

# All About Sleep Apnea



Advanced Sleep Labs, LLC  
January 2020

# We will discuss:



- What is sleep apnea?
- Why does it happen?
- What are the symptoms and consequences?
- Who should get tested?
- How do we test for sleep apnea?
- What treatment options are there?
- Details and tips for using CPAP

# What is Sleep Apnea?

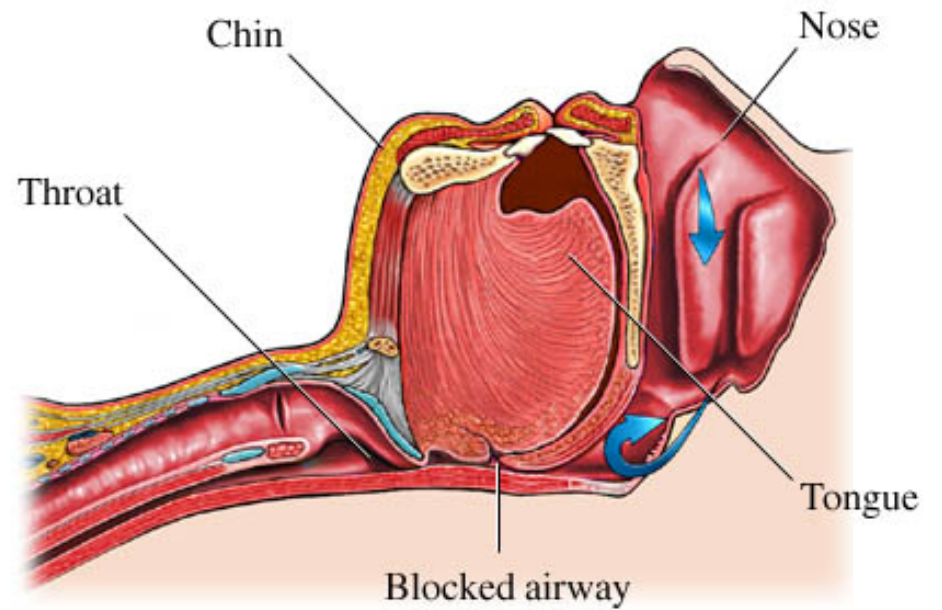
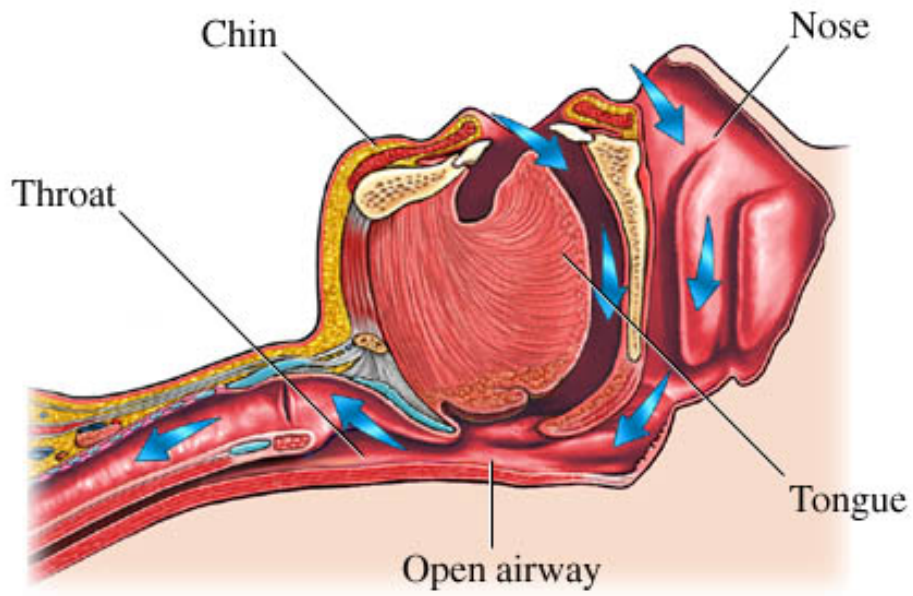
- You stop breathing during sleep!
- This is a serious health problem that impacts the body in several ways

# Obstructive Sleep Apnea

- OSA
- The airway collapses causing repeated airway obstruction during sleep
- You are still trying to breathe, but you can't

# Why does OSA happen?

- When we sleep, our muscles relax
- This includes muscles of the upper airway and tongue
- Everything “falls back” and blocks the airway



# What causes OSA?


Anything that makes the  
airway smaller or more  
“floppy”



Being overweight is the cause of  
most obstructive sleep apnea

70% of people with OSA are overweight

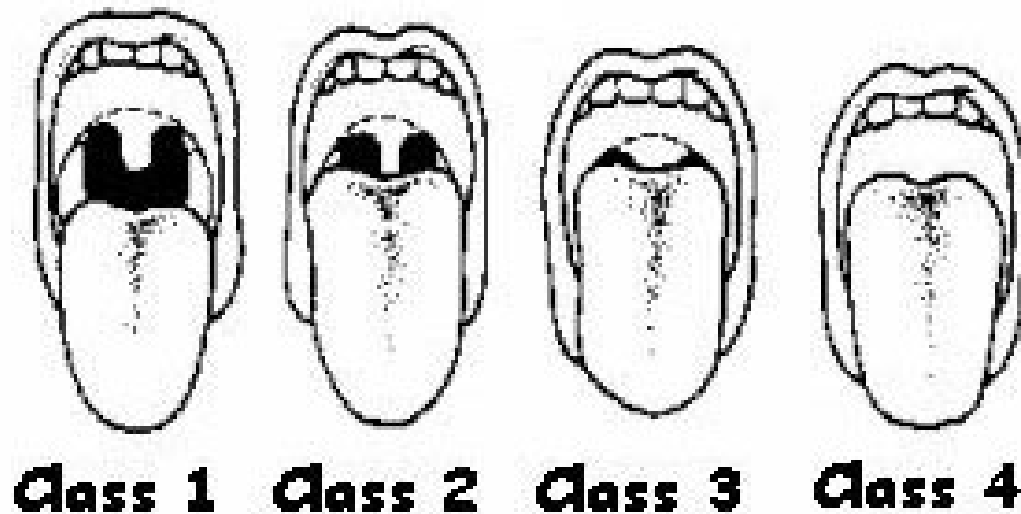


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- When you are overweight, you have more weight pressing down on your airway
  - Your airway can't support the extra weight and it collapses
  - You also have fatty deposits that grow around your airway that “smush” the airway

