

SLEEP – PARKINSONS DISEASE

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Ascension Health Care

Why do we sleep?

- Restitution
 - Body repairs and rests
- Cognitive need
 - Establish memory and learning
- Emotional need
 - Dreams

Poor Sleep

- Physical
 - Fatigue, lack of endurance, balance problems
- Cognitive
 - Poor concentration and memory
- Emotion
 - Irritability, anxiety and depression

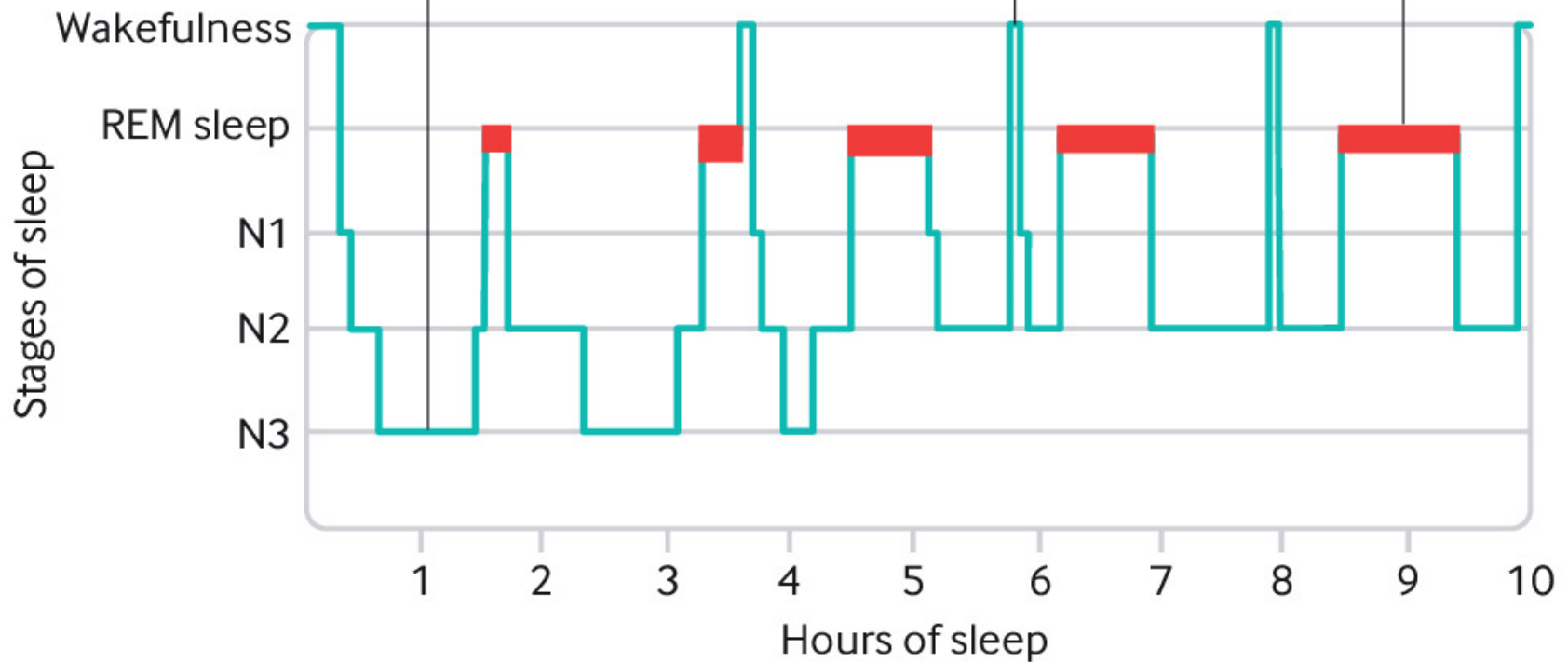
Sleep Basics

- Sleep architecture
 - NREM (non rapid eye movement sleep)
 - 75 % of night
 - REM (rapid eye movement sleep)
 - Dreaming sleep
 - Periodic pattern

Brief arousals from sleep occur multiple times in night but are not always remembered

