

SLEEP APNEA & COPD

Village Sleep Lab Breathing Center

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American Academy of Sleep Medicine
www.VillageSleepLab.com**

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Thank You !!!

- John Vance, Leesburg Rotary Club
- Heather Ellington, Office Manager
- Miyoshi Scott, Nurse
- Susana Perez, Assistant
- All of you for coming today

Good Sleep Habits: Basics

- Regular times for sleeping and **awakening**
- Maintain bedroom dark, quiet, cool
- Use bed only for sleep and sex
- Avoid late daytime naps
- Avoid at night: alcohol, caffeine, nicotine
- Sleep around 7 to 8 hours every night
- Prudent exercise and eating
- Beware of sleep debt
- Test: spontaneous times for sleep & awakening

Common Sleep Disorders

- **Insomnia:** wants to sleep but cannot
- **Sleep Deprivation:** does not want to sleep but can; problem of sleep *quantity*
- **Sleep Apnea:** sleepy during day, snores (throat obstruction) at night, problem of sleep *quality*
- **Restless Legs Syndrome:** leg discomfort, relief with movement, worse at rest & in evening
- **Parasomnias:** abnormal sleep behaviors
- **Circadian Rhythm Disorders:** sleep clock not in harmony with the environment, jet lag

Insomnia: Acute or Chronic

- Insomnia: inability to get to sleep, stay asleep, wakes up early, with daytime impairment
- Acute Insomnia (<4 weeks): stress, illness
- Sleep medicines work well in acute stage
- Chronic Insomnia: >4 weeks, often years
- Treat basic problem: 50% psychoneurological, 30% medical, rest are Primary sleep disorders
- Psychotherapy and behavioral therapy better than medicines, not easy to treat

Sleep Deprivation

- **Common problem especially in young**
- **Disasters:** Exxon Valdez, Challenger Space Shuttle, Chernobyl Nuclear Plant, Commuter plane crash in Kentucky
- 33% of fatal truck **accidents**
- 10% of fatal car accidents
- **Impairment the same whether: drunk, sleep deprived (<4-6hrs.), sleep apnea**
- Must be taken seriously: sleep 7-8 hours
- Leads to obesity and diabetes

Restless Legs Syndrome

- Leg discomfort, worse at night, brought on by rest and inactivity, relieved by movement
- Affects 5-10% of population, mostly mild
- Familial, often begins in childhood, during pregnancy
- If moderate or severe can lead to insomnia, and social embarrassment
- Associated with iron deficiency (ferritin), drugs, movements during sleep
- Easily treatable with medicines

Sleep Apnea: Risk Factors

- Affects: 4 to 5% of population: common
- Family history, Sleep maintenance insomnia
- Obesity: 80 % of sleep apnea patients; central (visceral, apples) obesity
- Increasing age, Male gender
- Large tonsils / adenoids in children
- Small mandible, large neck
- Neuromuscular weakness, excess tissue
- Elderly & women: little snoring & not obese

Sleep Apnea: Consequences

- **Night:** snoring, stops breathing snorting, gasping, bed partner worries
- **Night:** worse GERD, Asthma, COPD, CHF, Arrhythmias, hyperglycemia, hypertension
- **Day:** sleepy, tired, depressed, irritable, impotent, forgets, ? few complaints
- **Accidents:** work, home, motor vehicle
- **Higher death rates** with severe sleep apnea
- **Hypertension, Heart Failure, Heart Attacks**
- **Strokes, Atrial Fibrillation**
- Promotes *Obesity* and *Diabetes*

