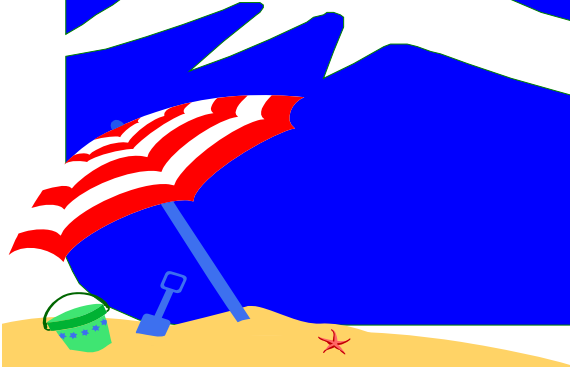
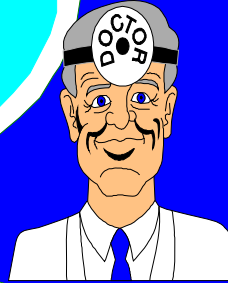


Alexandria Workshop on Snoring & OSA Surgery



ALEXANDRIA WORKSHOP ON SNORING & OBSTRUCTIVE SLEEP APNEA SURGERY 9 -10 April 2009

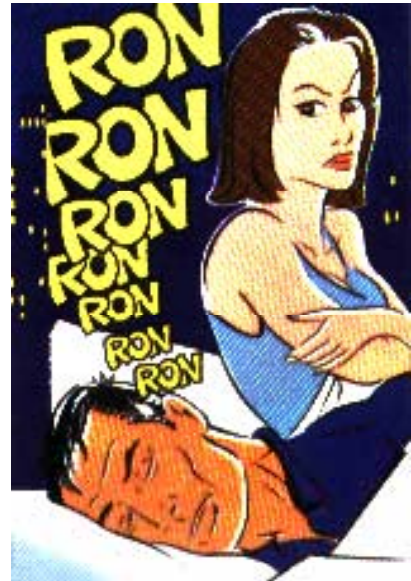
Course Director: *Yassin Bahgat MD* *Claudio Vicini MD*

Course Board: *Filippo Montevercchi MD* *Pietro Canzi MD*



Snoring & Obstructive Sleep Apnea

- ⌘ The basic information
- ⌘ Diagnostic Techniques
- ⌘ Treatment modalities



What is Snoring??

Snoring

Music to Whose Ears?

Snoring represents obstructed breathing and can be a manifestation of or can lead to more serious health problems



What is Obstructive Sleep Apnea??

Repeated collapse of the upper airway
during sleep



Cessation of respiration
OSA



Habitual snoring & OSA

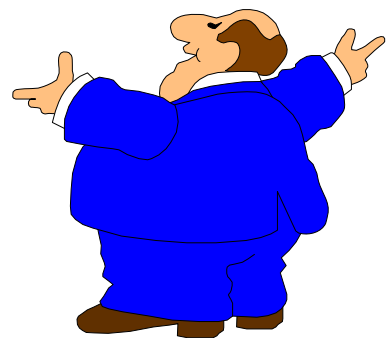
Incidence:

& Snoring:

- 20-25% of adults.
- Increase prevalence with age
- More among males
- More among obese

& OSA:

- 4% of adults

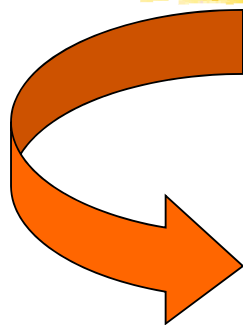


Social Effect of Snoring



- Loud Snoring is disruptive to family life
- Some snorers make frightening sounds suggesting that each breath may be the last
- Bedpartners become consumed with plotting strategies to get to sleep:
 - ↑ sleeping pills, ear plugs, ear muffs
 - ↑ pushing the snorer out of bed
- Recently legal courts consider snoring as grounds for divorce

