfortable feelings in legs prevent sleep, need to move them to relieve symptoms
• PLMD: no clues except excessive sleepiness
• Narcolepsy: hypnagogic/hypnopompic hallucinations, sleep paralysis, cataplexy

Categories of Sleepiness

• Insufficient sleep
  • Fatigues
  • Insomnia
• Poor quality sleep
  • Obstructive sleep apnea
  • PLM
• Disturbed timing of sleep
  • Circadian rhythm disorders
• Medications and substances
  • Rx, OTC, herbs
• Illicit drugs, alcohol
• Brain “damage”
  • MS, Parkinson’s, TBI, stroke, Alzheimer’s
• Narcolepsy

Obstructive Sleep Apnea

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Physical Findings</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loud Snoring</td>
<td>Large neck</td>
<td>CPAP/BiPAP</td>
</tr>
<tr>
<td>Gasping, choking</td>
<td>Crowded pharynx</td>
<td>Oral appliance</td>
</tr>
<tr>
<td>Witnessed apneas</td>
<td>Obesity</td>
<td>Surgery</td>
</tr>
<tr>
<td>Morning headaches, sore throat</td>
<td>Enuresis/nocturia</td>
<td>Weight loss</td>
</tr>
<tr>
<td>Enuresis/nocturia</td>
<td></td>
<td>Positioning</td>
</tr>
</tbody>
</table>

Screening for OSA: STOP-BANG Method

**STOP Questionnaire**
- Snoring
- Tiredness (daytime)
- Observed you stop breathing during sleep
- High blood Pressure

**BANG†**
- BMI > 35
- Age > 50 years
- Neck circumference > 40 cm (~16 in)
- Gender: Male

BMI = body mass index
* High risk = Yes to > 2 questions
† High risk = Yes to > 3 items out of the 8 items in the STOP-BANG lists.

STOP-BANG Diagnostic Values

<table>
<thead>
<tr>
<th>AHI</th>
<th>Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>83.6</td>
</tr>
<tr>
<td>Moderate</td>
<td>92.9</td>
</tr>
<tr>
<td>Severe</td>
<td>100</td>
</tr>
</tbody>
</table>

- **Specificity**
  - 56.4
  - 43
  - 37

High risk: Yes to ≥3 items


Airway Assessment for OSA

**Mallampati Scale**

On average, the odds of having OSA increase more than 2-fold for every 1-point increase in Mallampati score.

Class I
Class II
Class III
Class IV


OSA: Co-Morbidities

- Hypertension
- Diabetes Mellitus Type 2
- Obesity
- Hyperlipidemia
- GERD
- Depression
- Gout
- Glaucoma
- CAD
- Stroke

Metabolic Syndrome

When to Consider OSA

- Exam findings:
  - Obesity
  - Large neck size ("double chin")
  - Micrognathia, short chin
  - Crowded pharynx

Restless Leg Syndrome

**Symptoms**
- Irresistible urge to move legs usually with unpleasant sensations
- Relief with movement
- Worse at night
- Worse with rest

**Etiology**
- Dopaminergic dysfunction
- Iron deficiency
- Renal insufficiencies
- Peripheral neuropathies

**Treatment**
- Dopaminergic agents
- Iron if deficient
- Sedative hypnotics
- Anticonvulsants
- Opiates
- Sleep hygiene

Periodic Limb Movement Disorder vs. RLS

- Substantial overlap of diagnoses in patients
- Up to 85% of RLS patients have PLMD
- 30% of PLMD patients have RLS
- RLS is diagnosis made clinically
- PLMD diagnosis is made via PSG
- No other daytime clues, just sleepiness
- Treatments are the same

Narcolepsy

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Etiology</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive daytime sleepiness</td>
<td>Hypocretin deficiency</td>
<td>Stimulants</td>
</tr>
<tr>
<td>Sleep attacks</td>
<td>HLA axis</td>
<td>Sodium Oxybate</td>
</tr>
<tr>
<td>Cataplexy</td>
<td>Strong genetic factor</td>
<td>Antidepressants</td>
</tr>
<tr>
<td>Hypnagogic hallucinations</td>
<td>Autoimmune</td>
<td></td>
</tr>
</tbody>
</table>

Why Should PCP’s be Proactive about INSOMNIA?

- Insomnia is very prevalent in primary care
- But patients don’t tell you
- Insomnia has serious consequences
  - Day to day life
  - Poor outcome on mental and physical health
- Insomnia is a clue
  - Most insomnias are co-morbid
- Insomnia is easy to identify
- Management may improve outcome
- Insomnia management majority is done by PCP

Where do insomniacs go for management?

- No one: 70%
- Family Physician/Internist: 62%
- Psychiatrist: 8%
- OB/GYN: 4%
- Sleep Specialist: 4%
- Other: 22%

Insufficient Sleep: Insomnia

Patient Survey:
"Has your doctor every asked you about sleep issues?"

- Yes: 29%
- No: 70%

N = 1506

Barriers to Identifying and Treating Insomnia: Physicians

PCP survey response to: “In your experience, which of the following is the largest barrier to the optimal and timely management of sleep disturbance?”

- Access to appropriate diagnostic testing: 71%
- Potential for risk of abuse: 2%
- Respiratory depression and other side effects: 17%
- Poor understanding of insomnia causes and treatments: 8%


Insomnia Risk Factors

- Age (greater prevalence in older individuals)
- Female gender (especially post-1 and perimenopausal2 females)
- Divorce/separation/widowhood
- Psychiatric illness (mood and anxiety disorders)
- Medical conditions
- Cigarette smoking
- Alcohol and coffee consumption
- Certain prescription drugs

Why Treat Insomnia:

- Relieve an upsetting symptom
- Improve next day consequences
- Improve outcome of co-morbidity
  - Psychiatric
  - Medical

When do you ask about sleep problems?