Stage N3 sleep (deepest sleep) occurs mostly in first half of night

REM sleep (dream sleep) is mostly in second half of night



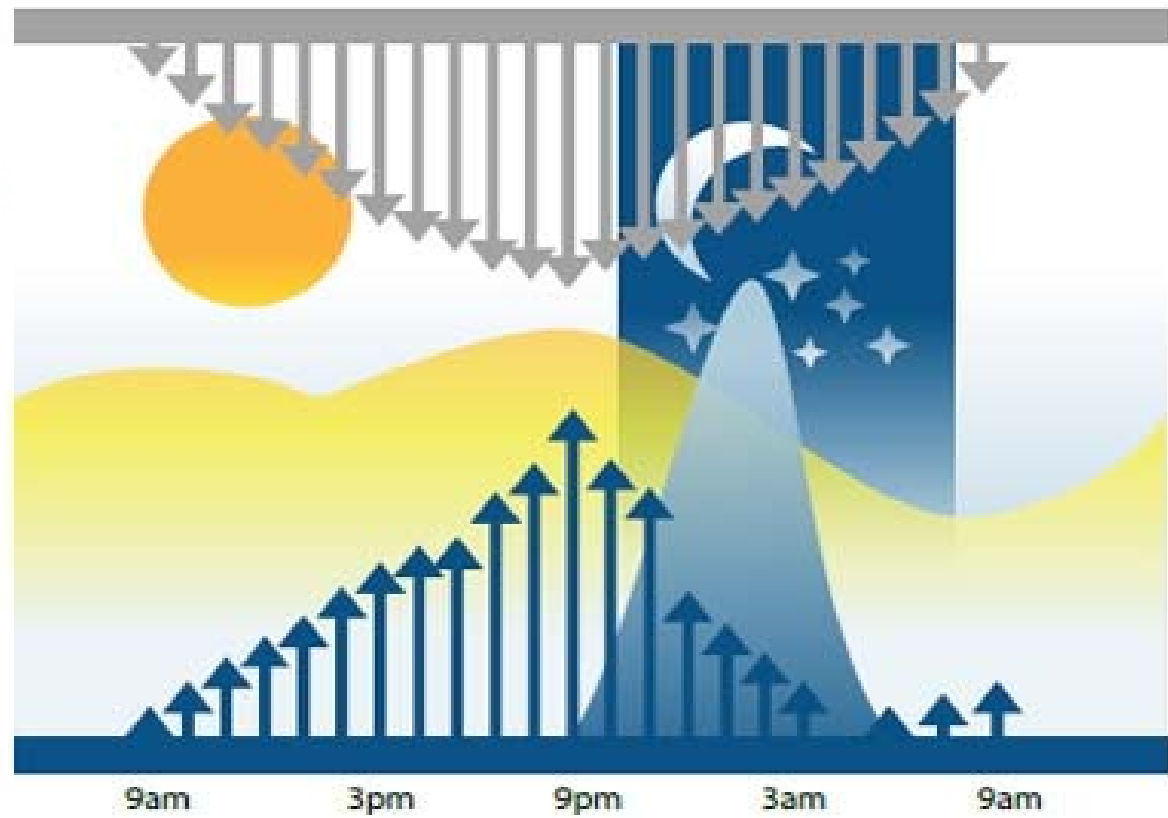
REM sleep: rapid eye movement sleep

Sleep Basics

- Sleep – wake depends upon two drives
 - Homeostatic – need for sleep
 - Circadian rhythm
 - Internal clock
 - Regulates hormones
 - Influenced by light
 - Melatonin is neurotransmitter
 - Not 24 hours for most people
 - Needs zeitgeber (time giver) – external cue

Sleep homeostasis

Circadian alerting



Wake

Sleep

9am

3pm

9pm

3am

9am

Wake

Sleep

Four sleep myths

- I can get by on 6 hours of sleep.
 - Most everyone needs 7-9 hours of sleep
- Early to bed – early to rise
 - Not everyone has the same sleep cycle
- You should not be sleepy during the day.
 - It is normal to be sleepy in the afternoon
- There is a “best” type of sleep

