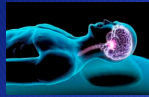


Diagnosing Common Sleep Disorders

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INTEGRIS
Sleep Medicine



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Objectives

Signs and Symptoms of common sleep disorders

Diagnostic procedures for sleep disorders

Treatment options for sleep disorders
– pharmacological and non-pharmacological

Long-term monitoring or maintenance for sleep disorders



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Common Sleep Disorders

Obstructive Sleep Apnea

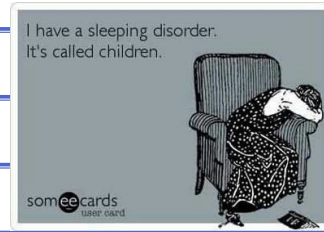
Restless Leg Syndrome

Insomnia

Excessive Daytime Sleepiness

Shift-work disorder

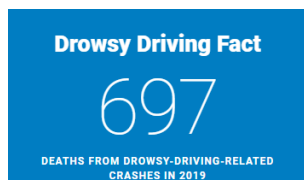
Narcolepsy



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Dangers of Drowsy Driving

- ▶ The U.S. National Highway Safety Administration
- ▶ Drowsy-driving crashes:
 - Occur most frequently between midnight and 6 a.m., or in the late afternoon. At both times of the day, people experience dips in their circadian rhythm—the human body's internal clock that regulates sleep;
 - Often involve only a single driver (and no passengers) running off the road at a high rate of speed with no evidence of braking; and
 - Frequently occur on rural roads and highways.



<https://www.nhtsa.gov/risky-driving/drowsy-driving>

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Drowsy Driving

- ▶ Drowsy driving is not just falling asleep at the wheel – it is a profound impairment that mimics alcohol-impaired driving in many ways.
- ▶ Drowsiness leads to slower reaction times, and impaired attention, mental processing, judgment, and decision making.
- ▶ Drowsiness can occur from accumulating sleep debt (typically <6 hours a night) across multiple nights, or from only one night of not sleeping



<https://www.nhtsa.gov/risky-driving/drowsy-driving>

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How common is Obstructive Sleep Apnea?

- ▶ About 22 million Americans have sleep apnea.
- ▶ African Americans are more at risk of sleep apnea than Caucasians.
- ▶ 1 in 4 middle-aged men has OSA (Obstructive Sleep Apnea).
- ▶ 26% of people aged between 30 and 70 suffer from sleep apnea.
- ▶ At least 2-3% of children suffer from sleep apnea.
- ▶ 1 in 4 people with moderate sleep apnea won't even experience daytime sleepiness, one of many interesting facts about sleep apnea.
- ▶ People with sleep apnea are four times more likely to have a stroke.
- ▶ Over 38,000 people die from cardiovascular problems caused by sleep apnea every year.
- ▶ The total annual economic cost of sleep apnea in the US is between \$65 and \$165 billion.
- ▶ 80% of people with moderate and severe OSA go undiagnosed.

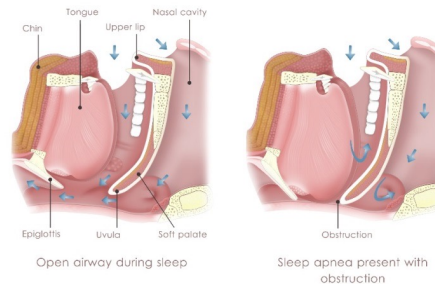
<https://disturbmenot.co/sleep-apnea-statistics/>

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What is Obstructive Sleep Apnea?

- ▶ Common, serious sleep disorder that happens when a person's breathing is restricted or actually stops for brief periods while sleeping
 - Airway is partially or totally blocked by the tongue and/or by the soft, fleshy tissue at the back of the throat (soft palate) which collapses or closes
 - Often first noticed by sleep partner



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Signs & symptoms of sleep apnea

- ▶ Loud snoring, choking or gasping sounds during sleep
- ▶ Restless sleep/frequent awakenings
- ▶ Being overly tired during the day (excessive daytime sleepiness)
 - Trouble concentrating or remembering things
 - Falling asleep while at work, talking or driving
- ▶ Morning headaches, dry mouth
- ▶ Moodiness, irritability, depression

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Diagnosing sleep apnea

- ▶ Best detected and treated by a sleep medicine specialist
- ▶ Typically based on:
 - Physical exam (especially looking at the upper airway and neck)
 - Review of medical history and sleep habits
 - Sleep study and other tests