- Having a large neck is a risk factor for sleep apnea
- > 17 inches in men
- > 16 inches in women



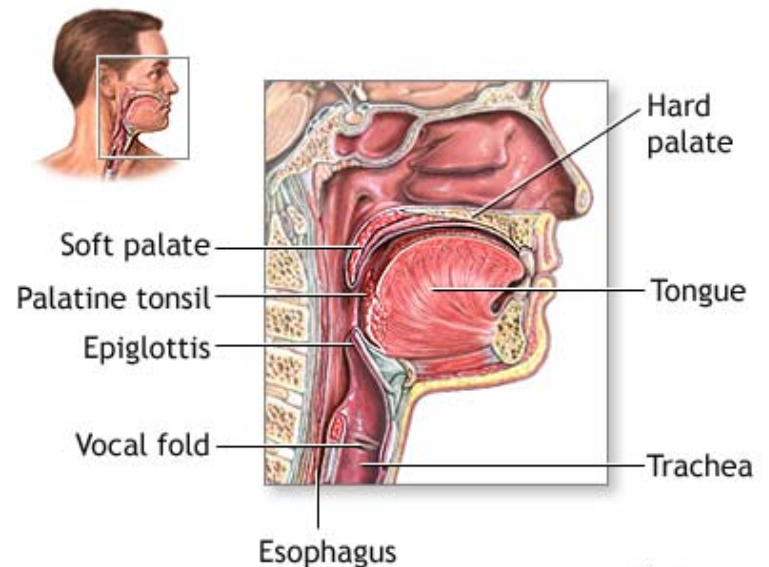
# Anatomy has a lot to do with it



Mallampati classification

- Structural/anatomical risk factors:

- Large tonsils
- Long/thick uvula
- Long or narrow palate
- Small lower jaw
- Large tongue



# Other risk factors for OSA

- Aging
- Alcohol use before bed
- Medications
  - Muscle relaxers, sedatives, pain meds
- Heart failure
- Stroke
- Neuromuscular weakness
  - MS, ALS




# Sleep apnea is very common

- Current estimates:
  - 1 in 5 people
- As obesity rates continue to rise, we are seeing an increase in sleep apnea

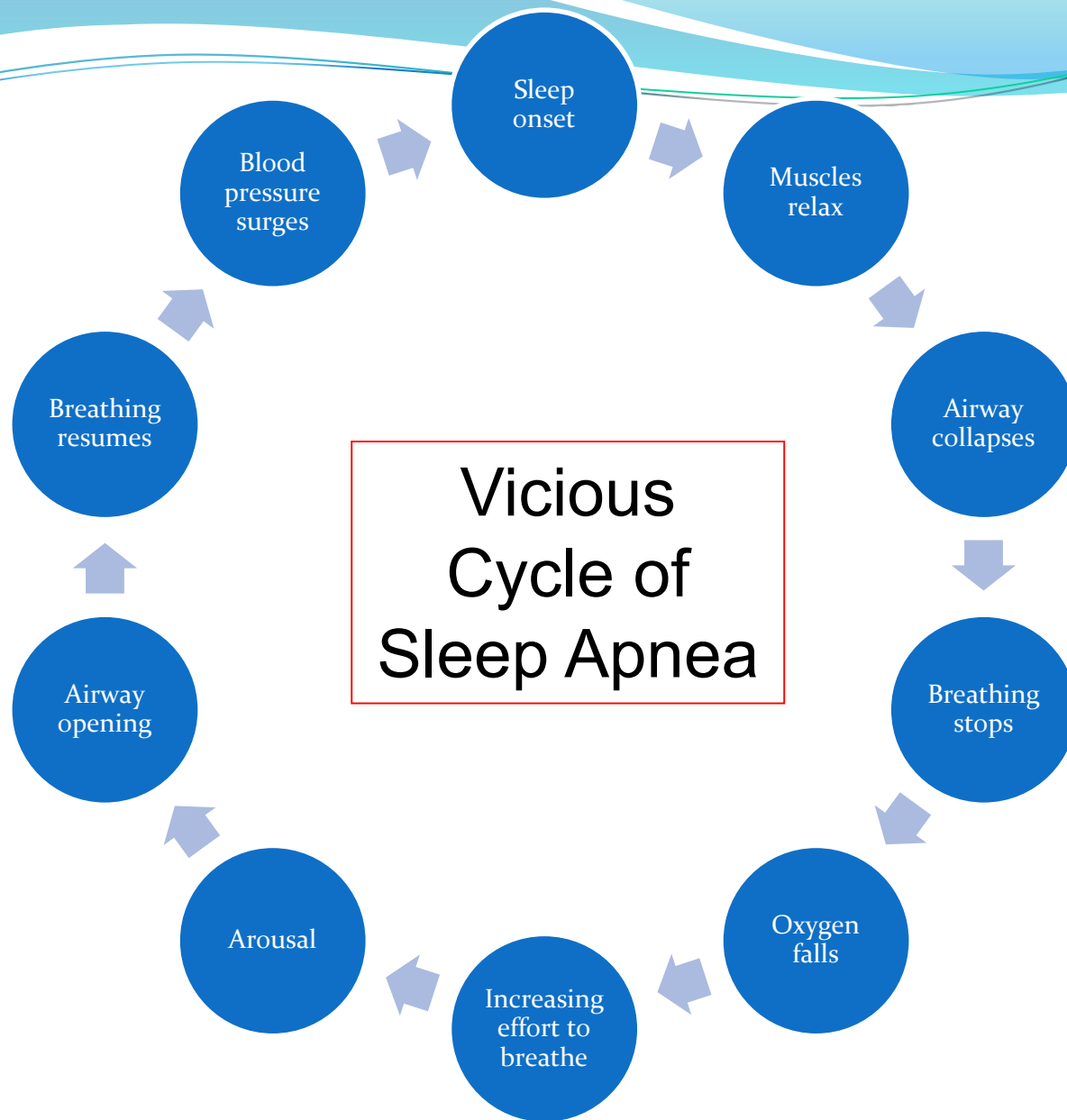


# What happens when you stop breathing?

- Oxygen levels fall
- Your brain will wake you up enough to open your airway so you can breathe again
- You likely won't realize that you are waking up

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- You get an adrenaline surge
    - You are suffocating
    - “Fight or Flight” response
    - Causes increased blood pressure and heart rate
  - Some people wake up gasping, sweating with a racing heart
  - Increase in “stress” hormones