Age related sleep changes

- Increase in sleep interruptions
 - Breakdown of interaction with homeostatic and circadian drives
 - Reduced
 - Total sleep time
 - Sleep efficiency
 - N3 sleep
 - REM sleep
 - Increased
 - N1 & N2 sleep
 - Daytime sleepiness and napping

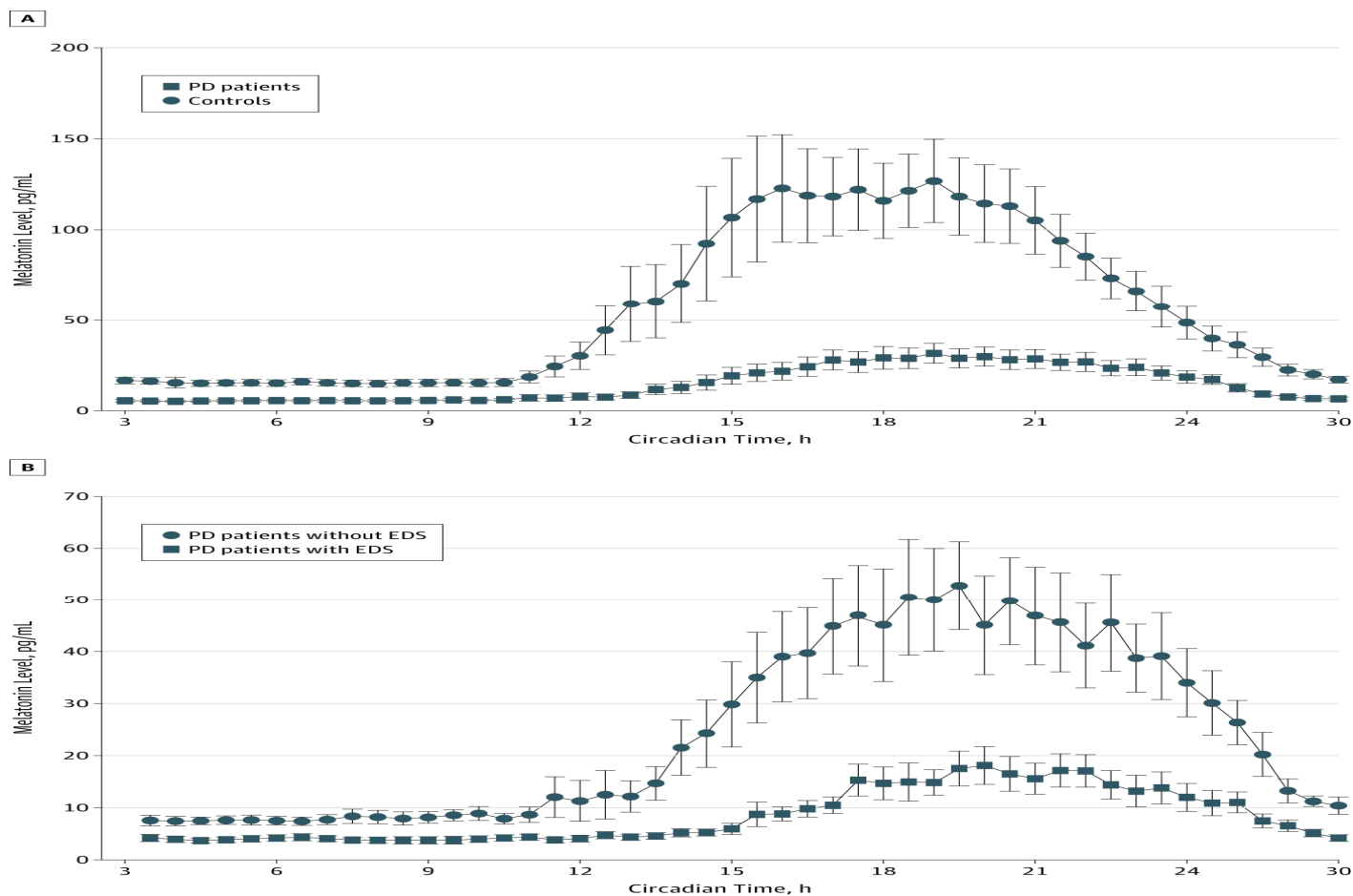
Age related circadian rhythm

- Delayed sleep phase
 - Teens
 - Sleep onset is delayed until early am hours
 - Cause ? Hormonal changes
- Advance sleep phase
 - Elderly
 - Early sleep onset
 - Early to bed and early to rise
 - Reduced effect of circadian rhythm – override by homeostatic drive
 - Reduced melatonin production
 - Social changes – less exposure to light