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Lab-based sleep studies

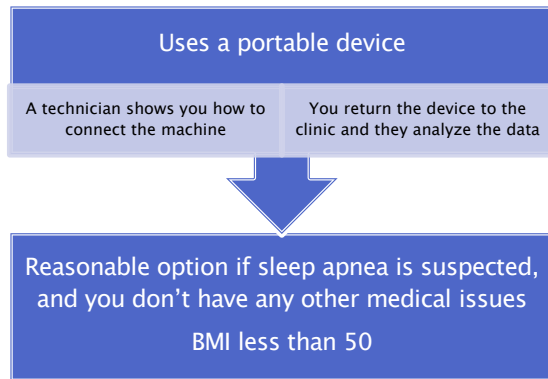
- ▶ Sleep studies (called polysomnography) usually last 6+ hours
 - Conducted overnight in a hospital or sleep clinic
- ▶ Measures your body's activity during sleep:
 - Brain waves (using an electroencephalogram, EEG)
 - Eye and chin movements to gauge stages of sleep
 - Blood oxygen levels
 - Heart rate
 - Breathing rate and activity (to see how often and for how long breathing is interrupted)
 - Muscle activity, especially arm/leg movements



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Home sleep tests

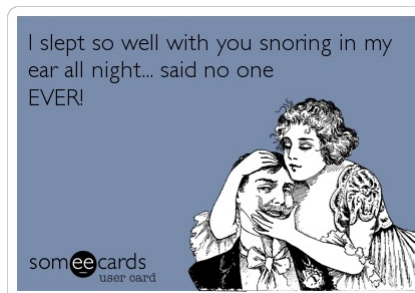


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Treating sleep apnea

- ▶ Goals of treatment are to:
 - **Keep your airway open** during sleep
 - **Relieve symptoms** and promote better sleep overall
 - **Help improve other problems** linked to sleep apnea (high blood pressure, diabetes, obesity) and long-term health consequences
 - **Improve quality of life**



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Treatment options

- ▶ Continuous Positive Airway Pressure (CPAP)
- ▶ Oral appliances
- ▶ Surgery



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Continuous Positive Airway Pressure (CPAP)

- ▶ First-line therapy for moderate-to-severe sleep apnea
- ▶ A mask is placed over your mouth and/or nose
 - The machine gently blows a steady stream of air into your throat; the pressure keeps your airway open
 - CPAP may need to be adjusted periodically



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Nighttime mouthpieces

- ▶ Also called oral appliances
- ▶ Several options available
 - Devices can be custom-fit to your mouth – like a mouth guard or retainer
 - Reposition the tongue and/or jaw to keep the throat open
- ▶ Generally recommended if you:
 - Have a milder form of sleep apnea
 - Can't tolerate CPAP for some reason
- ▶ Tell your doctor about any pain or discomfort



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Surgery

Typically a last resort if CPAP or oral appliances don't work

- ▶ Jaw and tongue advancement
- ▶ Tracheostomy
- ▶ Uvulopalatopharyngoplasty (UPPP)
 - Remove extra tissue at the back of your throat

How to Stop Snoring:
 - Place pillow over husband's face.
 - Hold pillow 'till snoring stops.
 - Delete this post.

someecards
user card



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Inspire Therapy

- ▶ Inspire is an alternative to CPAP that works inside your body while you sleep. It's a small device placed during a same-day, outpatient procedure.
- ▶ When you're ready for bed, simply click the remote to turn Inspire on. While you sleep, Inspire opens your airway so you can breathe normally.

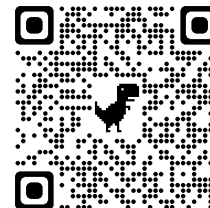


<https://www.inspiresleep.com/>

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Inspire Therapy

- ▶ Eligibility
 - Moderate to Severe sleep apnea (AHI 15+)
 - Sleep study within last 5 years
 - Tried and failed CPAP therapy
 - BMI 35 or less
- ▶ Next Steps
 - Referral to Inspire trained ENT for upper airway exam
 - Outpatient surgery
 - Repeat sleep study for adjustment



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Restless Legs Syndrome (RLS)

These five essential features must be present for a correct diagnosis of restless legs syndrome (RLS):

- ▶ Strong urge to move your legs (sometimes arms and trunk), usually accompanied or caused by uncomfortable and unpleasant sensations in the legs.
- ▶ Symptoms begin or become worse when you are resting or inactive, such as when lying down or sitting.
- ▶ Symptoms get better when you move, such as when you walk or stretch, at least as long as the activity continues.
- ▶ Symptoms are worse in the evening or night than during the day, or only occur in the evening or nighttime hours.
- ▶ Symptoms are not solely accounted for by another condition such as leg cramps, positional discomfort, leg swelling or arthritis. RLS often causes difficulty in falling or staying asleep, one of the chief complaints of the disease. Many people who have RLS also have **periodic limb movements (PLMs)** – jerking of the arms or legs that is often associated with sleep disruption.