Noises of Snoring



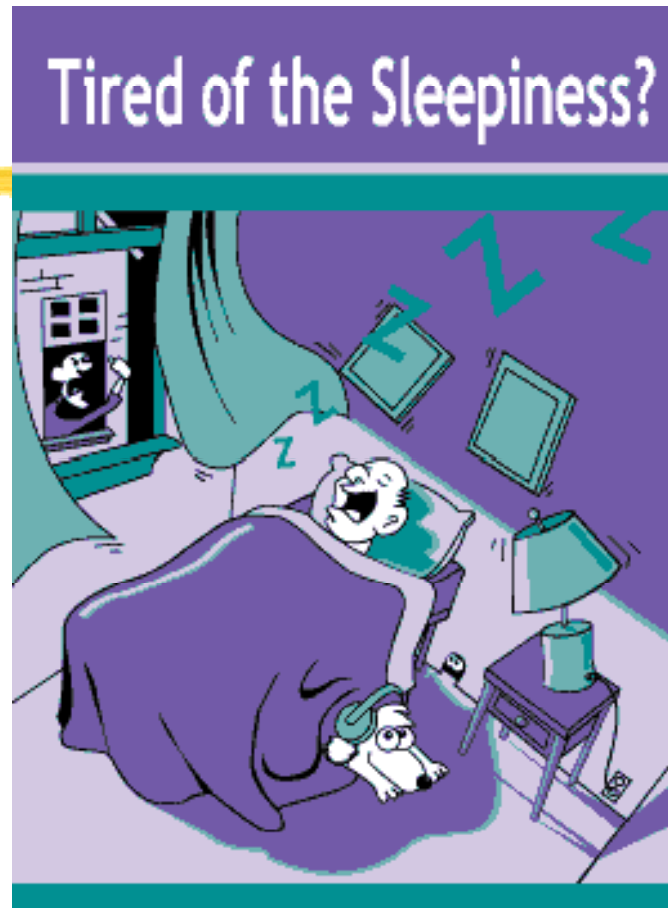
Difficult to ignore because of their inherent irregularity



OSA



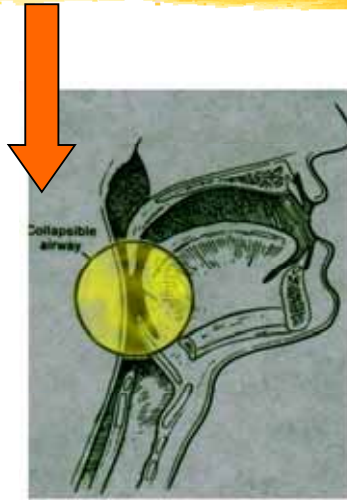
Chronic
cardiopulmonary
& neurological
sequelae



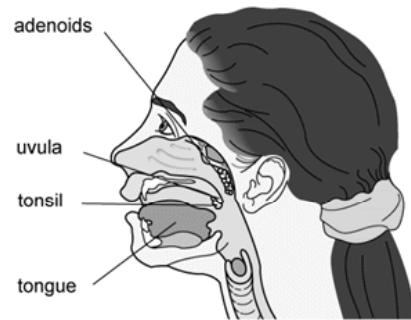
Pathophysiology of Snoring

- ❖ **Incompetent tone of palatal, pharyngeal, & glossal muscles**
 - ❖ fail to maintain airway patency during inspiration
- ❖ **Space occupying masses i.e. , tonsils, adenoids, cysts, tumors, tongue**
 - ❖ compromise the pharyngeal airway.
- ❖ **Excessive length of the soft palate & uvula**
 - ❖ narrows the nasopharyngeal aperture.
- ❖ **Nasal obstruction**
 - ❖ creates excessive -ve pressure in the collapsible pharyngeal airway during inspiration.

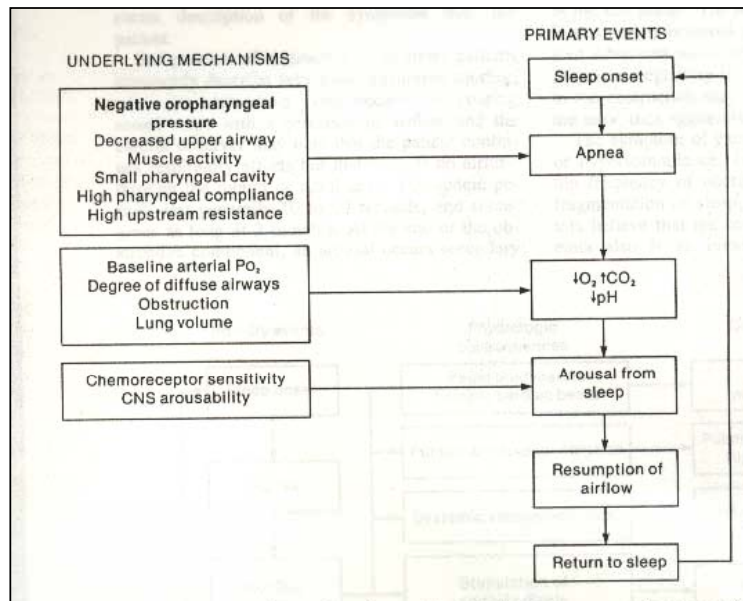
Collapsible Airway (No rigid support)