Sleep disorders in PD

- Common problem
 - 80% (I think 100% - you got to ask the right questions)
- Reasons
 - Changes in brain chemistry
 - Aging
 - Parkinsons Disease
 - Motor effects of PD
 - Medication effect
 - Anxiety & Depression
 - Reduced social activity

From: Circadian Melatonin Rhythm and Excessive Daytime Sleepiness in Parkinson Disease



Types of sleep disorders

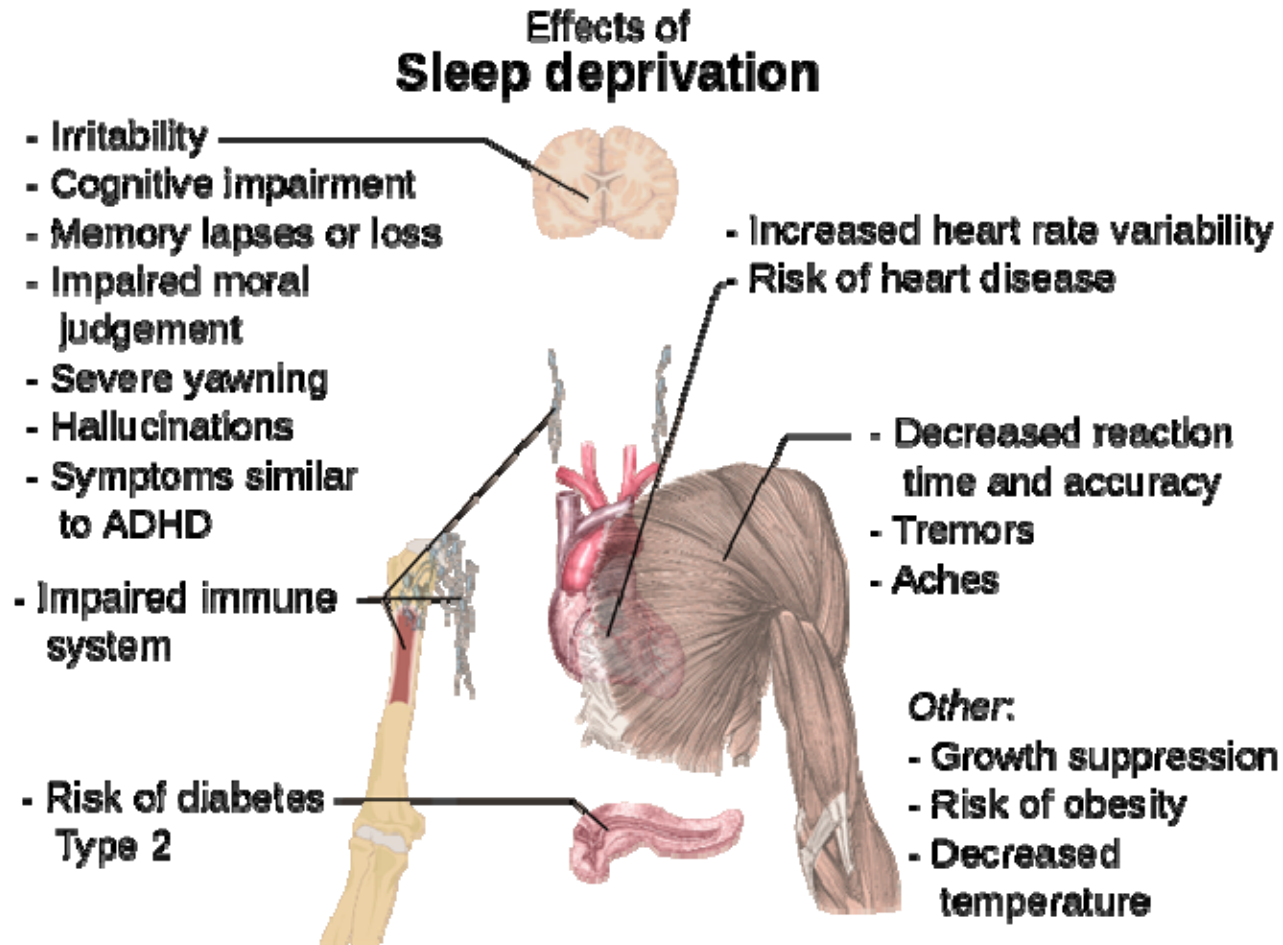
- Most frequent in Parkinsons Disease
 - Insomnia
 - Daytime sleepiness
 - Sleep behavior – REM behavior disorder
- Other common sleep disorders
 - Sleep apnea
 - Restless Leg Syndrome