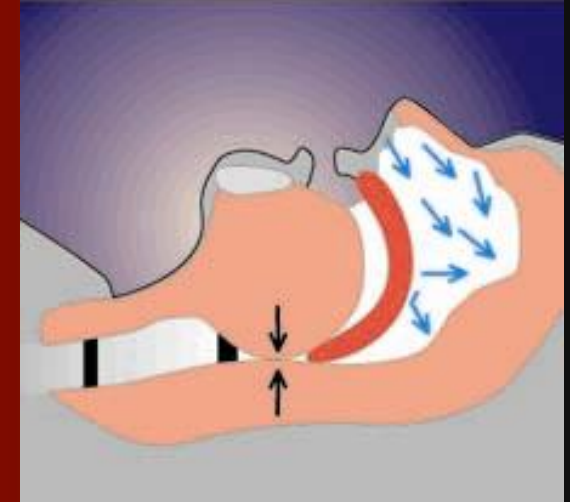
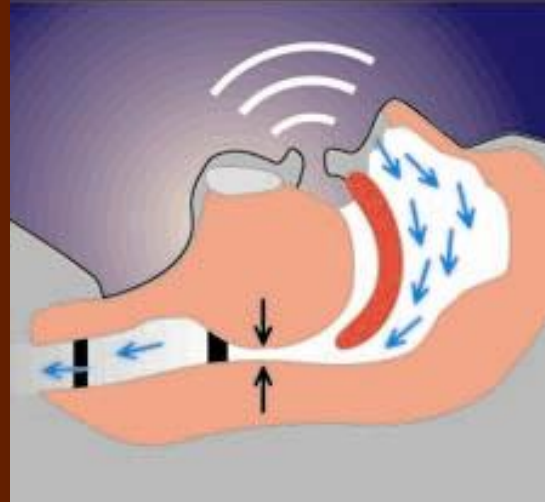
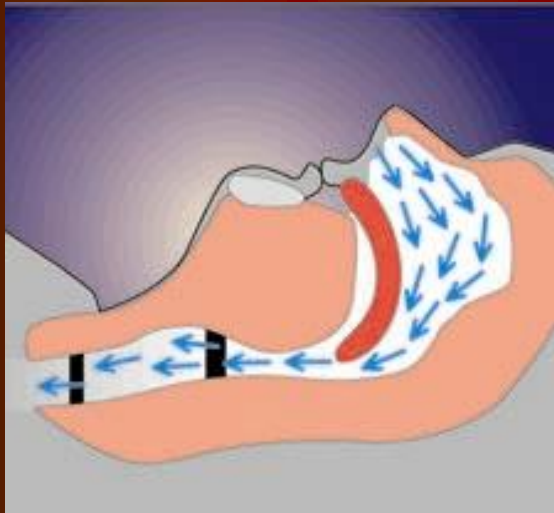
Obstructive Sleep Apnea

What is OSA?

- NO AIRFLOW DESPITE RESPIRATORY EFFORT
- NORMAL

SNORING

SLEEP APNEA



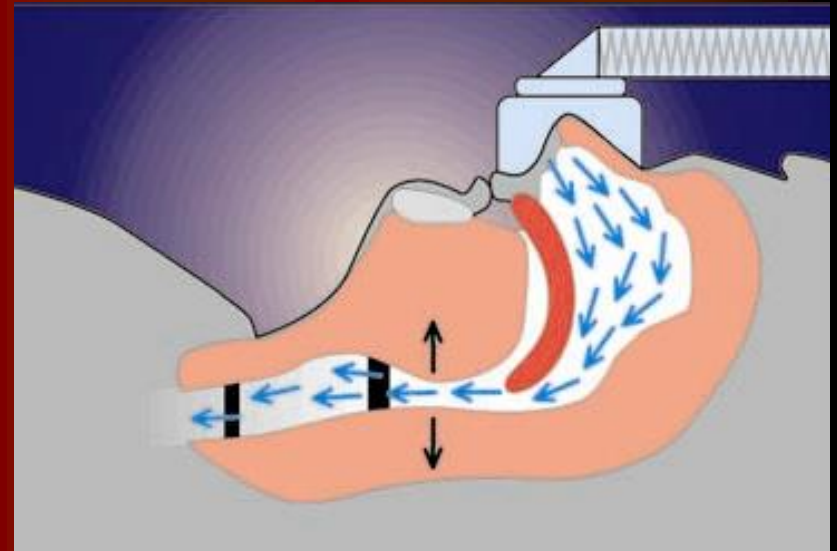
Sleep Apnea: Treatment

- **General:** *Weight Loss, Sleep Position* (Sleep on side, head raised), *Oxygen, Avoid sedatives, alcohol, nasal congestion*
- **CPAP:** proven therapy, needs motivation: widely available, 70%: patients adapt well
- **Dental or Oral appliances:** also pull forth mandible or tongue; expertise necessary
- **Surgery:** tracheostomy, tonsillectomy, pull forth mandible or tongue
- **Bariatric Surgery:** banding, bypass, can lessen but not necessarily cure sleep apnea

Treatment Options: CPAP

**Continuous Positive
Airway Pressure:
CPAP**

**Keeps airway open
100% effective, simple**



Problems with CPAP

- **1/3 love CPAP, 1/3 tolerate it, 1/3 hate it**
- 90% of problems with CPAP are with masks
- 3 types of masks: **full face, nasal, pillows**
- Change size, style, manufacturer, *patience*
- Leaks common early on: mouth, mask
- After 2 weeks less leaks as brain adjusts
- At least try for 2 months, if severe sleep apnea then 3 months
- Involve vendor, support group, doctor's office

