

What Is A Sleep Disorder?

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Faculty

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Generally Speaking

- Any thing that interferes with a normal sleep pattern
- Some are pulmonary related such as sleep apnea
- Some are neurological such as narcolepsy
- Some are psychological

Generally Speaking

- Something as simple as a dog barking or a light shining through a window can be disruptive to a normal sleep pattern

What Is a Normal Sleep Pattern?

- It truly varies from person to person and varies immensely with age
 - People generally need less sleep as they grow older
- On average 6 to 8 hours of sleep for a healthy adult should be adequate

What Is a Normal Sleep Pattern?

- There are exceptions, meaning people who can get by on less and people who need much more
- In today's society we try to cram so much into a single day that we try to sacrifice sleep
 - Not possible - your body takes needed sleep in one form or another

What Is a Normal Sleep Pattern?

- Having adequate sleep is still not enough to say you have a normal sleep pattern
 - A pattern in itself repeats

What Is a Normal Sleep Pattern?

- If we have an inconsistent sleep wake cycle then its like changing time zones everyday
- Imagine if you were a traveling salesman and you were on the east coast one day and the west coast another

Is Sleep Really Important ?

- YES!!!!
 - Sleep renews us
 - Sleep restores us
 - Quite literally a recharging of the batteries

Is Sleep Really Important ?

Lets say that you're a light that shines bright when fully charged. When you're not fully charged you may shine bright at certain times, you may be dim, or you may flicker.

When you are not rested you cannot perform what ever task you have at your very best.

Is Sleep Really Important ?

- Sleep deprivation does not occur after you have missed several hours of sleep or had several days of inconsistent sleep
- If you are someone that requires 8 hours of sleep and you get 6 then you owe yourself 2 hours of sleep
- That's called sleep debt and it must be paid back

What Could Possibly Happen? I Mean its Just Sleep Right?

- Several factors
 - If you are someone of poor health or recovering from something then a lack of sleep will weaken every part of your system
 - A weakened system makes you more susceptible because your body can't fend for itself in the manner that it should

What Could Possibly Happen? I Mean its Just Sleep Right?

- Medications are not cures
 - The body has to respond to the medication
- An exhausted body is not going to respond to anything in the time that a rested body would

What Could Possibly Happen? I Mean its Just Sleep Right?

- Certain sleep disorders that we will discuss play a vital role in medication resistance
- Patients that have sleep disorders generally are tired and want to sleep a great deal of the time

What Could Possibly Happen? I Mean its Just Sleep Right?

- We already spend a third of our lives sleeping
 - If that increases a little it can become half and times you are awake you are exhausted
 - Imagine the longest time you've spent awake and the way you felt... now imagine that was the way you felt all day every day

Sleep Disorders Are Very Common

- Sleep disorders are more common than many of the more publicized diseases and disorders
- A vast majority of Americans suffer from some sort of sleep disorder
 - Many of us are not getting adequate sleep or have very poor sleep habits

Sleep Disorders Are Very Common

- Many things that we see as harmless can be detrimental to long term good sleep
 - Sleeping in
 - Your body won't let you sleep in if you are adequately rested
 - This is a clear sign you may be sleep deprived

Sleep Disorders Are Very Common

- Dependency
 - Most people understand that by taking a sedative every night or drinking alcohol that we have a dependency issue
 - If you can't sleep without a TV on then you also have an issue

Sleep Disorders Are Very Common

- A fan for white noise, while completely harmless, may give you the inability to sleep in a place that is perfectly tranquil but lacks a fan
- That makes you dependent on something outside your body's natural ability to fall asleep

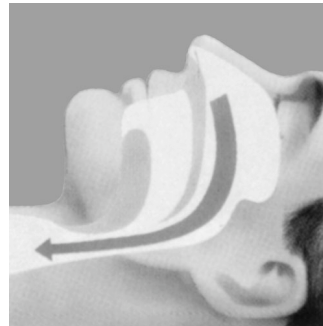
The Monster in the Room



Sleep Apnea

- One of the most recognizable, easily diagnosed, and harmful sleep disorders
- Not the most prevalent
- Snoring can be a symptom but it is so much more than that