Insomnia

Usually sleep maintenance insomnia

- Awakenings during the night or waking too early in the morning
- May precede the diagnosis of PD
- May be due to stiffness – akinesia
- Associated with mood disorders
- May be related to medications

Insomnia: reasons to treat



Insomnia treatment

- Adjust PD meds
 - Bedtime dose may reduce stiffness and improve sleep
 - Bedtime dose may increase awakenings and vivid dreams
 - Some PD medications cause insomnia
 - Amantadine, selegiline
 - Use long acting medications to prevent end of dose during the night. Rytary, pramipexole, ropinirole, rotigotine

Insomnia: sleep hygiene

- Regular bed hours
 - Wake time most important
- Avoid caffeine after noon
- Avoid alcohol within 4 hours of sleep
- Avoid heavy meals in the evening
- Dark, quiet bedroom
- No electronics several hours before bedtime
- Bright light in the morning



Insomnia: Sleep hygiene

- Get a new mattress
- Sleeping is not a team sport
 - Sleeping with another person in the same bed will make your sleep worse
 - Separate rooms -separate mattresses – ear plugs
- Relaxing bedtime routine.
- Magnesium oxide 250 mg twice a day
- chamomile tea

Insomnia: sleep hygiene

- DO NOT LOOK AT THE CLOCK DURING THE NIGHT
 - It is normal to awaken during the night
 - Causes anxiety
- Your bladder does not know the time of day
 - If you are urinating more frequently at night than during the day – it **MAY** be a sleep problem not a bladder problem

Insomnia: Sleep patterns

- Expectations
 - 6 hours of un interrupted sleep with brief awakening and return for another 1-2 hours
- Avoid time in bed awake
 - Don't go to bed at 9 pm and rise at 8 am with goal of 8 hours of sleep
- Afternoon naps are good
 - 30 – 60 minutes
- Daytime activity
 - Not TV

Insomnia: medication

- Abnormal sleep physiology may require medication to improve sleep
- Melatonin
 - 3-6 mg one hour before bed
 - May take several weeks to work
- Antidepressant meds
 - Mirtazapine
 - Doxepin – 10 mg
- Sleeping pills
 - Longer acting
 - Lunesta

Daytime sleepiness

- Causes
 - Poor night time sleep
 - Medications
 - Dopamine agonists
 - Pramipexole (Mirapex)
 - Ropinirole (Requip)
 - Rotigotine (Neupro)
 - Levodopa
 - Lack of daytime activity
 - Neurochemical changes

Daytime sleepiness: treatment

- Treat sleep problems – insomnia, sleep apnea, restless leg syndrome
- Long acting forms of PD meds
 - Requip XL, Mirapex ER, carbidopa/levodopa ER
- Scheduled naps
- Daytime activity
- Wake promoting medications
 - Modafinil (Provigil, Nuvigil)
 - methylphenidate

REM Behavior disorder

- Dream enactment
 - arm/leg movements
 - Vocalizations
 - Punching – kicking – sometimes out of bed
- Associated with vivid dreams - nightmares
 - Sometimes not aware of episodes
 - If awakens – will recall violent dream