- During Acute Visit
  - Where applicable
- During Follow up of Medical/Psychiatric problem
  - Where applicable
- During Annual Screening Visit (Complete Physical Exam)
  - During ROS

Insomnia Screening Questions:

- Sleep Schedule:
  - Do you have trouble getting to sleep, staying asleep, or waking up too early?
- Daytime consequences:
  - Do you feel like you have slept well throughout the day?

Follow Up Questions:

- Sleep timing:
  - When do you go to bed? ...Wake up? ...Middle of the night awakening? ...How long does it take you to fall back to sleep?
- Treatments:
  - What remedies have you tried? Any previous Rx’s?
  - Any sleep hygiene/lifestyle issues?
  - Alcohol? Smoking? Exercise? Medications that cause insomnia?
  - Duration, frequency, prior such:
  - How long has this been going on? ...How often have you had this sleep problem?...Have you had it before?...
Follow Up Questions (cont’d):

- Medical/psychiatric associations
- Ask about associations
- Make sure you ask about primary sleep disorders
  - Snoring, daytime sleepiness, restless legs
- Family History
  - Primary insomnia, OSA, RLS, etc.

Diagnose the Insomnia

- Primary
- Co-Morbid
  - Medical
    - Cardiac, pulmonary, rheumatologic, neurologic, endocrine, gastrointestinal, renal, pain syndromes
  - Psychiatric
    - Mood disorders, anxiety disorders, substance abuse
  - Sleep Disorders
    - Circadian rhythm disorders
    - Sleep-disordered breathing (OSA)
    - Restless legs syndrome

Stepwise Approach for Managing Insomnia

Patient Education: Most Powerful Tool

- Inform WHY management is so important
  - Consequences
- Emphasize keeping regimented sleep schedule
  - Wake up same time every day
  - Naps usually not a good idea
- Emphasize sleeping long enough
  - Can’t catch up on weekends
- Emphasize lifestyle measures
  - Alcohol, exercise, smoking, caffeine, diet (no large meals)

Treatments: CBT and/or Medications?

- Make sure you address the co-morbid condition as well as the insomnia
- Discuss with patient pros and cons of meds and CBT
  - Medications:
    - Which are best applicable?
    - Habit forming?
    - How long to use?
    - Side effects?
  - CBT: at your discretion—ability, time, interest
- Allow patient to voice his/her concerns, fears, and needs

Sleep Medication Prescribing Guidelines

- Bedtime dosing: take the med and stay in bed
  - Avoid hazardous activities after dose
  - Allow sufficient time in bed as per product insert
- Dosage adjustments for special situations
  - Elderly liver problems, concomitant medications
- Nightly vs. as-needed dosing
  - Allow patients to try both
  - Middle-of-the-night dosing?
    - None are currently indicated
  - Taper dose on discontinuation?
    - Most will only need a few days

References:
Treating Insomnia: Choosing the Right Pharmacotherapy

- Trouble with sleep initiation only:
  - Ramelteon, triazolam, zaleplon, zolpidem
- Trouble staying asleep (with or without sleep initiation problems):
  - Eszopiclone, temazepam, zolpidem ER, zolpidem (if awakes early in evening)
- Issues with controlled substances or with respiratory suppression:
  - Ramelteon
- Generic medications available:
  - Temazepam, triazolam, zaleplon, zolpidem
- Other benzodiazepines not recommended in most cases

When to Consider Referral to a Sleep Expert

- Suspected obstructive sleep apnea or narcolepsy
- Violent behaviors or unusual parasomnias
- Daytime tiredness (sleepiness) that you can’t figure out
- Insomnia fails to respond to behavioral and/or pharmacologic therapy after an appropriate interval
- You don’t feel comfortable treating the condition

Learning Objectives

- Define sleep health and summarize its clinical importance.
- Communicate risk factors associated with not getting enough sleep.
- Explain the sleep/wake cycle and circadian rhythms.
- Identify common sleep disorders in primary care.
- Use appropriate diagnostic tools to assess patients’ sleep health.

In conclusion:

“We are not healthy unless our sleep is healthy, and we cannot make our sleep healthy unless we become thoroughly aware of both its peril and promise”

William C. Dement, MD, PhD

Additional Resources

- For additional resources, visit:
  - Sleepfoundation.org
  - Sleep.org
  - Sleephealthjournal.org

References:

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Faculty - Larry Culpepper, MD, MPH
- Chief of Department of Family Medicine, Boston University Medical Center

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  - Lundbeck A/S, Takeda Inc., Speakers Bureau, Faculty, Peer Reviewer
  - Forest Labs; Sunovion Inc., Speakers Bureau, Faculty, Peer Reviewer
  - Ironwood, Pharm, Sire PLC, Speakers Bureau, Faculty, Peer Reviewer
  - Merck, Speakers Bureau, Faculty, Peer Reviewer

Faculty - Stephen H. Sheldon, DO
- Professor of Pediatrics & Neurology, Northwestern University Feinberg School of Medicine, & Director, Sleep Medicine Center, Feinberg School of Medicine

**Disclosures**
- I have the following relevant financial relationship(s) with one or more commercial interests to disclose:
  - Dymedix Diagnostic, Consultant
  - Cadwell Industries, Speakers Bureau, Faculty, Peer Reviewer

Faculty - David N. Neubauer, MD
- Associate Professor of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine

**Disclosures**
- I have no relevant financial relationship with any commercial interest to disclose.

Faculty - Erika Steinbacher, MD
- Family Practice Physician, Carolinas HealthCare System, UNC Department of Family Medicine

**Disclosures**
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**CASE 1**

**OBJECTIVES/LEARNING ISSUES**

By the end of the session, the learner will be able to:

1. Describe symptoms of delayed sleep phase circadian rhythm disorder in the adolescent/young adult.

2. Describe methods of diagnosis of delayed sleep phase circadian sleep disorder in the adolescent/young adult.

3. Discuss three (3) important countermeasures to address delayed sleep phase circadian sleep disorder.
SETTING

• Friday 3:00 PM in your clinic/office.
• 5 more patients in the waiting room.
• You have a medical staff meeting at 6:30 PM.