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Treating RLS

- ▶ Check Ferritin level (ref range 10–232 ng/mL)
 - <50 ng/mL start PO iron supplement
 - take with Vit C for better absorption.
 - < 10 ng/mL – refer to hematology
 - will need complete iron studies and CBC w/diff
- ▶ Check Vitamin D levels (ref range 30–100 ng/mL)
- ▶ Review other medications –antihistamines, antiemetics, antidepressants (SSRI/SNRI), antipsychotics and beta blockers.



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Treating RLS continued..

- ▶ Avoid caffeine, alcohol and nicotine, esp. close to bedtime
- ▶ Avoid sitting for long periods of time
- ▶ Compression sleeves or socks
- ▶ **Sleep study**

When someone asks
"how did you sleep last night?"



Great! I got a full 40 minutes.

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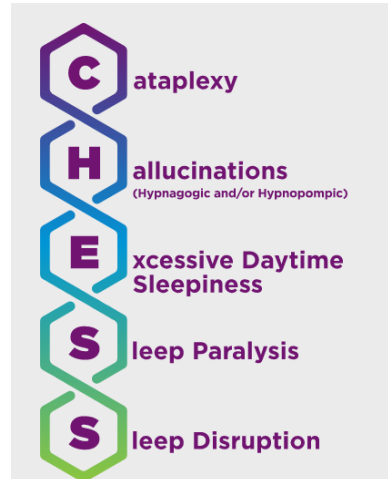
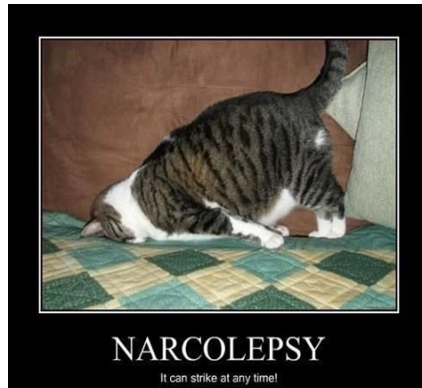
Treating RLS continued..

- ▶ Dopamine agonists
 - Pramipexole (Mirapex)
 - Ropinirole (Requip)
 - Carbidopa/Levodopa (Sinemet)
 - Rotigotine (Neupro patch)
- ▶ Anticonvulsants
 - Gabapentin (Neurontin) and
 - Gabapentin enacarbil (Horizant)
- ▶ Benzodiazepines
 - Temazepam (Restoril)
 - Clonazepam (Klonopin)
- ▶ Opiates

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Narcolepsy

▶ 5 main symptoms



www.Narcolepsylink.com

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Narcolepsy continued...

- ▶ Cataplexy
 - This most specific symptom of narcolepsy type 1, is the sudden, generally brief (<2 minutes) loss of muscle tone with retained consciousness. It is usually triggered by strong emotions, such as laughter, surprise, or anger.
- ▶ Hallucinations (hypnagogic and/or hypnopompic)
 - Hypnagogic hallucinations are vivid dreamlike experiences that occur while falling asleep. When they happen while waking up, they are called hypnopompic hallucinations. These events may occur with sleep paralysis.
- ▶ Excessive daytime sleepiness

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Narcolepsy continued...

- ▶ Sleep paralysis
 - Sleep paralysis is the disturbing, temporary inability to move voluntary muscles or speak during sleep-wake transitions. It is often accompanied by hypnagogic or hypnopompic hallucinations
- ▶ Sleep disruption
 - Sleep disruption (also known as disrupted nighttime sleep) is due to frequent awakenings, resulting in poor quality sleep. Because narcolepsy is a disorder of sleep-wake state instability, many patients commonly report disruption of nighttime sleep.



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Medications for Narcolepsy

- ▶ Stimulants (schedule IV)
 - Modafinil (Provigil)
 - Armodafinil (Nuvigil)
 - Solriamfetol (Sunosi)
- ▶ Amphetamine (schedule II)
 - Adderall, Concerta, Ritalin
- ▶ Gamma-Hydroxybutyrate (GHB) schedule III
 - Sodium Oxybate – Xywav and Xyrem

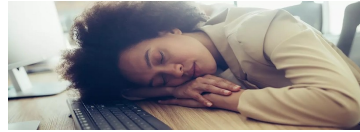


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Medications for Narcolepsy

- ▶ Antidepressants – can help with sleep paralysis and hallucinations
 - SNRI
 - SSRI
 - TCA – Doxepin as a sleep aid
- ▶ Hypnotics – most schedule IV
 - Eszopiclone (Lunesta)
- ▶ Selective Histamine 3 Receptor Antagonist
 - Pitolisant (Wakix) – only FDA approved medication for Cataplexy



www.Narcolepsylink.com

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Questions & Answer



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Resources

- ▶ <https://aasm.org/>
- ▶ <https://www.thensf.org/>
- ▶ <https://www.rls.org/>
- ▶ <https://www.narcolepsylink.com/>
- ▶ <https://narcolepsynetwork.org/>
- ▶ <https://www.cdc.gov/sleep/resources.html>