REM Behavior disorder

- Medications may increase behaviors
 - PD meds
 - Antidepressants
- Treatment depends upon
 - Frequency
 - More than once a week
 - Severity
 - Dangerous behavior
 - Difficult to return to sleep
 - Problems with daytime sleepiness

REM Behavior disorder

- Treatments
- Melatonin 5 – 10 mg – one hour before bedtime
- Clonazepam 0.5 mg at bedtime
 - Valium like medication
 - Grogginess
 - Balance problems

Other Sleep Disorders

- Sleep apnea
 - Snoring all positions
 - Morning sore/dry throat
 - Bedpartner notes apnea – stop breathing
 - Daytime sleepiness
- Restless leg syndrome
 - Urge to move
 - Evening
 - Occurs when inactive

SNORING

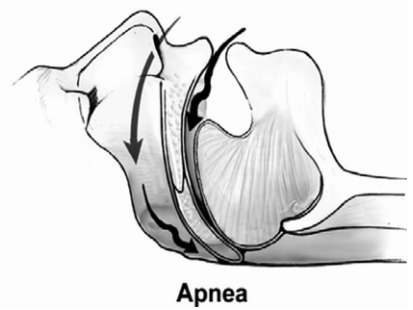
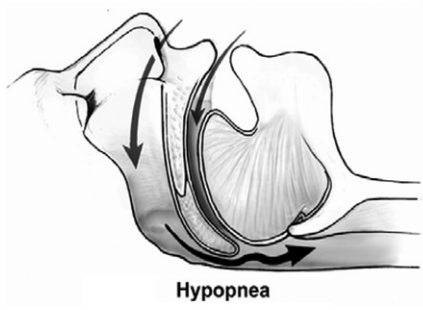
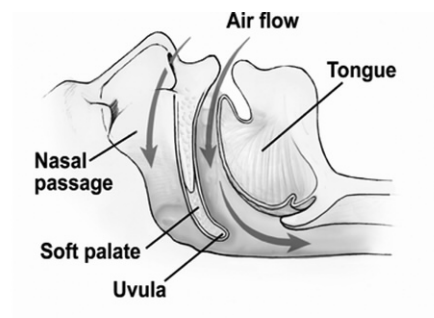
- 30 % of everyone snores on a regular basis
- Snoring occurs as tissues in the back of the throat relax
- Worse when on back
- Worse with alcohol
- Increases with age

Obstructive sleep apnea

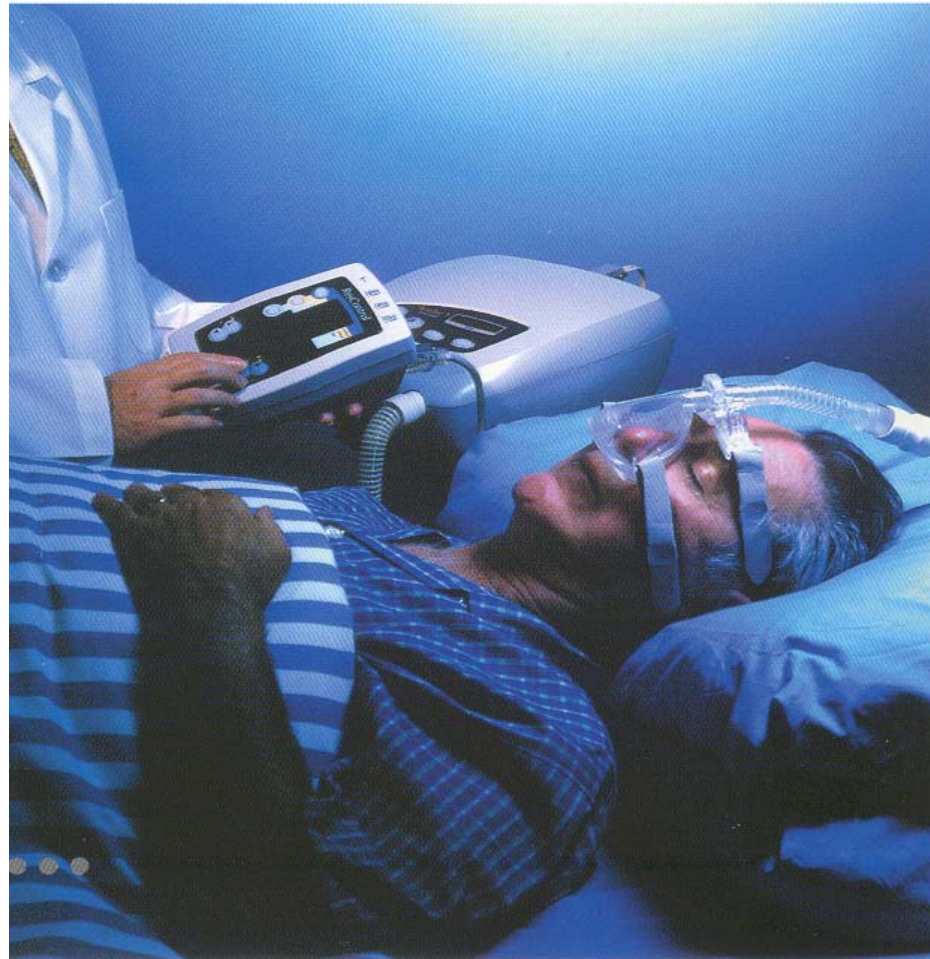
- Results in:
 - Daytime sleepiness
 - Hypertension
 - Comorbid – cardiac disease and stroke
- Symptoms
 - Loud snoring – all positions
 - Daytime sleepiness with episodes of unintentional sleep
 - Bed partner may witness apnea
 - Morning sore/dry throat
 - Insomnia
 - nocturia