Chief Complaint

“Johnny is going to be kicked out of school because of being late almost every day. He has missed more days of school than I can count. He used to be a good student, but now he is failing most of his subjects.”

Setting

• Patient is 15 years old and his mother is present
• He appears quite unhappy and only stares at the floor.
• He does not look up when you enter the room and his mother is texting on her cell phone.

Chief Complaint

• Johnny just glares at his mother, then looks back to the floor.

What are your thoughts at this point?

What information might be important at this point in the clinical encounter?

What are your thoughts at this point?
History
1. Symptoms began upon entering high school last year.
2. Johnny has difficulty falling to sleep before 2:00 AM – 3:00 AM.
3. He is very difficult to wake in the morning.

4. He has to catch the school bus at 6:45 AM.
5. School starts at 7:45 AM.
6. Johnny falls asleep on the bus and in school on a daily basis.

7. He sleeps until 3:00 PM – 4:00 PM on Saturdays and Sundays.
8. Melatonin has been tried at night but it does not help him fall to sleep.
9. He does not snore.

10. There are no reported medical problems, hospitalizations, surgeries, or head injuries.
11. There are no known allergies.
12. His father has been treated with CPAP for OSA.
13. There is no history of narcolepsy in the family.

With this information:
• What is the next step in the evaluation?
• Would additional information be needed at this point in the encounter?
• What are your thoughts about Johnny and his mother?

Physical Examination
• Vital Signs:
  – BP 92/75
  – Pulse 85
  – Temperature 37 degrees C
  – Respiration 16/minute
  – Height 155.1 cm
  – Weight 48.9 kg (BMI 20.33 kg/m\(^2\))
  – Oxygen Saturation (room air) 97\%
Physical Examination

- Positive Findings:
  - Mallampati score 3 sitting and 4 supine
  - Tonsils 2+ enlarged

- Remainder of the complete physical examination was normal.

Synthesis

- Does this information provide any further information that may be helpful in diagnostic planning?

- What is the next step in evaluation of this patient’s problem?

- What is your differential diagnosis?

Closure

- If this were a delayed sleep phase, circadian rhythm disorder, who would you approach diagnosis?

- Are there other circadian rhythm disorders to consider?

- How would you approach management?

Case 1: Summary

Case 2

Learning Objectives

By the end of the session the learner will be able to:

1. Identify symptoms of restless leg syndrome, obstructive sleep apnea, and narcolepsy.
2. Describe symptoms and consequences of excessive daytime sleepiness.
3. Demonstrate common office procedures used to diagnose excessive sleepiness.
4. Describe various treatments for these problems.
5. Discuss common treatment and describe appropriate treatments for these problems.

Setting

- 9:00 AM in your office exam room

- 39 years old obese male reading a copy of *Sports Illustrated* you had in your waiting room.

- He tentatively smiles when you enter the room and immediately tells you, “I was told to come see you.”
Setting

*What are your thoughts at this point?*

---

Chief Complaint

“I was told to come to your office by our corporate health center because I failed my blood pressure test.”

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History

- 39 years old accountant.
- Hypertension for 8 years.
  - Previously treated with amlodipine and benazepril.
- No SOB or chest pain

---

History

- Complains of intermittent headaches.
- Pre-diabetic (diagnosed 2 years ago)
  - HbA1c = 6.2
- Quit smoking 4 years ago.
- Occasional alcohol on weekends.

---

Chief Complaint

*What information might be important at this point in the clinical encounter?*

*What are your thoughts at this point?*

---

History

- Married with a 12 y/o son and 9 y/o daughter.
- Sleepy during the day. Fell asleep at a stoplight and has had 2 near miss MVA's.
- Falls to sleep at work.
- Sometimes has difficulty concentrating.
  - Making mistakes at work and fearful of being fired.
History

- Wife tells him he snores loudly and has breathing pauses and snorts.
  - He denies snoring.
- Family history is positive for OSA (father) and Narcolepsy (32 y/o brother).
- Has had difficulty falling to sleep for the past 2 years.

Physical Examination

- Vital signs:
  - BP 150/95
  - Height 5’10”
  - Weight 206 pounds (BMI 29.6 kg/m²).
  - Pulse 80
  - Respiration 10
  - Pain VAS 2.

History

- Wakes at night to void.
- Reports that he occasionally wakes at night with leg pains.
  - His wife says he frequently kicks her when sleeping.
- Wakes on weekends spontaneously at 8:00 – 9:00 AM.

Physical Examination

- Epworth Sleepiness Scale = 18
- Mallampati class 4 airway.
- Heart: Normal S1, S2 with accentuated split
  - No S3, S4 or murmurs noted.
- Lungs: Clear. No increased work of breathing.
- Remainder of comprehensive physical examination was normal.

With this information:

- What is the next step in the evaluation?
- Would additional information be needed at this point in the encounter?
- What are your thoughts about this patient at this point in the encounter?
**PSG**

- AI = 10/hr.; AHI = 30/hr.; RDI = 50/hr.
- Loud snoring and increased WOB.
- Frequent limb movements with arousals – PLM index 30/hr.

**Closure**

- How would you differentiate OSA from PLMD in this patient?
- Are there other sleep related disorders to consider?
- How would you approach management?

**MSLT**

- Mean sleep latency 9.5 minutes
- Sleep onset REM periods = 1 (1st Nap).

**Synthesis**

- Does this information provide any further information that may be helpful in diagnostic planning?
- What is the next step in evaluation of this patient’s problem?
- What is your differential diagnosis?