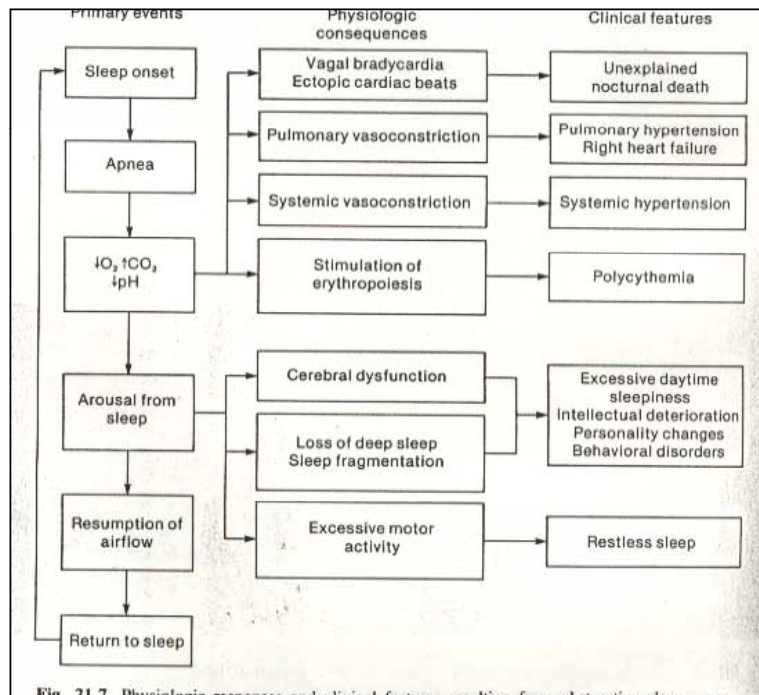
Tissues that can affect snoring



Pathophysiology of OSA



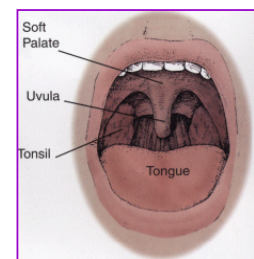
Physiological response & clinical features resulting from OSA



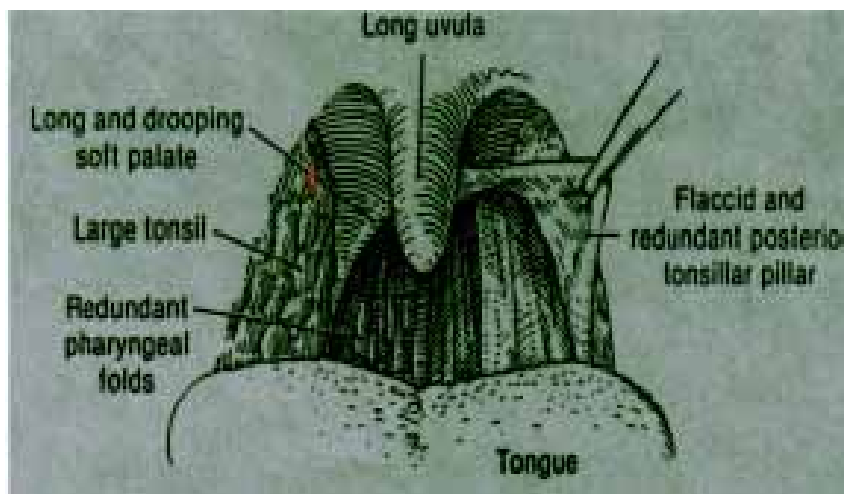
Obstructive Sleep Apnea

Anatomical abnormalities:

- ☞ Redundant oropharyngeal tissue
 - Large edematous uvula
 - Wide posterior pillar mucosa (web formation)
 - Redundant pharyngeal mucosal folds
- ☞ A low palatal arch with a long soft palate
- ☞ Large tongue, mandibular retro or micrognathia
- ☞ Floppy epiglottis & redundant aryepiglottic folds
- ☞ Hypertrophied lingual or palatine tonsils
- ☞ Redundant lateral pharyngeal walls



Common anatomical features of snorers



Upper Airway Anatomy in OSA

Classification:

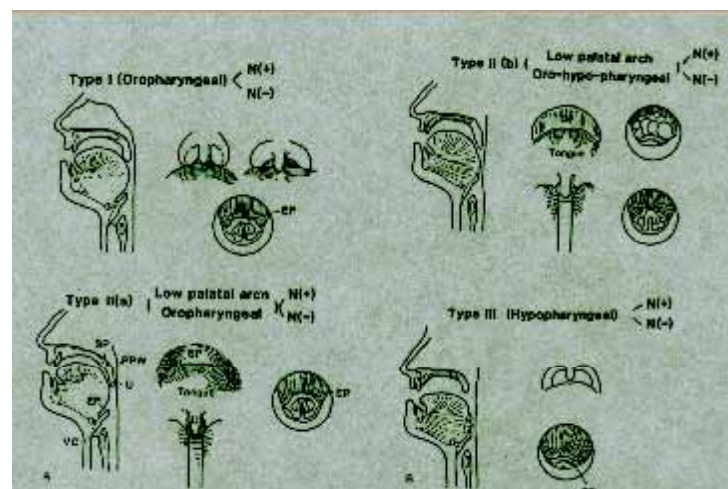
⌘ 3 Types:

⊞ I, II & III

⌘ Add N:

⊞ N(+): nasal obst

⊞ N (-): no nasal obst



Obstructive Sleep Apnea

Symptoms:

- ▲ Loud snoring
- ▲ Restless sleep with excessive motor activity
- ▲ Hypersomnolence
- ▲ Personality changes, poor mentation
- ▲ Hyperactivity & antisocial behavior
- ▲ Nocturnal enuresis & sweating
- ▲ Morning headaches & exhaustion
- ▲ Sexual impotence

 Snoring Or
OSA

IF YES

OSA



WHAT'S YOUR SNORE SCORE?

Your answers to this sleep quiz will help you decide whether you may suffer from sleep apnea:

1. Are you a loud, habitual snorer?

Yes No

2. Do you feel tired and groggy on awakening?

Yes No

3. Are you often sleepy during waking hours and/or can you fall asleep quickly?

Yes No

4. Are you overweight and/or do you have a large neck?

Yes No

5. Have you been observed to choke, gasp, or hold your breath during sleep?

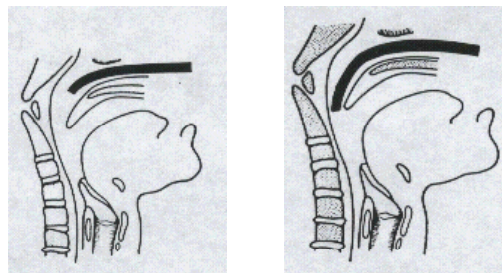
Yes No

Obstructive Sleep Apnea

Special studies:

- ◆ Fiberoptic Endoscopy
- ◆ Cephalometric analysis
- ◆ CT scan & MRI
- ◆ Polysomnography

Fiberoptic Endoscopy



⌘ The fiberoptic endoscope is passed transnasally to ***observe the upper airway patency at two different levels:***

- ☒ Oropharyngeal level (soft palate & junction of the nasopharynx)
- ☒ Hypopharyngeal level (just above the epiglottis)

Fiberoptic Endoscopy

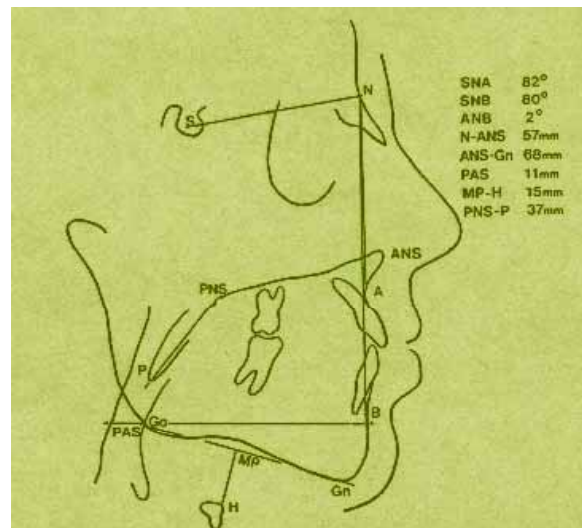
⌘ *Mueller's maneuver:*

Forced inspiratory effort with the mouth and nose closed & note the site and degree of airway collapse