Medicare Criteria for CPAP: 2010

- Patient is evaluated by a physician who documents symptoms & signs suggestive of sleep apnea and then orders sleep study
- Sleep study afterwards must be done in an **accredited** center that documents sleep apnea according to **Medicare or insurance criteria**
- A **Board Certified physician in sleep medicine** interprets the study
- Physician follows CPAP patient and documents **subjective and objective improvement within 3 months** so that insurance will continue to pay for CPAP

Home Sleep Studies

- ***Not intended*** for patients with: heart disease, lung disease, neurological disease, little home support
- ***Not intended*** for patients that may have: central apnea (?), behavioral disorders, periodic leg movements
- **Artifacts** or recording problems negate many studies (10 – 15%)
- **Interpretation** a problem, too much company intervention
- Will improve in the future

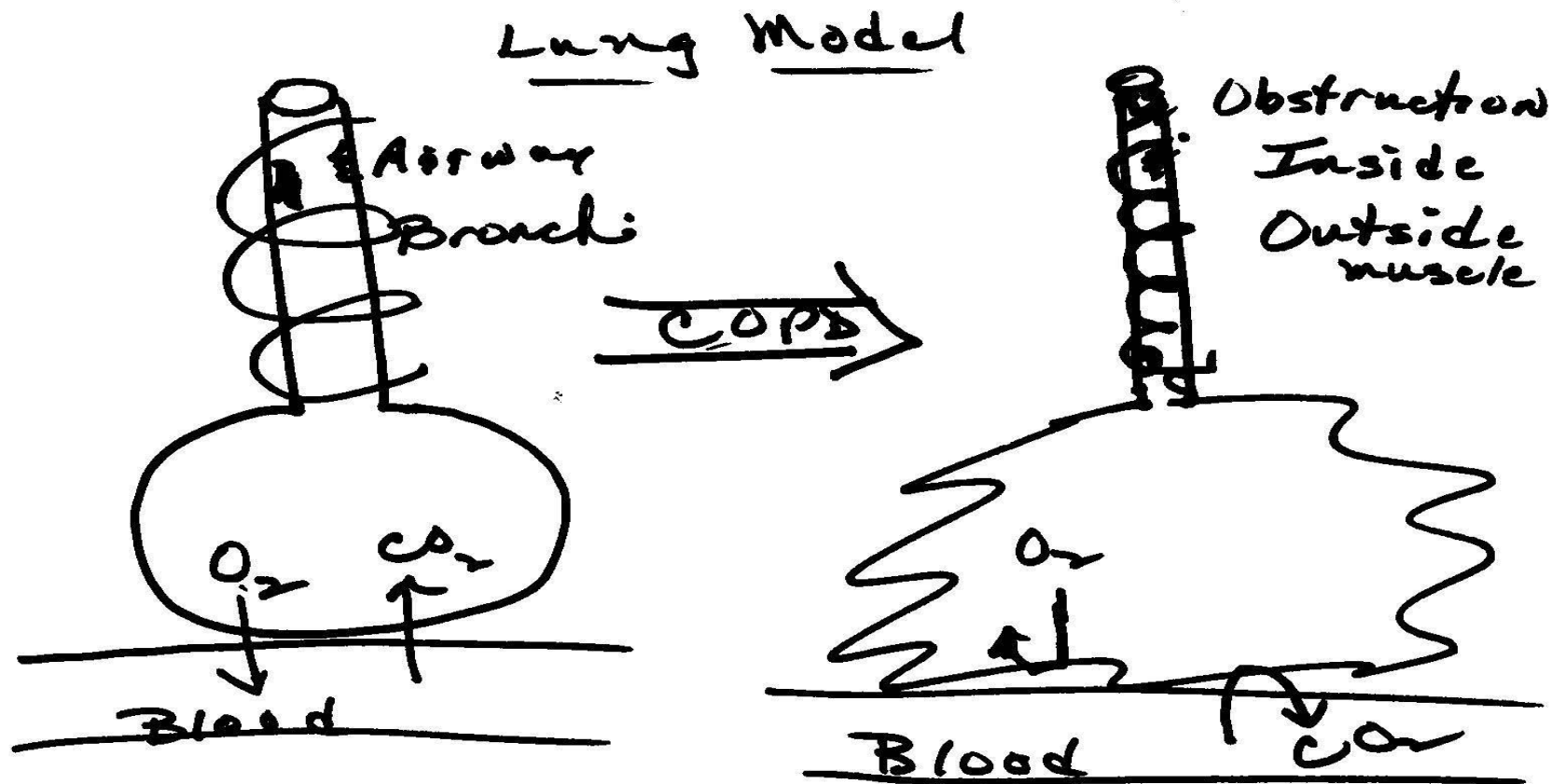
Summary: Sleep Apnea

- **Very common and dangerous**
- **Easily diagnosed and treated**
- **Benefits of treatment: sleep better at night, also...**
- **Feel better during the day:** less sleepiness and fatigue, more energy, less accidents
- **Reduce risk factor** for heart disease & strokes
- **Control better:** obesity, diabetes, hypertension depression
- **Bed partner sleeps better:** less noise and less worry