**Case 3**

**Objectives / Learning Issues**

By the end of the session the learner will be able to:

1. Define insomnia.
2. Discuss the evaluation of patients with complaints of difficulty falling to sleep and staying asleep.
3. Describe appropriate treatment options for insomnia.
**Setting**

- 11:30 AM in your office examination room
- Middle age female patient sitting in the chair next to the desk, tapping her feet.
- She looks quite tired and anxious.

---

**Present Illness**

- 42 years old.
- Has not slept well for over 3 years.
- Bedtime is 10:30 PM and she falls to sleep at about 11:30 PM to 1:00 AM.
- She wakes at night and has difficulty falling back to sleep, often remaining awake until her 6:00 AM alarm.
- “Tired and wired” at work

---

**Chief Complaint**

“I have been waiting for a sleep disorders appointment and cannot get in for 6 months!”

She becomes teary.

“I can’t sleep and can’t take this any more!”

---

**Present Illness**

- She is an attorney.
- Commercial activity monitoring device shows only 3 hours of sleep each night.
- Tried deep breathing exercises, yoga, wine, diphenhydramine. Each worked for about 1 – 2 days and then the problem recurred.
- Always fatigued.
- Difficulty concentrating and paying attention.

---

**Setting**

What are your thoughts at this point?

---

**Present Illness**

- Has fallen to sleep in court and during depositions.
- Irritable and easily angered.
With this information:

- What is the next step in the evaluation?
- Would additional information be needed at this point in the encounter?
- What are your thoughts about this patient?

Physical Examination

- Vital signs normal.
- General appearance: tired and anxious.
- Comprehensive physical examination was normal.

Synthesis

- Does this information provide any further information that may be helpful in diagnostic planning?
- What is the next step in evaluation of this patient's problem?
- What is your differential diagnosis?

Closure

- How would you differentiate acute insomnia from chronic insomnia?
- What are the pharmacological considerations?
- Are there other methods for management and how would you approach management in this patient?

Additional Resources

- For additional resources, visit:
  - Sleepfoundation.org
  - Sleep.org
  - Sleephealthjournal.org
## Validated Assessment Tool: Epworth Sleepiness Scale

Instructions for the Patient:
The following questionnaire will help you measure your general level of daytime sleepiness. Answers are rated on a reliable scale.
Each item describes a routine daytime situation. Use the scale below to rate the likelihood that you would doze off or fall asleep (in contrast to just feeling tired) during that activity. If you haven't done some of these things recently, consider how you think they would affect 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

<table>
<thead>
<tr>
<th><strong>Situation</strong></th>
<th><strong>Chance of dozing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting and reading</td>
<td></td>
</tr>
<tr>
<td>Watching television</td>
<td></td>
</tr>
<tr>
<td>Sitting, inactive in a public place (e.g., a theater or meeting)</td>
<td></td>
</tr>
<tr>
<td>As a passenger in a car for an hour without a break</td>
<td></td>
</tr>
<tr>
<td>Lying down to rest in the afternoon</td>
<td></td>
</tr>
<tr>
<td>Sitting and talking to someone</td>
<td></td>
</tr>
<tr>
<td>Sitting quietly after lunch (when you've had no alcohol)</td>
<td></td>
</tr>
<tr>
<td>In a car, while stopped in traffic</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

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**Instructions for the Examiner:** The ESS is a specialized, validated sleep questionnaire containing eight items that ask for self-reported disclosure of the expectation of “dozing” in a variety of situations. The tool was validated in a study with 30 controls and 150 patients with a range of sleep disorders. ESS scores significantly distinguished normal subjects from patients in various diagnostic groups. ESS scores were significantly correlated with sleep latency measured during the multiple sleep latency test, overnight polysomnography, and respiratory disturbance index. ESS scores of patients who simply snored did not differ from controls.¹

In the ESS four-point scale, dozing probability ratings are zero (0), slight (1), moderate (2), or high (3) in eight hypothetical situations. ESS differs from other tests in that the respondent is not being asked to interpret his or her internal state but rather to make a judgment about his or her behavior. Furthermore, an individual completing the ESS is rating his or her “drive to sleep” in probability projections. The examiner should instruct the patient to rate the likelihood that they would doze off or fall asleep (in contrast to just feeling tired) during the following daytime situations. The ESS should take about 4 minutes to complete and one minute to score.

**Scoring:** Sum the point values for questions one through eight.

- A score of 1–9 is considered normal and 10 or above is considered sleepy and warrants further investigation.
- A score of 10 to 15 (the typical range of sleep apnea patients is considered “sufficiently sleepy to place the patient at risk of serious injury due to falling asleep during daily activities or while working or driving.
- A score above 15 indicates very severe sleepiness.

STOP-BANG Screening Questionnaire

Answer the following questions to find out if you are at risk for Obstructive Sleep apnea.

**STOP**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Question</th>
<th>YES / NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (snore)</td>
<td>Have you been told that you snore?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>T (tired)</td>
<td>Are you often tired during the day?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>O (obstruction)</td>
<td>Do you know if you stop breathing or has anyone witnessed you stop breathing while you are asleep?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>P (pressure)</td>
<td>Do you have high blood pressure or on medication to control high blood pressure?</td>
<td>YES / NO</td>
</tr>
</tbody>
</table>

If you answered YES to two or more questions on the STOP portion you are at risk for Obstructive Sleep Apnea. It is recommended that you contact your primary care provider to discuss a possible sleep disorder.

To find out if you are at moderate to severe risk of Obstructive Sleep Apnea, complete the BANG questions below.