# Sleep apnea video

- [http://www.youtube.com/watch?v=TgC\\_So9Xea4&feature=related](http://www.youtube.com/watch?v=TgC_So9Xea4&feature=related)

# Central Sleep Apnea

- Has nothing to do with the airway
- The brain doesn't tell the body to breathe
- More common in Denver because of the high altitude
- Common in people with heart failure
- Can also be caused from prescription pain meds

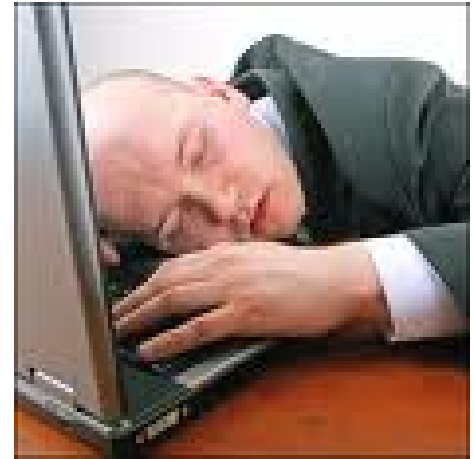
# What are the symptoms of OSA?

- The biggest complaint from people: “I’m sleepy!”
- Because you’re constantly getting woken up all night, you are actually sleep deprived

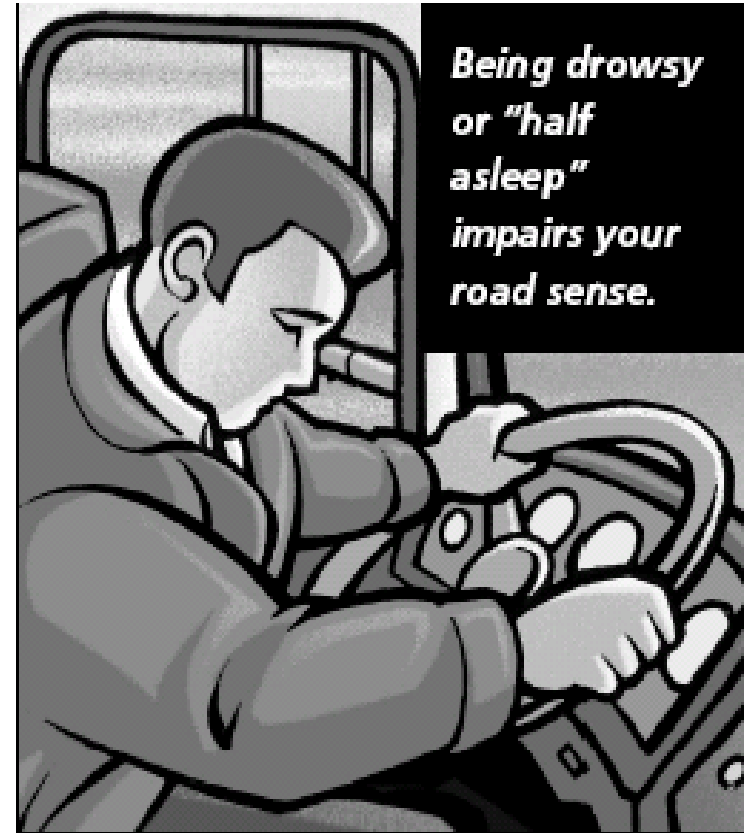


# People complain of:

- Unrefreshing sleep
- Daytime sleepiness
- Frequent napping
- Falling asleep at inappropriate times:
  - Working
  - Meetings
  - Watching TV/movies
  - **Driving**
    - **This effects OTHERS, not just you**



- People who are sleepy have an increased risk of falling asleep at the wheel
- Even if you are not falling asleep, you are still impaired!



# Drowsy Driving = Drunk Driving

- Impaired judgment
- Very slow reaction time
- Increased attention lapses
- Increased distractions
- Fast and sloppy driving
- Impaired memory





If you're feeling tired:

Do not drive!

- Get a ride
- Take the bus
- Call a taxi cab
- Stay home

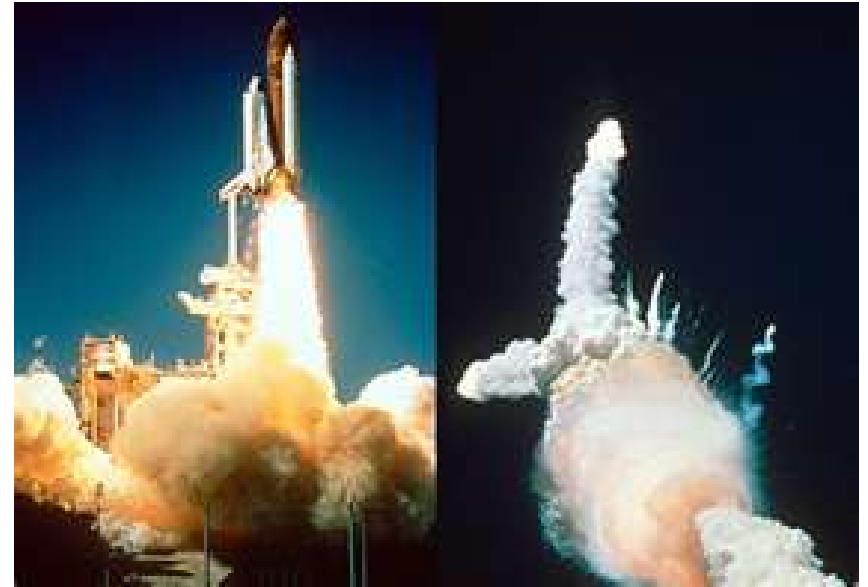


# Sleepiness affects work

- Sleepy people also have more work-related accidents
- Industrial accidents caused from sleepiness cost over \$100 billion per year



- Many disasters attributed to people being sleepy
  - Exxon Valdez oil spill
  - Three Mile Island nuclear disaster
  - Challenger Space Shuttle disaster



# Other symptoms of OSA

- Snoring
- Gasping/choking awakenings
- Insomnia
- Morning headaches
- Memory and concentration problems
- Moody, irritable, cranky
- Depression
- Heartburn
- Weight gain
- Increased nighttime urination
- Decreased sex drive/ ED



# Long term consequences

- Permanent mental decline
- Diabetes
- Weakened immune system
- High blood pressure
- Pulmonary hypertension
- Irregular heartbeat
- Heart attack
- Heart failure
- Stroke



# Who should get tested for OSA?

- If you have any of the following, talk to your doctor:
  - Obesity (BMI >30)
  - Snoring
  - Insomnia
  - Witnessed pauses in breathing
  - Complaints of sleepiness and/or fatigue
  - High blood pressure (especially if worsening, resistant to meds)
  - Diabetes
  - Atrial fibrillation
  - History of stroke, heart attack, heart failure

# How do we test for Sleep Apnea?

- SLEEP STUDY!