SLEEP APNEA

- BREATHING STOPS DURING SLEEP
 - 10 SECONDS OR MORE
- DAYTIME SLEEPINESS DUE TO SLEEP DISRUPTION
- CARDIAC PROBLEMS DUE TO REDUCED OXYGEN LEVELS

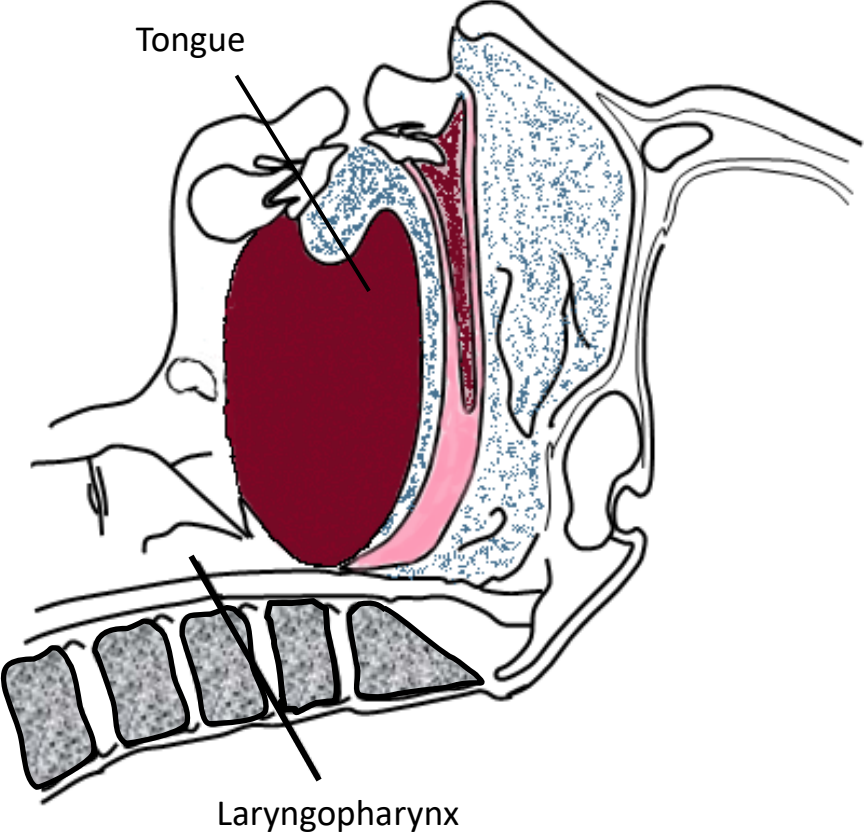


CPAP Therapy

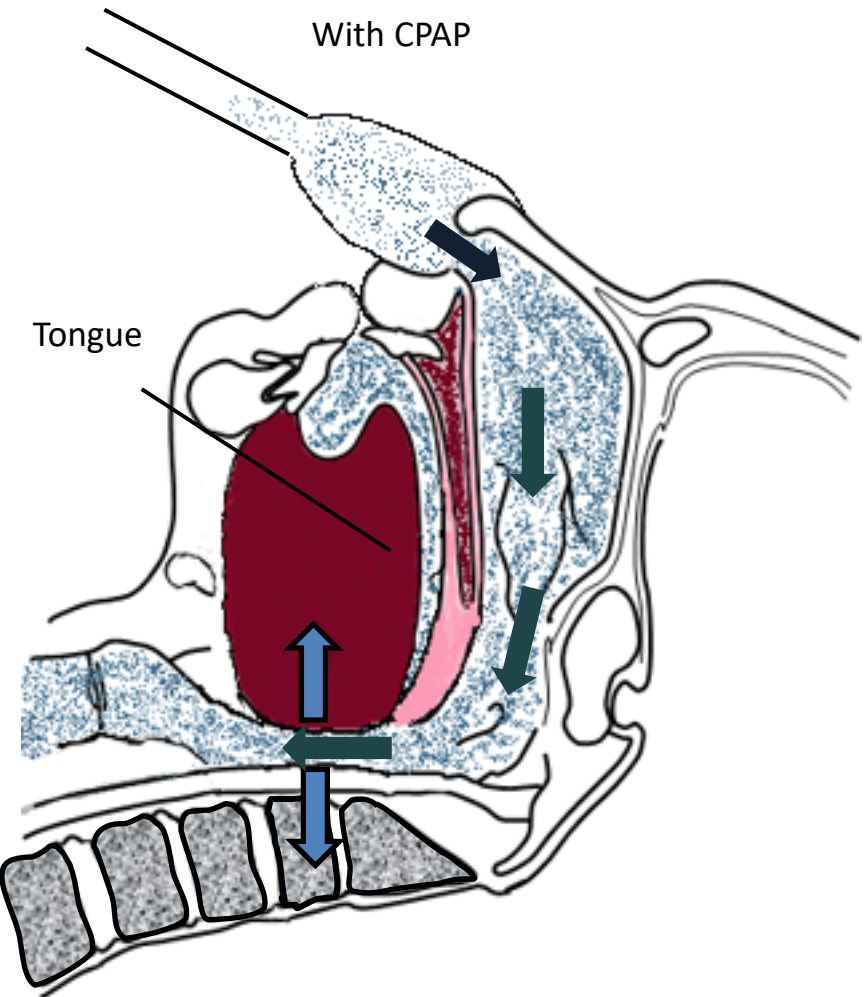


Obstructive Sleep Apnea

Sites of obstruction during sleep apnea



With CPAP



Restless leg syndrome

- Sleep disorder with both sensory and motor component.
- Usually results in difficulty with sleep onset.
- Prevalence is 10% in general population
 - Although usually only clinically significant in 25% of people with the disorder
- Increases in incidence with age

Restless leg syndrome

- Diagnosis based upon history
 - Uncomfortable sensation with urge to move
 - Better with movement
 - Occurs when at rest
 - Occurs in the evening
- Three questions
 - Are your legs uncomfortable in the evening?
 - If yes. What do you do to make the legs feel better? (movement)
 - Do you have the sensation in the morning? (no)

RLS in Parkinsons Disease

- Incidence is higher in PD
- May occur as a complication of medication
 - Meds wearing off
 - Withdrawal from dopamine agonists
- Treatment
 - Adjust PD meds
 - gabapentin

Summary

- If you sleep better
 - You will move better
 - Mood will improve
 - Memory will improve
- Improved sleep
 - Sleep hygiene
 - Daytime activity
 - Naps
 - Medication