**BANG**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Question</th>
<th>YES / NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (BMI)</td>
<td>Is your body mass index greater than 28?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>A (age)</td>
<td>Are you 50 years old or older?</td>
<td>YES / NO</td>
</tr>
<tr>
<td>N (neck)</td>
<td>Are you a male with a neck circumference greater than 17 inches, or a female with a neck circumference greater than 16 inches.</td>
<td>YES / NO</td>
</tr>
<tr>
<td>G (gender)</td>
<td>Are you a male?</td>
<td>YES / NO</td>
</tr>
</tbody>
</table>

The more questions you answer YES to on the BANG portion, the greater your risk of having moderate to severe Obstructive Sleep Apnea.
**Insomnia Severity Index**

Instructions for the Patient
Please circle the answers to the following questions to the best of your ability:

Please rate the current (i.e., last 2 weeks) **SERVERITY** of your insomnia problems(s).

<table>
<thead>
<tr>
<th>Difficulty falling asleep:</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Difficulty staying asleep:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Problem waking up too early:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

How **SATISFIED/dissatisfied** are you with your current sleep pattern?

<table>
<thead>
<tr>
<th>Very Satisfied</th>
<th>Very Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4</td>
<td>0 1 2 3 4</td>
</tr>
</tbody>
</table>

To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g., daytime fatigue, ability to function at work/daily chores, concentration, memory, mood, etc.)

<table>
<thead>
<tr>
<th>Not at all Interfering</th>
<th>A Little</th>
<th>Somewhat</th>
<th>Much</th>
<th>Very Much Interfering</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How **NOTICEABLE** to others do you think your sleeping problem is in terms of impairing the quality of your life?

<table>
<thead>
<tr>
<th>Not at all Noticeable</th>
<th>Barely</th>
<th>Somewhat</th>
<th>Much</th>
<th>Very Much Noticeable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How **WORRIED/distressed** are you about your current sleep problem?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A Little</th>
<th>Somewhat</th>
<th>Much</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Guidelines for Scoring/Interpretation:**
Add scores for all seven questions \((1a+1b+1c+2+3+4+5) = \______________\)
Total scores range from 0-28

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The Insomnia Severity Index (ISI) is a brief self-report instrument measuring the patient's perception of his or her insomnia.

Validation studies were carried out in two populations with 145 and 78 participants respectively. The first study compared ISI data to sleep diary measures and the second compared data from patients who participated in a randomized-controlled trial of behavioral and pharmacological studies with their sleep diaries and polysomnography data. The first study showed that the ISI has adequate internal consistency and is a reliable self-report measure to evaluate perceived sleep difficulties. The results from the second study indicated the ISI is a valid and sensitive measure to detect changes in perceived sleep difficulties with treatment.\(^1\)

The ISI targets the subjective symptoms and consequences of insomnia as well as the degree of concerns or distress caused by those difficulties. Its content corresponds in part to the diagnostic criteria of insomnia. The ISI contains seven items assessing the severity of sleep-onset and sleep maintenance difficulties, satisfaction with current sleep pattern, interference with daily functioning, notice ability of impairment attributed to the sleep problem, and degree of distress or concern caused by the sleep problem.\(^2\)

**Scoring:** Each item is rated on a 0-4 scale and total score ranges from 0-28. A higher score suggests greater insomnia severity. The ISI takes less than five minutes to complete and can be scored in less than one minute.

<table>
<thead>
<tr>
<th>Scoring Interpretation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7 = No clinically significant insomnia</td>
<td></td>
</tr>
<tr>
<td>8-14 = Subthreshold insomnia</td>
<td></td>
</tr>
<tr>
<td>15-21 = Clinical insomnia (moderate severity)</td>
<td></td>
</tr>
<tr>
<td>22-28 = Clinical insomnia (severe)</td>
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</tr>
</tbody>
</table>

Pharmaceutical Treatments

Medications are commonly used to treat insomnia. However, medication should only be prescribed when:

- Your doctor has determined the cause of your insomnia.
- Your sleep difficulties cause problems in accomplishing daily activities.
- You are suffering insomnia-related distress.
- Your doctor determines that your insomnia is caused by another known medical or biological condition (e.g., premenstrual syndrome).

Are Over-the-Counter Sleep Medications Safe?

Over-the-counter sleep medications can be safe for occasional use, but they should not be used to treat chronic insomnia as their sedative effects are not effective for long-term use. Instead, talk to your healthcare provider about how to find relief for your symptoms.

Want to Learn More?

Visit sleepfoundation.org/insomnia to find more information about insomnia, including its symptoms and treatments. Extra information is included for parents, women and older adults—all groups that are even more likely to have insomnia. Plus, sleep.org has information on how sleeping better every night can improve your health and well-being.
What is Insomnia?
Do you have trouble falling asleep or staying asleep at night? Does your lack of sleep make it hard to function during waking hours? If so, you may be suffering from insomnia. Insomnia is the most common sleep disorder in the United States. It can be short-term (lasting just one night to a few weeks) or chronic (at least three nights a week for at least three months).

What Causes Insomnia?
Insomnia may be a symptom of another health condition, or it may be a condition by itself. Common triggers include stress, anxiety, depression, disease, pain, medications, or other sleep disorders. Poor sleep habits, lifestyle choices and your sleep environment can also contribute to insomnia.

The Effects of Insomnia
Aside from feeling tired more than you should, insomnia can make a serious impact on your life and well-being. Insomnia can lead to:
- Problems with concentration and memory, fatigue and worries about sleep.
- Poorer general health, with an increased risk for body pain and heart disease.
- Increased likelihood of depression—four times as high as compared to people who sleep well.
- More absences from work and lower productivity.

When Should I Seek Medical Help?
If you have problems with falling asleep, staying asleep, waking too early or waking up feeling unrefreshed, talk to your healthcare provider. Sleep is vital to health and well-being and your doctor can help find the cause of and solution for your poor sleep. He or she may also refer you to a sleep specialist if needed.