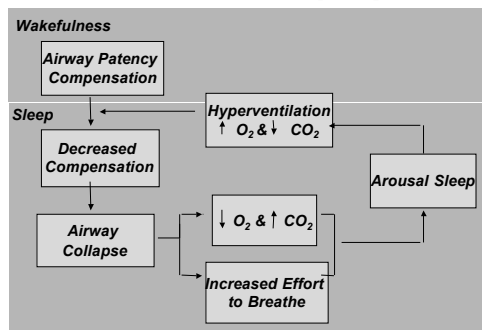
Normal Airway

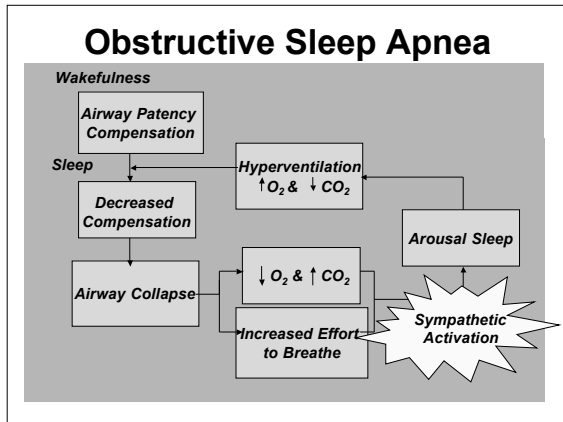


Obstructed Airway



Obstructive Sleep Apnea





- ### Associations
- Obstructive sleep apnea has been associated with many other health risks including
 - Hypertension: “Non-dipping”
 - Refers to a lack of a normal drop in systolic blood pressure during sleep

- ### Associations
- Is a known risk factor for hypertension and cardiovascular disease
 - Increases the risk for stroke by 40% and the risk for CAD by 15%
 - Refractory Hypertension
 - Clinical blood pressure $\geq 140/90$ mmHg while taking 3 or more anti-HTN meds

- ### Associations
- High OSA incidence supports potential role in drug resistant hypertension
 - Congestive heart failure, atrial fibrillation, and a host of other ailments

- ### Hallmark OSA Signs and Symptoms
- Loud, disruptive snoring
 - Excessive daytime sleepiness (EDS) unexplained by other factors
 - with or*
 - Nocturnal choking/gasping/snorting
 - or*
 - Nocturnal pauses in breathing

- ### Additional Symptoms of OSA
- Recurrent nocturnal awakenings
 - Un-refreshing sleep
 - Daytime fatigue
 - Impaired concentration/memory loss
 - Mood/behavioral changes
 - Morning headaches
 - Loss of sexual interest

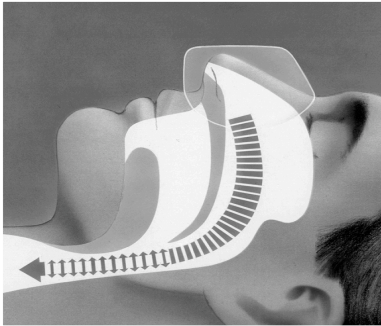
Polysomnogram

- Test used to diagnose most sleep disorders
- Performed in a sleep disorders center or a sleep lab
- Consists of monitoring of several physiological components

Polysomnogram

- Brain waves, eye movements, muscle activity, leg movements, respiratory pattern, snoring, ECG, oxygen saturations, body position, etc.

CPAP: Pneumatic Splint



Delayed Sleep Phase Syndrome

- A misunderstood sleep disorder
- It can occur with a move to a different time zone or with shift workers
- Also occurs in situations where people are hospitalized or never see the sun and are generally disoriented as to what time of day it is

Delayed Sleep Phase Syndrome

- Your body is set to sleep in phases
 - Awake or sleep
 - If your body wants to sleep from 9 p.m. to 6 a.m. and you sleep from 11 p.m. to 8 a.m. there is a conflict, even if you get the exact same amount of sleep, because your sleep phase is delayed

Delayed Sleep Phase Syndrome

- This can work in the opposite fashion also where you sleep earlier than your body would like