Lung: Definitions

- Lung model: tube with a balloon at the end; bronchioles are the tubes and alveoli are the balloons
- Chronic Bronchitis: cough with phlegm for 2 years; bronchioles involved
- Emphysema: destruction of lung tissue, with no scarring; alveoli involved

Lung Model: Tube & Balloon



COPD: Chronic Obstructive Pulmonary Disease



Risk Factors for COPD

- Smoking cigarettes
- Smoking cigars and pipes
- Congenital / Genetic factors
- Alpha 1-antitrypsin deficiency (rare)
- Occupational exposure
- Pollution (indoor, outdoor)
- Infections, and ongoing inflammation cause progressive disease

COPD: Epidemiology

- 5% of population, 10% of those over 65
- 3th leading cause of death in USA & world
- Only major cause of death that is rising, especially in women
- **Overlap Syndrome:** COPD & Sleep Apnea: common, worsen each other, more low oxygen at night, more weakness, shortness of breath during day
- CPAP or BIPAP can be used to treat both

COPD: Epidemiology

- Smokers: 15 to 20% develop COPD
- COPD: 10% never smoked
- Smoking has decreased: 1965: 42% and 2006: 21% of adults in USA
- Reduction in smoking has impacted COPD and lung cancer
- Women more susceptible than men
- Younger age more susceptible

COPD: Epidemiology

- 122,000 deaths in 2003, 63,000 in women
- More women than men die of COPD
- Lung cancer caused 157,000 deaths in 2003, 69,000 in women
- By comparison: AIDS caused 18,000 deaths in 2003, and breast cancer 40,000 deaths
- In 2008 COPD surpassed Strokes as a cause of death in USA

COPD: Epidemiology

- 12 million Americans diagnosed with COPD
- But probably another 12 million not diagnosed, even with moderate disease
- Pulmonary symptoms are ignored or activity is curtailed until a crisis occurs, hospitalization from exacerbation
- Disease diagnosed less often in women

Symptoms of COPD

- Cough and sputum
- Shortness of breath (dyspnea)
- Wheezing
- Weakness and fatigue
- Sleep disturbance
- Reduced exercise, activity, mood
- Severe COPD: weight loss, edema, respiratory failure

Diagnosis of COPD

- Based on: Risk factors Symptoms Physical Exam
- And basic testing: **Spirometry** (function), Chest X-ray (anatomy)
- Other tests: Oximetry, 6 minute walk test Arterial Blood Gases, CT Scan, Pulmonary Exercise Test
- By Medicare and most insurance standards pulmonary tests necessary to diagnose COPD
- Often shortness of breath and wheezing due to other diseases: Asthma, Heart Disease, Sinusitis, Pulmonary Fibrosis

Treatment of COPD

- Smoking cessation: most important of all
- Drugs or medicines
- Oxygen: during night, with exercise, all the time
- Pulmonary Rehabilitation
- Surgery for emphysema
- Severe exacerbation: BIPAP or Ventilator
- Control: allergies, exposures, heart disease
- Preventive measures: vaccinations
- Overall objectives: alleviate daily symptoms, prevent exacerbations, avoid progression

Inhaled Medications: Technique

- Proper technique must be taught well and constantly reinforced
- Studies show over 70% of patients use inhalers improperly
- Even when properly taught, 50% go on to forget the proper technique
- Nebulizers cheaper and easier to use

Pulmonary Rehabilitation

- Program of exercise or conditioning, breathing retraining, education, and psycho/social support
- Benefits are proven: less dyspnea, increase activity, better oxygen saturation, feel better, less exacerbations/hospitalizations, ?more life
- Exercise: endurance involving legs, and resistance or weights involving arms
- Dancing, Tai Chi, Yoga also include balance

Websites

- **The Village Sleep Lab: VillageSleepLab.com**
- National Sleep Foundation: sleepfoundation.org
- American Sleep Apnea Association: sleepapnea.org
- Restless Legs Syndrome Foundation: rls.org
- American Academy of Sleep Medicine: sleepeducation.com
- American Thoracic Society: thoracic.org/section/copd/
- Global Initiative on COPD: goldcopd.com
- COPD Foundation: copdfoundation.org
- American Lung Association: lungusa.org
- Smoking Cessation: smokefree.gov