Diagnosing Insomnia
Insomnia is usually diagnosed by reviewing your sleep history. You may be asked to keep a sleep diary for a few weeks or to do an overnight sleep study. Your doctor may also do a blood test. This will help determine if your symptoms are likely short-term or chronic insomnia and what the cause of your insomnia is.

How is Insomnia Treated?
Many different treatment options are available for insomnia. In some cases, making a few changes to your sleep habits or practicing stress relief techniques may help resolve the problem. Other times, more intensive intervention is needed. Your healthcare provider will help you decide the best option for you.

Lifestyle Changes
Making changes to your lifestyle can often make a big difference in how well you sleep. Best of all, these are things you can try right away.
- Go to sleep and wake up at the same time every day, including on weekends. Avoid spending more time in bed than needed.
- Use light to help manage your “body clock.” Expose yourself to sunlight in the morning and avoid bright light in the evening.
- Set a relaxing bedtime routine. Try a warm bath or listening to calming music.
- Create a sleep environment that is cool, quiet and dark with a comfortable mattress and pillows.

Behavioral Treatments
Some behavioral approaches work well for treating insomnia. These include incorporating certain sleep habits, learning relaxation techniques and cognitive behavioral therapy. If needed, these techniques may be combined with medications.
Managing and Coping with Symptoms

Try these behavioral techniques to help manage and cope with your symptoms.

- Stretch your limbs before bed and regularly during the day.

- Massage, acupuncture, hot baths, or cold packs can ease the discomfort in before bed.

- Take walks, meditate, or do low-impact exercises like yoga or pilates.

- Plan your travel hours for times when symptoms are least severe.

- Try cutting out all caffeine, nicotine, and alcohol, particularly near bedtime.

- Look at your medications, diet and activities to identify those related to your RLS and bring these to the attention of your physician.
If you’re lying in bed and can’t sleep because of an irresistible urge to move due to tingly sensations in your legs or arms, you may have restless legs syndrome (RLS). RLS is a common medical disorder that can cause significant sleep disruption and a lot of frustration.

RLS can be genetic, can occur for no known reason, or be present with other conditions like anemia (iron deficiency), pregnancy, and end-stage renal disease. It can be confused with rheumatoid arthritis, peripheral neuropathy (pain in hands or feet), or diabetes. It may also be a side-effect of some antidepressants. RLS is often associated with periodic limb movement disorder (PLMD), which are involuntary movements of the legs or arms that occur during sleep.

It is estimated that 7-10 percent of Americans and Northern Europeans have RLS. It is less prevalent in those of Mediterranean, Middle-Eastern, Asian or African descent. Women are more likely to have it than men. It is rare in children.

**Diagnosis**

RLS is sometimes misdiagnosed as insomnia, so it’s important to mention to your doctor if you feel an intense urge to move in order to soothe strange sensations in your limbs. It is helpful to think of “URGE:” the “Urge” to move your legs, which occurs mostly at “Rest;” usually relieved by “Getting Up” and commonly occurs in the “Evening.”

If you have trouble getting to sleep or staying asleep and experience the urge symptoms above, your doctor will want to review your medical history and conduct a thorough physical exam which may include checking your thyroid, heart, ferritin levels (the amount of iron in your blood), folate, B12, B6, and fasting glucose levels.

**Treatment**

There are no cures for RLS, but a therapeutic plan involving prescription medications and behavioral techniques can be personalized to provide relief. If you have an iron deficiency (i.e., low or low-normal ferritin levels), iron supplements may be helpful. Current drug therapies include:

- Dopaminergic agents are usually the first RLS treatment choice, which include FDA-approved ropinirole and pramipexole. It may take time for physician and patient to find the right dosage. Other side effects may include nausea, vomiting, fluid retention, nasal congestion or hallucinations. There have been some relatively rare reports of compulsive behavior including gambling and hypersexuality.

- Occasionally, RLS patients are unresponsive to dopaminergic agents and may find relief with low level narcotics like codeine and propoxyphene. These are not appropriate for all patients as side effects can include nausea, vomiting, constipation, and dizziness.

- Other alternatives to dopaminergic agents include anticonvulsants such as gabapentin and carbamazepine and benzodiazepines (usually clonazepam.) Side effects may include dizziness, drowsiness, swelling or suicidal thoughts.

Unfortunately, there is no cure for RLS, but sufferers have found relief using a combination of these treatments to minimize symptoms and improve sleep.

To learn more about healthy sleep habits, sleep disorder symptoms, or find a list of sleep specialists in your area, please visit the National Sleep Foundation’s Website, www.sleepfoundation.org.
Lifestyle Changes
Making changes to your behavior and sleep habits can make a big difference. In fact, for mild cases of obstructive sleep apnea, changes such as the ones listed here may be all that’s needed:

• **Lose weight.** If you are overweight, this is the most important thing you can do to treat, and even possibly cure, your sleep apnea.

• **Avoid alcohol and sleeping pills.** These make the airway more likely to collapse during sleep, and they make it harder to awake to restart breathing, making the apneic episodes longer.

• **Quit smoking.** Smoking cigarettes makes swelling in the upper airway worse, which in turn makes apnea (and snoring) worse.

• **Sleep on your side.** You may have fewer breathing problems by sleeping on your side instead of your back. Pillows, wedges, tennis balls and other aids can help you stay in a side position.

Physical or Mechanical Therapy
Positive airway pressure (PAP) is the most common and most effective treatment for obstructive sleep apnea. With this type of therapy, you’ll wear a mask over your nose or nose and mouth during sleep. The mask is attached to an air blower that uses just enough air pressure to keep your throat from closing. The pressure can be constant (CPAP—continuous positive airway pressure), or varied for inhalation and exhalation (BiPAP—bi-level positive airway pressure) depending on your needs. Either way, be sure to use PAP as recommended by your doctor. When stopped or used incorrectly, apnea symptoms will return.