# What is a sleep study?

- You go to a sleep laboratory and sleep overnight while being continuously monitored
- The testing is painless and noninvasive
- The sleep lab is specially equipped with computerized monitoring equipment
- Testing is done during your normal sleep time

- After changing into pajamas, a technician applies a number of sensors
  - Tube in the nose
  - Oxygen probe on finger
  - Electrodes on head, face, legs, chest
  - Flexible belts around the chest and abdomen

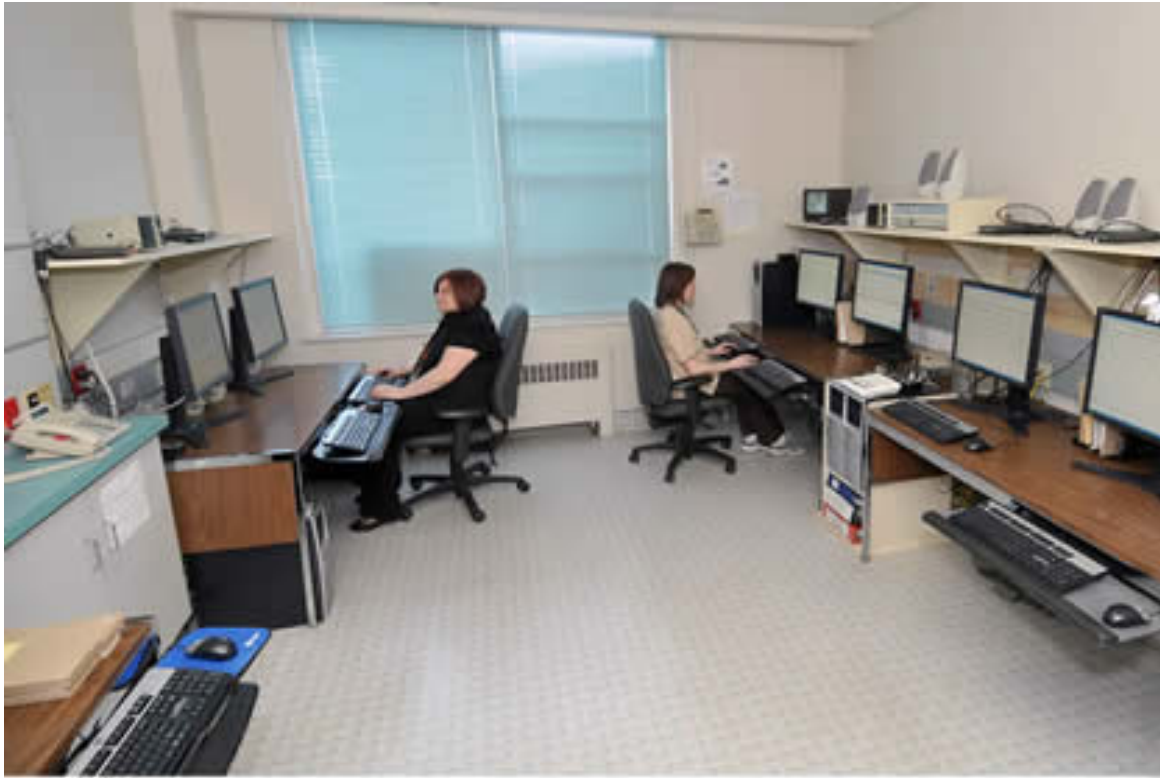






- Despite all of the equipment, most people say their sleep is not disrupted
- You can bring things from home to make them more comfortable
  - Special pillows or blankets