Treatment Options

- **Keep a set bedtime and sleep time**
 - Your bed times should be as consistent as possible even on your days off
 - Remember your body is not set by a clock on the wall so if you go to sleep at 9 p.m. on the west coast then on the east coast it will be midnight

Treatment Options

- A sleep aid may be needed in some instances to help you fall asleep at the appropriate time until your body can change phases

Narcolepsy

- A central nervous system disorder that is an important cause of persistent sleepiness
- The second most common cause of disabling daytime sleepiness after sleep apnea

Narcolepsy

- Typically begins in the teens and early twenties, but can occur as early as age 5 or after age 40
- Symptoms may worsen over the first few years and then persist for life
- Half of all patients report that symptoms interfere with job, marriage, or social life

Narcolepsy

- Can be considered a disorder of state control
 - Elements of sleep intrude into wakefulness, and wakefulness intrudes into sleep
 - This state instability results in characteristic symptoms

Narcolepsy Symptoms

- Almost all patients with narcolepsy have chronic sleepiness
- Over 24 hours they do not sleep more than normal controls
 - Prone to fall asleep throughout the day, often at inappropriate times
- “Sleep attacks”

Narcolepsy Symptoms

- Hypnagogic hallucinations
 - Vivid, often frightening hallucinations that occur just as the patient is falling asleep
 - Likely result from a mixture of REM sleep dreaming and wakefulness

Narcolepsy Symptoms

- Sleep paralysis
 - A complete inability to move for a minute or two just after awakening
 - Episodes of sleep paralysis may be accompanied by hypnagogic hallucinations

Narcolepsy Symptoms

- Cataplexy
 - Sudden episodes of bilateral muscle weakness leading to partial or complete collapse
 - Often triggered by strong emotions such as laughter, anger, or excitement

Narcolepsy Symptoms

- Episodes of Cataplexy last one to two minutes, and are not associated with impairment of consciousness
- Sixty percent of narcoleptic individuals develop Cataplexy

Diagnosing Narcolepsy

- Complete evaluation includes an overnight polysomnogram (PSG)
- Multiple Sleep Latency Test (MSLT)

Treatment for Narcolepsy

- Mainstays of therapy
 - Stimulants for the treatment of sleepiness
 - REM sleep-suppressing medications for the treatment of Cataplexy
- Napping and sleep hygiene
- Psychosocial support

Treatment for Narcolepsy

- A few may get by with an occasional nap
- Most patients require a wake-promoting drug
 - These drugs improve performance as measured by reaction time and simulated driving tasks

Treatment for Narcolepsy

- Performance usually does not exceed 70 to 80 percent of normal control levels
- Goal is obtaining "normal" alertness throughout conventional waking hours

Treatment for Cataplexy with Narcolepsy

- Gamma hydroxybutyrate (GHB)
 - 2002 - approved by the FDA for the treatment of Cataplexy
 - Especially useful in patients with severe Cataplexy
 - Can also improve daytime sleepiness

Treatment for Cataplexy with Narcolepsy

- GHB is a metabolite of GABA
- Mechanism of action in patients with Cataplexy is unknown
- Gained notoriety as a "date-rape" drug

Periodic Limb Movements Disorder and Restless Leg Syndrome

- They are not the same thing
- Sometimes patients suffer from both ailments but they are completely different

Periodic Limb Movements Disorder

- Repetitive movements in sleep
- Typically occur in the lower limbs
- Occur about every 20-40 seconds
- Also referred to as PLMD, periodic limb movement disorder

Periodic Limb Movements Disorder

- Movements can be brief muscle twitches, jerking movements, or an upward flexing of the feet
 - They cluster into episodes lasting anywhere from a few minutes to several hours

Periodic Limb Movements Disorder

- PLM is found with high frequency in those suffering from restless legs syndrome, with as many as 85% of people with RLS also having PLM
- Conversely, the number of people with PLM also having RLS is quite low, owing to the fact that PLM is somewhat more common than RLS

Periodic Limb Movements Disorder

- Like RLS, PLM can occur in the legs or arms but most often appears in the legs
- PLM is found in 5% of adults over 30 and nearly 50% of adults over the age of 65, lending credence to the claim that it is tied to the immune system and more likely to appear in those with weaker immune systems
- It occurs rarely in children