Dental appliances that reposition the lower jaw and the tongue are also helpful for some people with mild to moderate sleep apnea. A dentist or orthodontist with training in sleep dentistry can fit you with such a device if it’s recommended.

Surgery
For adults with sleep apnea, surgery is a less common option. If your doctor thinks you are a candidate, he or she will provide you with information on the benefits and risks. It is far more common to use surgical treatment for children with sleep apnea as younger patients seem to benefit more from the results. Some of the more widely used procedures to treat sleep breathing problems include removal of the adenoids, tonsils, nasal polyps or other growths or tissue in the airway, and surgery to fix structural deformities.

Want to Learn More?
Visit sleepfoundation.org/sleep-apnea to find more information about sleep apnea, including its symptoms and treatments. You can also use the site to find a sleep professional in your area. Plus sleep.org has information on how sleeping better every night can improve your health and well-being.
**What is Sleep Apnea?**

Sleep apnea is a common, potentially serious sleep disorder in which breathing briefly and repeatedly stops during sleep. For most people, this happens when the muscles in the back of the throat relax and sag, blocking the airway. Although you try to breathe, your lungs do not fill up with air. This is also known as obstructive sleep apnea (OSA).

The good news is, if you are one of the 18 million Americans who have sleep apnea, there are things you can do. Lifestyle changes and medical treatments can help make you sleep better.

**What Happens During an Apneic Episode?**

As your airway is blocked during sleep, breathing becomes labored and noisy. Eventually it pauses altogether. When your breathing stops, it alerts your brain. You awaken just enough for your airway to open so you can inhale and start breathing again, often with a loud snort or gasp. This can happen as many as 20 to 60 or more times per hour. So, it’s no surprise that sleep apnea can keep you from getting enough restorative, deep sleep.

**Who Gets Sleep Apnea?**

Sleep apnea occurs in all age groups and both sexes. People in one of these groups may have a higher risk:

- Over age 40
- African American, Hispanic or Pacific Islander
- Overweight
- High blood pressure
- Physical abnormality in the nose, throat or upper airway
- Family history of sleep apnea

**What Are the Effects of Sleep Apnea?**

The effects of sleep apnea can range from annoying to potentially life-threatening. Because normal sleep is disturbed, sleep apnea often leads to excessive daytime sleepiness—and some or all of these related problems:

- Trouble concentrating
- Falling asleep at the "wrong time," like at work or on the phone
- Drowsy driving
- Irritability
- Learning and memory difficulties
- Sexual dysfunction
- Depression

Left untreated, sleep apnea can also be related with these health effects:

- Irregular heart beat
- High blood pressure
- Heart attack
- Stroke

**When Should I Seek Medical Help?**

If you are having problems with sleepiness, loud snoring or frequent awakening because of gasping or choking, make an appointment to see your doctor. There are reliable tests and exams to see if you have sleep apnea, and ways to treat it so you can get relief.

**Diagnosing Sleep Apnea**

Along with your primary care physician, other specialists, including a sleep specialist, may help in making a diagnosis and deciding the best treatment.

A sleep study (polysomnography) is a widely used test in finding out if you have sleep apnea. This test records body functions during sleep, such as brain activity, respiratory effort, heart rate, air flow and blood oxygen levels. Although this test is usually done at a sleep center, new technology may allow the sleep study to be done in your home. A home sleep test uses portable, easy-to-operate equipment that is very effective for diagnosing sleep apnea.

**Does My Partner Have Sleep Apnea?**

It’s often a bed partner or family member who is the first to realize a person may have sleep apnea. After all, the heavy snoring, choking and gasping that are common signs are probably keeping you awake too. You may also be first to notice when a person with apnea falls asleep at odd times.

Of course, the person with sleep apnea may not realize there is a problem and may not believe it when told. Encourage the person to see a doctor to confirm diagnosis.

**How is Sleep Apnea Treated?**

Treatment for sleep apnea depends on the results of your exam and sleep study. There are several highly effective ways to help ease your symptoms.

Snoring usually occurs between apneic episodes, although not everyone who snores has sleep apnea.
from wakefulness into a deep sleep. This may be because your core body temperature drops after leaving the tub, signaling the body that it’s time to sleep. Or the sleep improvement may be related to the water’s relaxing effects.

**Bed Comfort**

Although there isn’t much published research on what makes a good mattress, the solution to having a bed that’s comfortable and supportive is simple. Choose a mattress, along with pillows, blankets and sheets that feel good to you! If you need to shop for a new mattress, you can find helpful information on how to make the best choice at sleep.org.

**Other Bedroom Factors**

If you can fall asleep easily on your sofa, but not in your own bed, it may be because you are associating your bed with every bad thing that happens. Do you shop online while propped against the pillows? Watch television there? These activities tell your body to be alert in bed, making it hard to settle down. The tips in the box can help you reclaim your bed as a place for sleep.

**Reclaiming Your Bed for Sleep**

- Use your bed only for sleep and sex.
- Only get into bed when you’re tired.
- If you don’t fall asleep within 15 minutes, get out of bed. When you’re sleepy, go back to bed.
- While in bed, think relaxing thoughts. Picture yourself drifting to sleep, each muscle relaxed.

**Making the Most of Your Natural Sleep Cycle**

You may want your bedroom to be dark at night, but light has an important role to play in getting enough sleep too. In fact, strong light, like sunlight, is the most powerful regulator of your biological clock—the internal clock that tells you when to feel sleepy and when to be alert.

If you’ve been housebound for any reason, the cause of your sleep troubles may be too little exposure to sunlight. Likewise, if you find yourself waking earlier than you’d like in the morning, it could be due to a lack of exposure to bright light in the evening. When there is no sun shining, or if you are stuck indoors due to illness, a light box (or light visor) available from a specialty store may help. A sleep specialist can also help determine whether changing your exposure to light might improve your sleep.

Strong light, like sunlight, is the most powerful regulator of your biological clock.