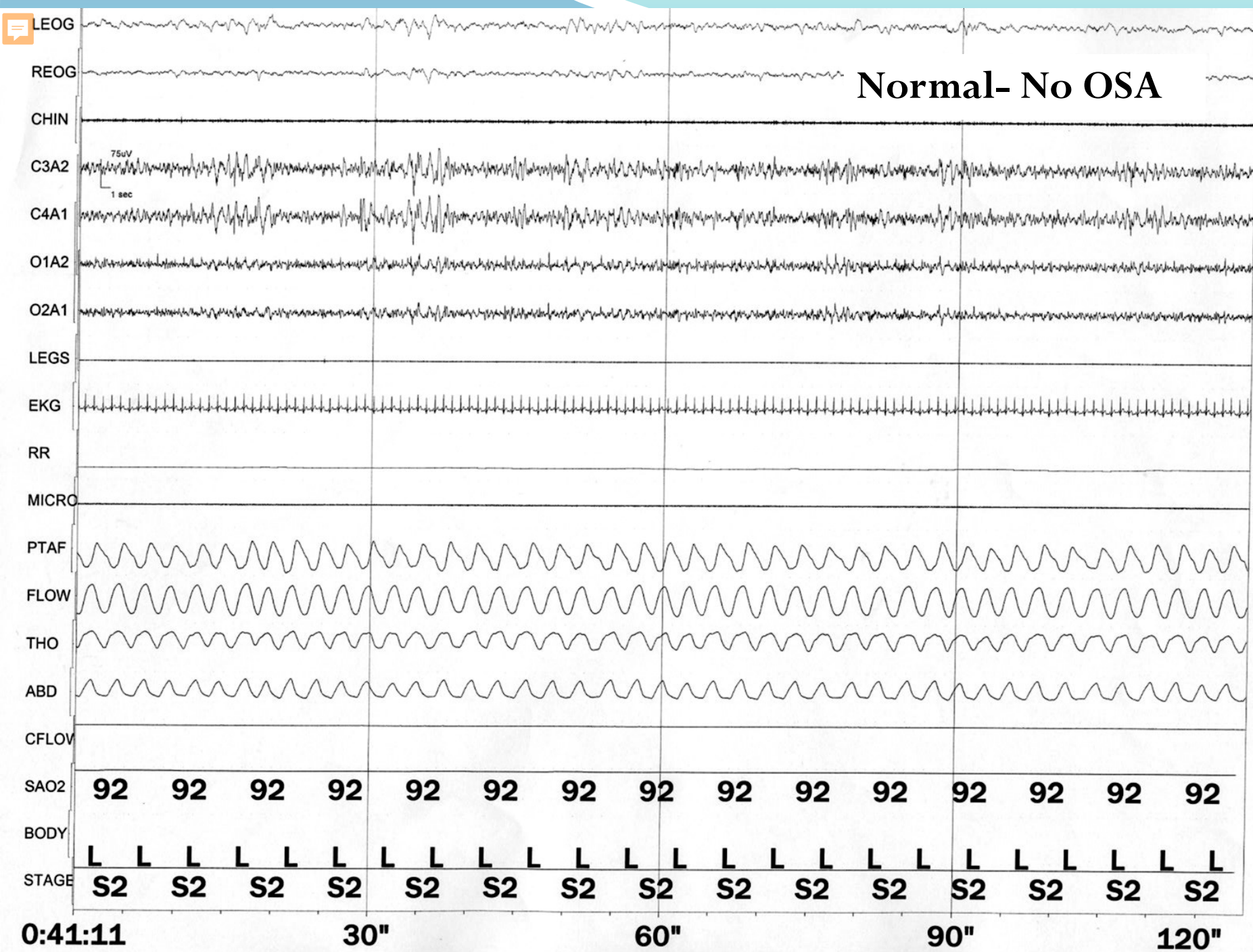




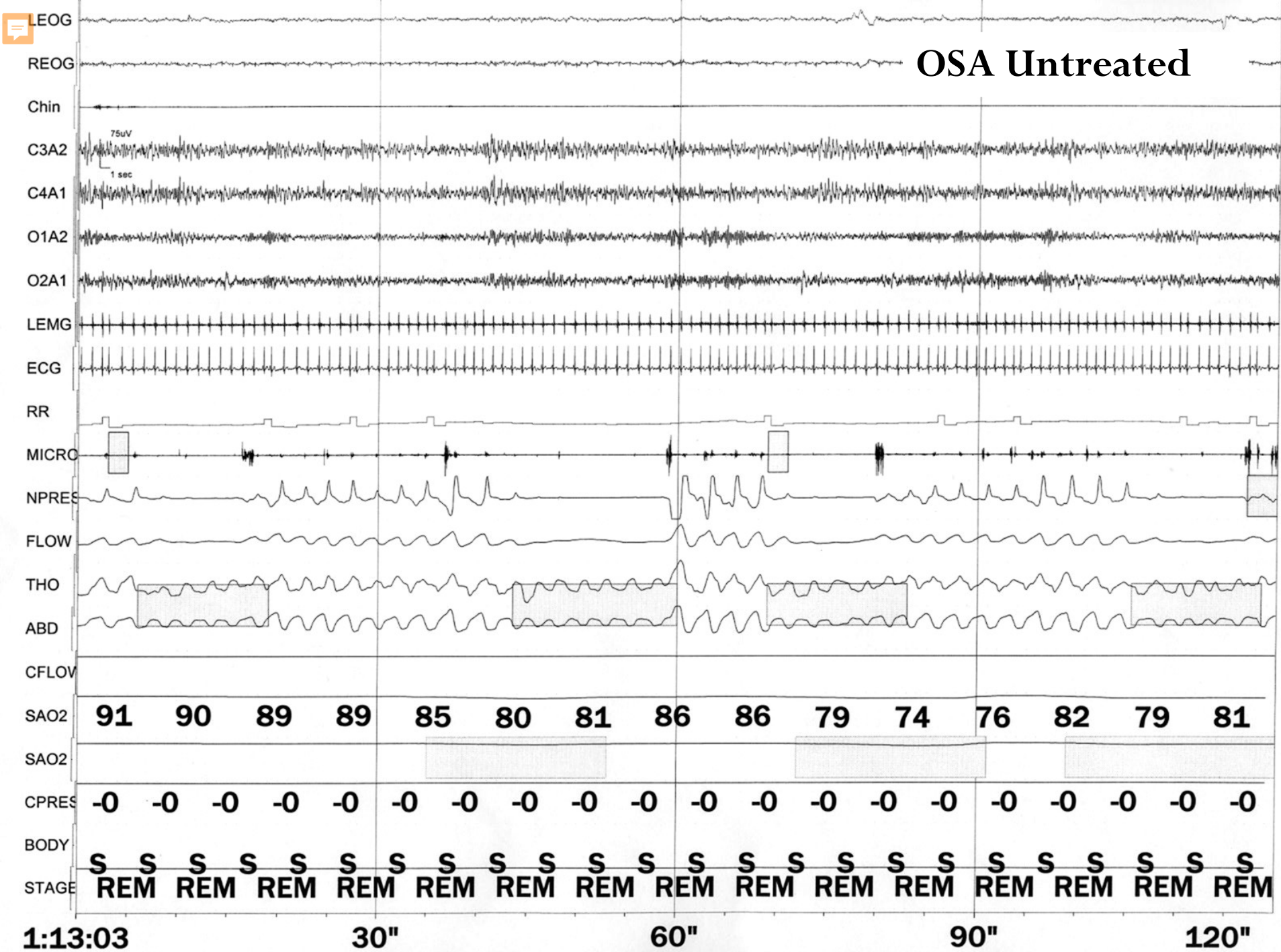
- A sleep technician, constantly monitors you from an adjoining room.
- You are watched on video/audio monitors

# The technician monitors for:

- Pauses in breathing
- Low oxygen
- Heart abnormalities
- Seizures
- Sleep talking/sleep walking
- Arm or leg kicking during sleep
- Snoring
- Teeth grinding







- The sleep study is reviewed by a second sleep technician, then by a board certified sleep physician



- A report is sent to the ordering physician with the results and recommended treatment

# How bad is it?

- AHI = # of times you stop breathing per hour of sleep
- $<5$  = normal
- 5-15 = mild
- 15-30 = moderate
- $>30$  = severe



# There is home sleep testing

- You hook yourself up to a recording device and sleep at home
- Not as much data recorded, so limited information gained from the study



# Home testing NOT recommended for the following people:


- History of/likely central apnea
- On oxygen
- Heart problems
- Seizure disorders
- Use of pain medications
- Color blind
- Not comfortable with technology
- Severe arthritis/limited use of the hands
- Have/may have other sleep disorders