Restless Leg Syndrome (RLS)

- A neurologic sensor motor disorder that is characterized by an overwhelming urge to move the legs when they are at rest
 - The urge to move the legs is usually, but not always, accompanied by unpleasant sensations
 - This is typically felt while a person is still awake

Restless Leg Syndrome

- There are two types of RLS
 - Primary RLS
 - The most common
 - Also called idiopathic RLS
 - “Primary” means cause unknown
 - Usually becomes lifelong condition

Restless Leg Syndrome

- Over time symptoms tend to get worse and occur more often, especially if they began in childhood or early in adult life
- In milder cases, there may be long periods of time with no symptoms, or symptoms may last only for a limited time

Restless Leg Syndrome

– Secondary RLS

- **Caused by another disease or condition or, sometimes, from taking certain medicines**
- **Symptoms usually go away when the disease or condition improves, or if the medicine is stopped**

Diagnosis

- **How is Periodic Limb Movement Disorder diagnosed?**
 - **The polysomnogram (overnight sleep study) is the best method for detecting the severity of the movements and also for detecting any other possible sleeping disorders that may be contributing to it**

Diagnosis

- **How is Restless Leg Syndrome diagnosed?**
 - **The way that you describe your symptoms is very important in diagnosing restless leg syndrome (RLS)**
 - **Your doctor will**
 - **Take a complete medical history**

Diagnosis

- **Do a complete physical examination**
- **Order other tests**
- **The diagnosis of RLS usually requires the following four conditions be present**
 - **An urge to move the legs due to an unpleasant feeling in the legs**

Diagnosis

- **The urge to move the legs or the unpleasant feeling in the legs begins or gets worse when you are at rest or not moving around frequently**

Diagnosis

- **The urge to move the legs or the unpleasant feeling in the legs is partly or completely relieved by movement (such as walking or stretching) for as long as the movement continues**

Diagnosis

- The urge to move the legs or the unpleasant feeling in the legs is worse in the evening and at night, or only occurs in the evening or at night
- There is no test currently available to diagnose RLS

Treatment for PLMD

- Similar to RLS treatment so someone with both conditions will likely find relief from both syndromes with one treatment
- Treatment includes
 - Iron supplements when low iron levels are considered to be at the root of the problem
 - Anti-seizure medications

Treatment for PLMD

- Sleeping pills or pain killers in extreme cases
- Changes in your daily routine
 - Healthier diet and balanced exercise schedule
- Good sleep hygiene practices
 - Will improve the speed you reach REM sleep and your ability to stay in it

Treatment for PLMD

- The chances of PLM occurring during REM sleep are much lower than while in earlier sleep phases

Treatment for PLMD

- Good sleep hygiene includes improving the sleep conduciveness of the environment you sleep in, having a comfortable bed and pillow that is right for you, and avoiding stimulants of any kind before bed time

Treatment for RLS

- Medicines can help relieve some symptoms of RLS
- Doctors prescribe medicines to treat RLS in people
 - With clearly defined symptoms
 - Whose symptoms cannot be controlled by lifestyle and non-drug treatment

Treatment for RLS

- Lifestyle changes can improve and relieve symptoms of RLS and may be the only treatment needed for mild RLS
- Avoid things that can make symptoms of RLS worse
 - Tobacco
 - Alcohol

Treatment for RLS

- Caffeine
 - Chocolate, coffee, tea, and some soft drinks contain caffeine
 - Although it may seem to help overcome daytime sleepiness, caffeine usually only delays or masks RLS symptoms and often makes them worse

Treatment for RLS

- Some over-the-counter and prescription medicines can also make RLS symptoms worse
 - Antidepressants (most of them)
 - Antinausea medicines
 - Antipsychotic medicines
 - Antihistamines

Treatment for RLS

- Adopt good sleep habits
- Follow a program of moderate exercise
- Other activities that may help relieve symptoms
 - Walking or stretching
 - Taking a hot or cold bath
 - Massaging the leg or arm
 - Using heat or ice packs