**The Importance of Consistency**

Sleeping in late on weekends might seem nice, but Monday morning—and Sunday bedtime—may suffer as a result. Instead, the more you maintain consistent bedtimes and wake times, the less likely you’ll be to experience insomnia.

The same is true of napping. If you’re tired during the day, try NOT taking a nap. After all, if your goal is to sleep more during the night, napping may steal hours desired later on. If you take naps regularly and are having a hard time sleeping at night, give up the nap and see what happens.

**PUTTING ANXIETY ABOUT SLEEP TO REST**

Here’s one of the most important sleep tips of all. If you want to sleep better at night, find a way to relax with a bedtime ritual that works to calm you.

If you find your thoughts turning to worries when you get in bed, keep a pad of paper nearby to jot down what’s on your mind. Then schedule time the next day to focus on the problem and a solution. Problems often seem smaller in the daylight.

Remember, too, that anxiously watching the clock while focusing on how much time you have left to sleep may actually contribute to your insomnia. Try setting your alarm, then hiding your clock from view before you go to bed.

**GETTING HELP WHEN YOU NEED IT**

Improving your sleep can take time. If you’ve been sleeping poorly for a while now, you may have to overcome some bad sleep habits first. Don’t give up! If your sleep problem persists, even after you’ve made positive changes, talk to your healthcare provider. There may be a clear cause that can be successfully treated or controlled once properly diagnosed.

**WANT TO LEARN MORE?**

You can find a lot of great information at sleep.org about how to improve your sleep and your overall health and well-being at the same time! Or, visit sleepfoundation.org for advice about specific sleep issues and more.
**Taking Steps for a Better Night’s Sleep**

Getting a good night’s sleep isn’t just about what happens when you get into bed and close your eyes for the night. In fact, the things that affect your sleep often start much earlier in the day with what you eat and drink, how much you exercised and whether you napped on the couch in the afternoon.

If you’d like to enjoy more restful nights, a few simple changes may be all that’s needed. But first, you’ll need to do a little detective work! Fortunately, reading this brochure can help reveal some important clues for how to start sleeping better tonight.

**Using a Sleep Diary**

What’s keeping you up at night? A sleep diary is a great way to track your habits and find the answer! Plus, if you decide to seek more help with your sleep issues, it’s also a great tool to share with your doctor. Download the NSF Sleep Diary at [sleepfoundation.org/sleeppdiary](http://sleepfoundation.org/sleeppdiary).

**Eating and Drinking for Better Sleep**

Thinking about what you eat and drink is important for giving you energy during the day. Making smart choices can also help you sleep better at night. Do any of the statements below sound familiar? If so, we’ve got some tips that can help.

- **I often have heartburn at night.** Lying down in bed can make heartburn worse, which makes falling asleep harder. Heartburn can also wake you with middle-of-the-night discomfort. To stop this unpleasant cycle, try avoiding the foods that can cause that burning feeling—or eat earlier to give your body more time to digest. Using an extra pillow to elevate your head can also help. Of course, if you get heartburn on a regular basis, ask your doctor how best to treat it.

  
  Find suggestions for sleep-promoting snacks at sleep.org.

- **I woke up often to go to the bathroom.** Drinking too much before bed can lead to frequent awakenings because of the need to urinate during the night. Try to limit your fluids before bedtime to help promote an uninterrupted night’s sleep. If that doesn’t help, talk to your doctor.

- **I’m too full to sleep!** Another cause of sleep problems can be eating too much—or any food—or eating too late in the evening. Eating at least two to three hours before bedtime is best. If you have late dinner plans, choose something lighter from the menu.

- **My stomach feels hungry all night.** Going to bed hungry can be just as disruptive to sleep as going to bed too full. Try having a small snack about an hour before bedtime to ease hunger pangs.

**The Role of Caffeine and Alcohol**

Many foods and drinks have caffeine: coffee, tea, cola, chocolate to name a few. Caffeine is a stimulant, which means it has an alerting effect. For some people, even a small amount of caffeine can make it hard to sleep at night. Of course, how you respond to caffeine is individual.

- **Just 10 minutes of regular aerobic exercise—walking or biking are good options—can greatly improve sleep quality.**

- **Quitting Smoking: Good for You, Good for Sleep!**

  Nicotine, like caffeine, is a stimulant. So it’s no wonder research suggests nicotine is linked to difficulty falling asleep. In addition, during sleep smokers have nicotine withdrawal, which can cause waking. Although quitting may cause more sleep problems at first, the positive long-term effects on how you sleep and your health overall are worth the change.

**Light and Noise**

Ideally, everyone would have a dark, quiet place to settle down for the night. But most of us experience at least some environmental annoyances—bright streetlamps, traffic noise, a partner’s snoring—when we get into bed at night. Happily there are solutions.

To keep light out, try:

- Light-blocking shades
- Lined drapes
- Eye mask

If noise is disturbing your sleep, try:

- Ear plugs
- A white noise machine (the hum of a fan or air conditioner can also help)
- Rugs or heavy curtains
- Double-pane windows
- Relaxing music

**Temperature and Humidity**

Although there is no one ideal temperature for sleep, a slightly cool room is best—somewhere between 60-67°F. This is because the body’s internal temperature also drops during the night. So a cooler room matches what is going on with the body. Don’t like to feel cold in bed while falling asleep? Wearing socks or placing a hot water bottle near your feet can help keep you warm without overheating your environment.

Too much or too little humidity can also affect sleep. If excess humidity is a problem, consider a dehumidifier. If it’s too dry, try a humidifier. Others like awaking with a sore throat, dryness in your nose or even a nosebleed are signs of too little humidity. Note: Be sure to change the water daily.

**Body Heating and Sleep**

While you want to keep your bedroom cool at night, warming your body before getting into bed by taking a warm bath can ease the transition...