# What treatment is there?

- CPAP
  - BiPAP, APAP, ASV, AVAPS
- Dental Appliances
- Surgery
- Provent

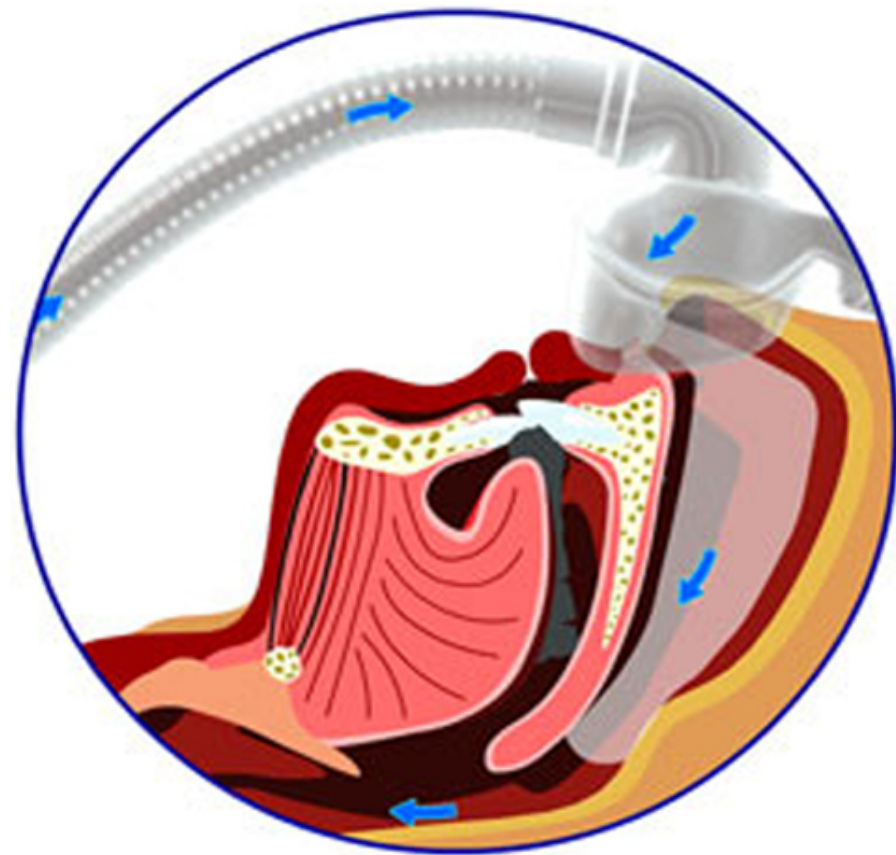
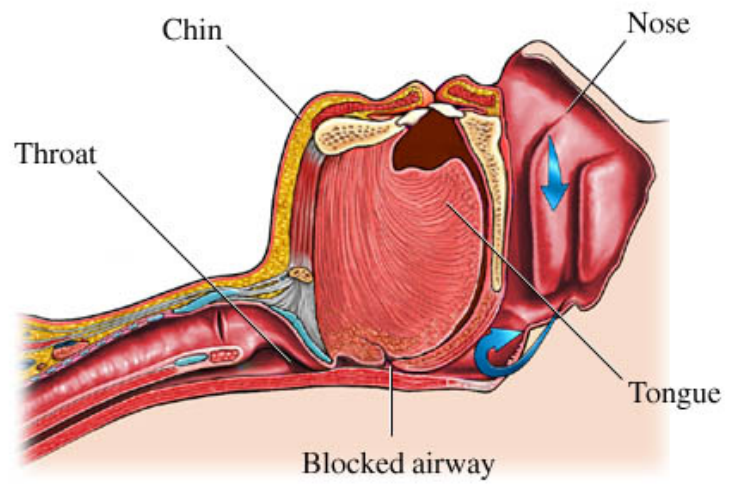
# CPAP is #1

- CPAP is the best treatment available
- CPAP stands for:
  - Continuous
  - Positive
  - Airway
  - Pressure

- 
- You wear a mask over your nose/mouth while you are sleeping
  - Hooked up to a machine that blows air into your airway
  - Air pressure holds your airway open so it can't collapse
  - CPAP works for 98% of people

# There are several mask types

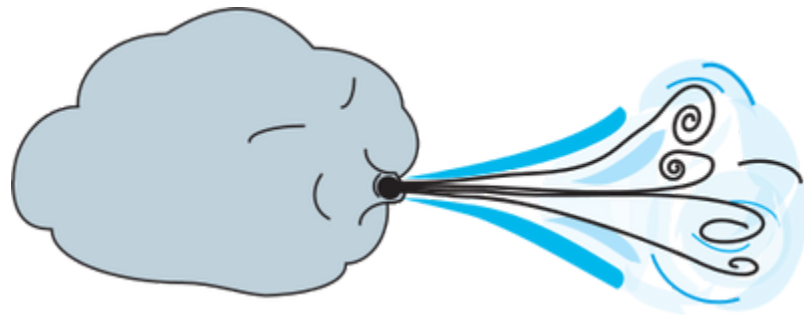
- Full face mask
- Nasal mask
- Nasal pillows
- Other unique masks









- Everyone has their own unique pressure need
- There is no way to tell by looking at you how much air pressure it will take to hold your airway open
- Pressure measured in cmH<sub>2</sub>O
  - Most machines range from 5-20 cmH<sub>2</sub>O



- 
- CPAP pressures are usually determined in the sleep lab during the overnight sleep study
  - Once it is determined that you have OSA, the sleep technician applies CPAP and starts at the lowest pressure
  - The pressure is slowly increased throughout the night until your sleep apnea is gone and you are breathing normally



# Don't give up on CPAP because of the mask!

There are lots of different masks to pick from

Work with your medical equipment company to find a mask that works for you

# Many complaints about masks:

- Leaky
- Uncomfortable
- Cumbersome
- Painful- specially on the bridge of the nose
- These can all be corrected with the right mask that is fitted properly!



There are many things to consider when selecting a mask:

- Size and shape of your face, nose, nasal bridge and lower jaw
- Facial hair
- Skin allergies
- Do you breathe through your nose or mouth?
- Sleeping position (side sleeper vs. back sleeper)
- Claustrophobia or anxiety

Most important... WHAT IS COMFORTABLE FOR YOU?