⌘ *Sleep endoscopy:*

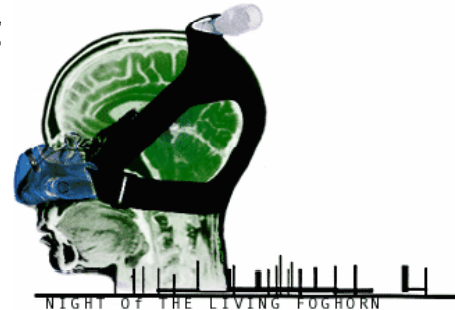
- ⊞ Induction of sleep (IV Propofol)
- ⊞ Introduce endoscope slowly
- ⊞ Video recording during introduction & withdrawal of the endoscope

Cephalometrics



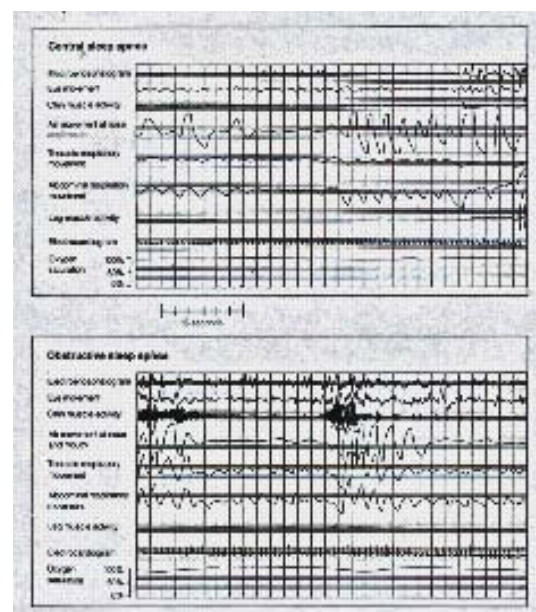
Polysomnography

- ❖ Diagnosis of sleep apnea
- ❖ Differential diagnosis of apnea:
 - Obstructive
 - Central
 - Mixed
- ❖ Determine severity of apnea:
 - Mild
 - Moderate
 - Severe



Polysomnography

- EEG
- Chin muscle activity
- Eye movements (sleep stage)
- Air movement at nose & mouth
- Thoracic & abdominal movements
- Oximetry (O2 saturation)
- ECG (cardiac rhythm)
- Leg movement



Updated treatment modalities for Snoring & OSA



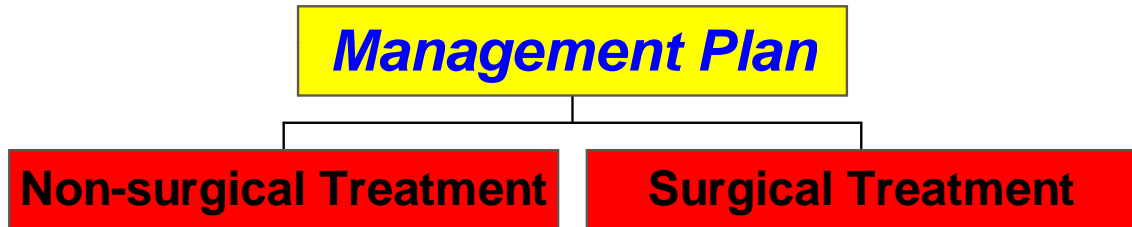
Management Team

- ⌘ Sleep specialist
- ⌘ Pulmonary physician
- ⌘ Otolaryngologist



- ⌘ Oral surgeon
- ⌘ Cardiologist
- ⌘ Neurologist
- ⌘ Psychiatrist

Management



Management



& Nonsurgical measures:

- ⊙ Weight loss, Sleep positioning, Avoidance of alcohol, tobacco, and certain drugs.
- ⊙ Mechanical ventilation (CPAP or BiPAP).
- ⊙ Dental prostheses (mandible advancement prostheses & tongue restraining devices).



Surgical Treatment

Indications for surgical treatment



3 basic factors

- ◆ Severity of medical complications
- ◆ Socioeconomic compromise
(disabling daytime sleepiness)
- ◆ Socially disturbing loud snoring

Criteria for surgical treatment

- ⌚ Low surgical risk (safety)
- ⌚ Low incidence of complications
- ⌚ Minimal morbidity or functional impairment
- ⌚ Reasonable success rate

Surgical Plan

- ⌘ The level of obstruction responsible for snoring or apnea should be determined by careful upper airway anatomical assessment
- ⌘ Often, more than one site of anatomical narrowing is involved

Management

& Surgical measures:

I. Enlarging & stabilizing the airway:

- ★ Nasal airway procedures.
- ★ Partial palatal resection.
- ★ Tongue base resection.
- ★ Orthognathic procedures.

II. Bypass the upper airway:

- ★ Tracheostomy.