Dental appliances

a.k.a

Mandibular Advancement Devices

- Work for 60-80% of patients

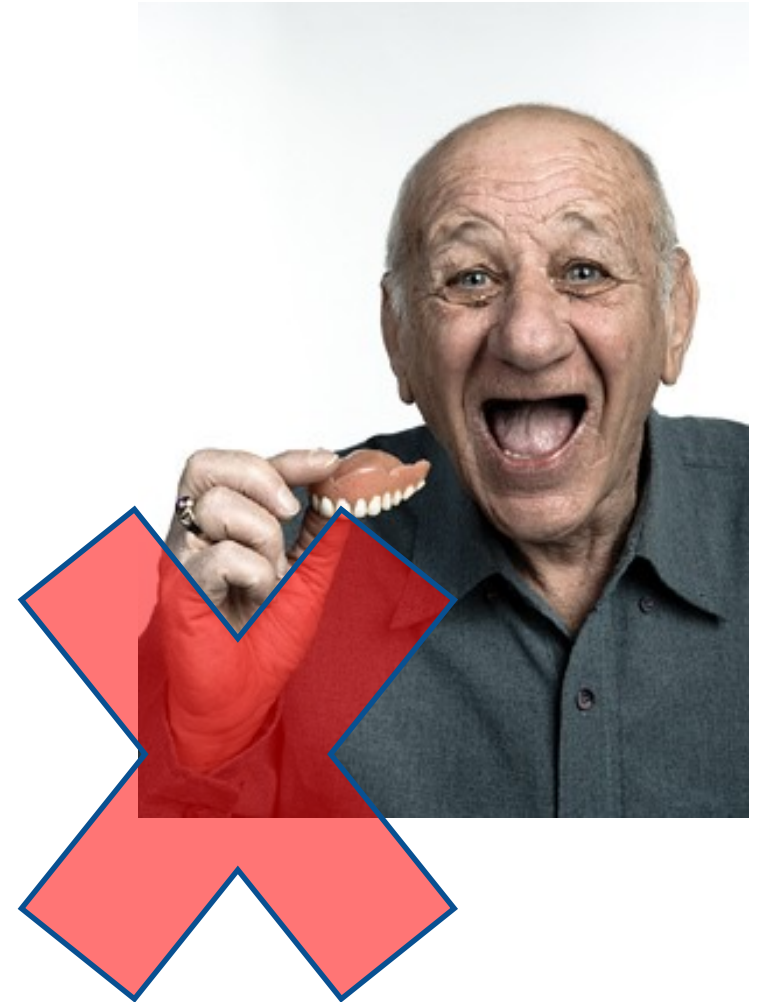
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- A retainer you wear while sleeping
  - Covers top and bottom teeth
  - The device pulls the lower jaw forward to create more space in the back of your throat
  - These are usually made by a “sleep dentist” though some general dentists will make them

# Dental appliances





- Work best for people with mild/moderate sleep apnea
- You must have some teeth
  - OK if no teeth on top
  - Must have some teeth on the bottom to anchor



- The only way to know if it works is to go ahead and get the appliance, then have another sleep study while wearing it

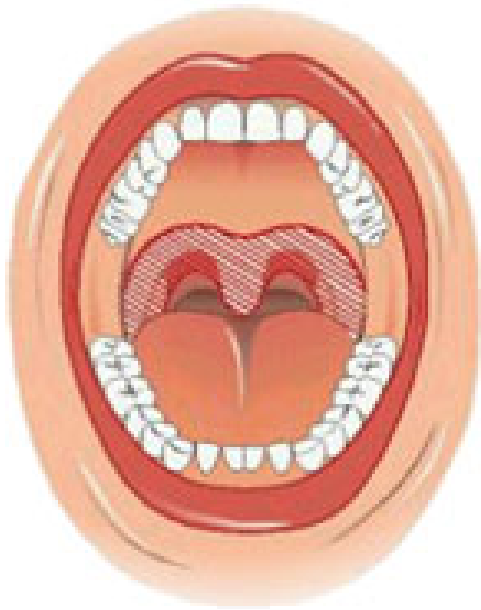





# Upper Airway Surgery

- Try to make upper airway bigger, so less likely to obstruct/collapse
- Success rate depends on type of surgery done

# Uvulopalatopharyngoplasty

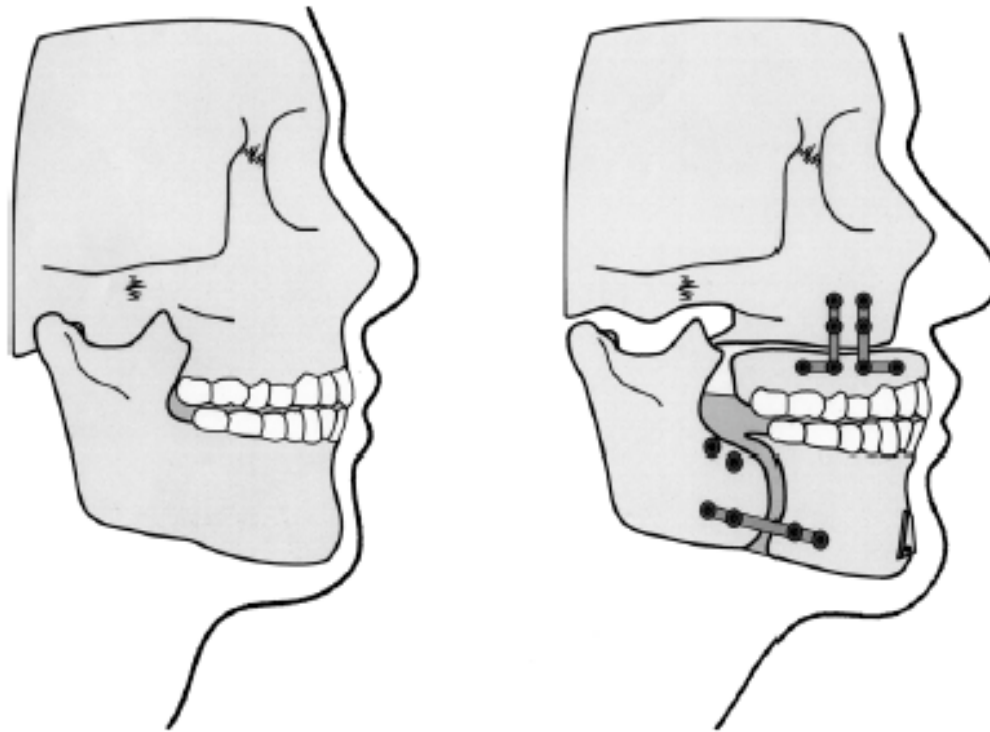


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- UPPP has ~50% “success” rate
  - Recovery is very painful
  - Years after surgery, patients often get scar tissue
    - End up back on CPAP, dental appliance or having a revision surgery


# Maxillomandibuloplasty

Medscape®

[www.medscape.com](http://www.medscape.com)



Source: Semin Respir Crit Care Med © 2005 Thieme Medical Publishers

- 
- 92-98% effective
  - Better for mild/moderate sleep apnea
  - Less painful than UPPP!
  - Extensive surgery
    - Changes appearance permanently
    - Orthodontic braces often needed

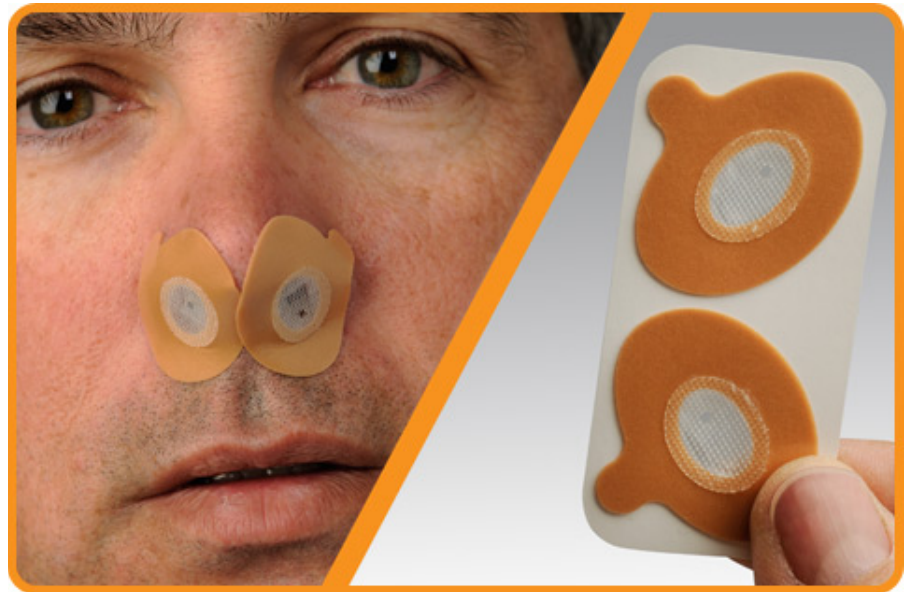
- After having any sleep apnea surgery, you will need to have another sleep study to see if it worked





# Provent Therapy

“Sticky things for the nose”



- One-way valve attached to adhesive
- When you inhale: you breathe normally
- When you exhale: the valve closes
  - creates a build up of pressure that holds the airway open



- Must be able to breathe through your nose
- Must have sleep study while wearing Provent to see if it works
- Decreases sleep apnea by about 50%



# Cannot be used if:

- Severe respiratory disorder
- Severe heart disease, CHF
- Low blood pressure
- Upper respiratory infection
- Ear infection
- Perforation of the ear drum
- You can't breathe through your nose
  - Congestion, allergies

# Oxygen is NOT a treatment option for OSA

- If airway closed, oxygen won't help
- You still have frequent awakenings and cardiovascular risks/complications
- Sometimes used to treat central sleep apnea

# Other things that are helpful...

- Regardless of which treatment you choose, there are other things that will help your OSA

# Lose weight!

- Even small amounts of weight loss can help!
  - 10-20 pounds can make a big difference
  - For every 1% of body weight lost, AHI decreases ~3%
  - Will lower CPAP pressure needs
- Consider seeing a dietician



- Avoid alcohol before bed



- If possible, stop medications that make sleep apnea worse
  - Talk to your doctor before stopping any medications





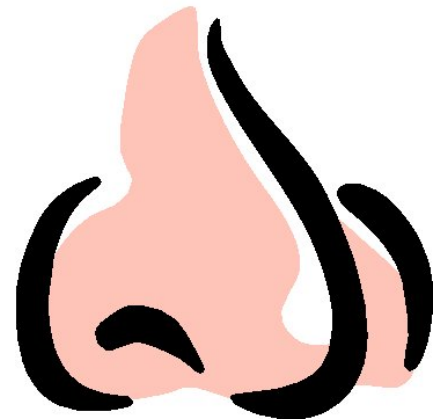
# Avoid sleeping on your back

- Wear a fanny pack/backpack with tennis balls inside
- Lots of options available online



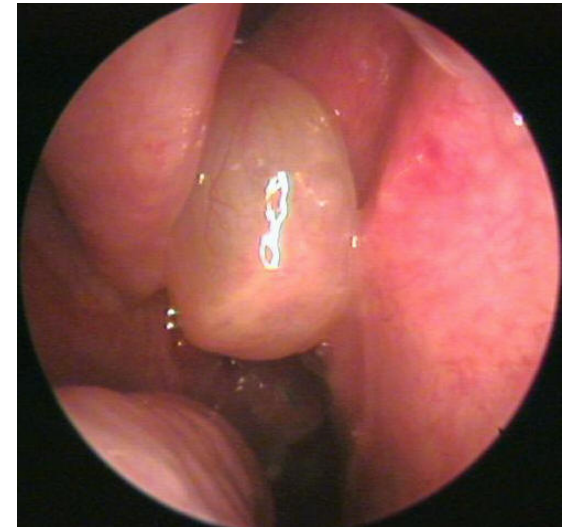
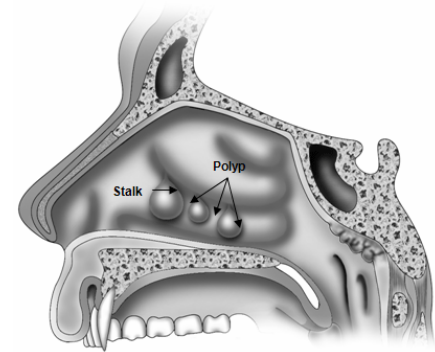
# Deal with your nose

- Talk to your doctor about:
  - Allergies
  - Sinus congestion
  - Nasal blockages
- Nasal problems can:
  - Worsen sleep apnea
  - Increase CPAP pressure needs
  - Make CPAP more difficult to tolerate



# Sinus surgeries are often helpful

- Don't usually cure OSA
- Can decrease CPAP pressures
- Make CPAP easier to tolerate



- After having any nasal/sinus surgery, you will need to have another sleep study to reassess your sleep apnea and CPAP pressure needs



# Take home message:

- Sleep apnea is common
  - Sleep apnea is serious
  - There is treatment available
- 
- CPAP is the best and most common treatment
  - Sleeping with CPAP is an adjustment
  - There is help out there!

# QUESTIONS???

Please visit:  
[www.advancedsleeplabs.net](http://www.advancedsleeplabs.net)

