

The Dentist's Approach to the Airway Exam and How to Use it to Select the Most Effective Appliance for Each Patient



Presented by Rob Veis D.D.S.

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Background and Conflicts of Interests



Rob Veis, DDS

- **CEO Space Maintainers Laboratories (SML).**
- **Inventor and patent holder of a number of oral sleep appliances.**
- **Treating sleep patients and training dentists in dental sleep medicine for over 30 years.**
- **Training dentists in early orthodontic intervention and appliance therapy 38 years.**
- **Practicing Restorative Dentistry for over 40 Years.**

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Disclaimers

The opinions expressed in this presentation are those of the speaker and not necessarily those of the organization or group hosting this event.

The opinions expressed in this lecture should not be construed as advice to care of specific patients.

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Upon completion of this lecture you will:

- Understand the **need to screen every patient** for sleep disordered breathing issues.
- Have a **repeatable method of evaluation and data collection to help you choose** those patients who may benefit from a sleep appliance and/or other methods of treatment.
- Understand that the **medical intervention provided** needs to be dependent upon the patients existing oral and medical conditions. Not every patient is a candidate for a Sleep Appliance!

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ADA Adopts Policy on Dentistry's Role in Treating Obstructive Sleep Apnea, Similar Disorders

House of Delegates adopts official policy statement at ADA 2017 – America's Dental Meeting

October 23, 2017

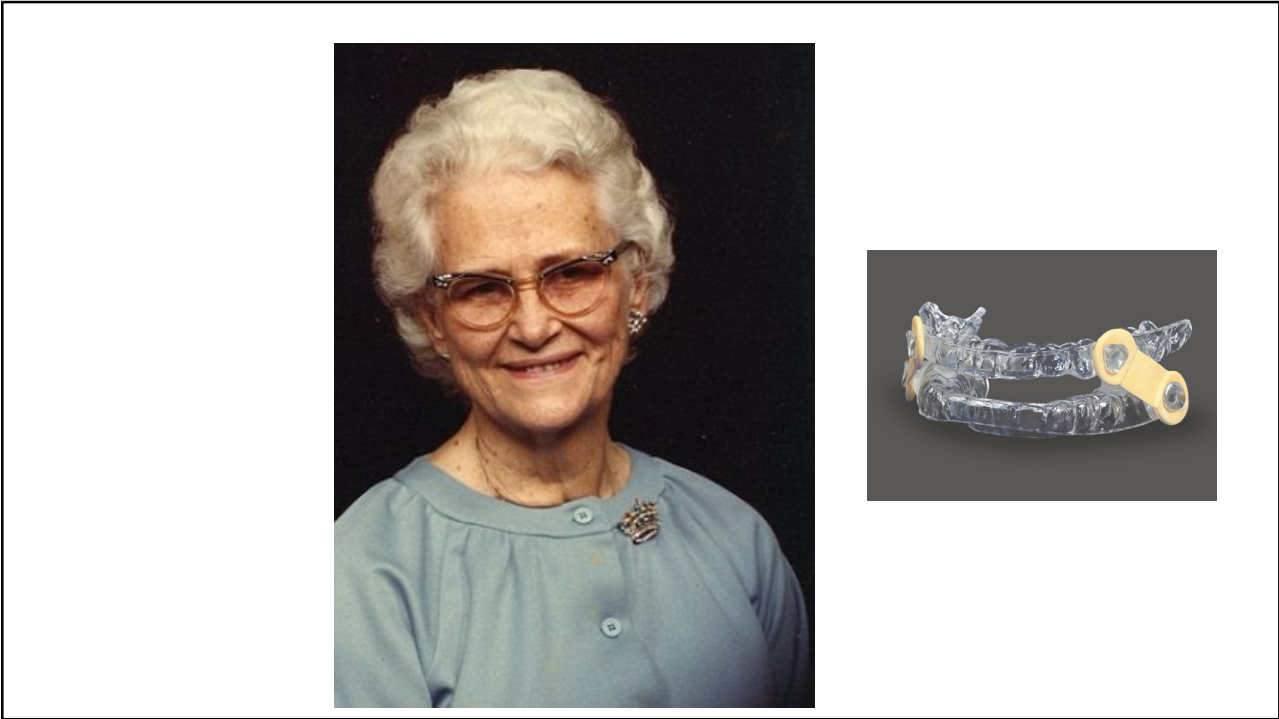
1. Dentists can and do play a role in the care of patients with certain Sleep Related Breathing Disorders and are well positioned to identify patients who are at greater risk of SRBD.
2. Dentists are encouraged to **screen every patient** for SRBD as part of their comprehensive medical and dental history.
3. Dentists are the only health care provider with the knowledge and expertise to provide Oral Appliance Therapy

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Your Typical OSA Patient?

6



7



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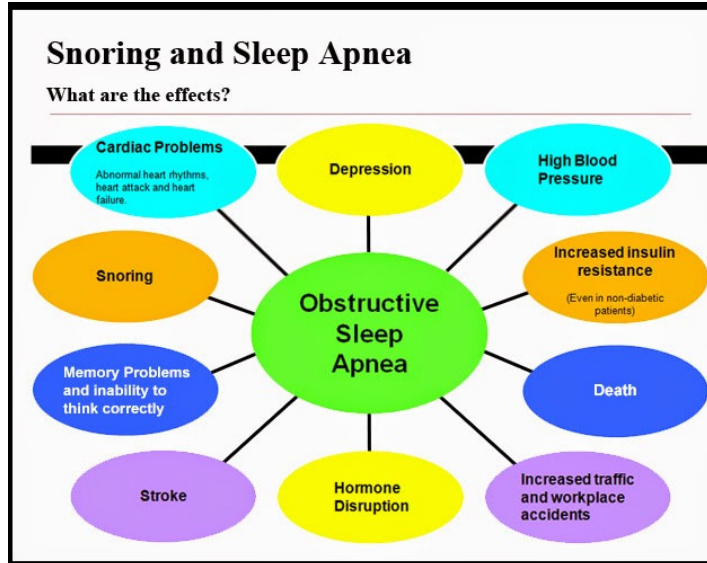


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10

Screen **EVERYONE** by looking at their co-morbidities



11

Symptoms and Screening Questions for Sleep Apnea

- Do you Snore?
- Has your Bed Partner Witnessed pauses in your breathing during sleep?
- Are you tired during the Day?
- Do you frequently wake up at night including sudden awakening with gasping or choking?
- Do you wake up with a dry mouth?
- Do you have difficulty concentrating?

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Symptoms and Screening Questions for Sleep Apnea

- Are you frequently Irritable?
- [Do you have regular Headaches?](#)
- [Do you grind your Teeth?](#)
- Have you experienced a decrease in your sex drive?
- Do you frequently need to urinate at night?
- [Do you experience Heart palpitations](#) or racing heart, particularly at night?

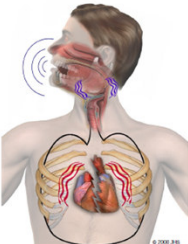
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Comprehensive Sleep Medicine Associates
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888-503-2762 www.CSMA.clinic

Don't Let Snoring Break Your Heart!™

Snoring & problems with sleep are associated with:

- Obstructive Sleep Apnea (OSA)
- Excessive Daytime Sleepiness (EDS)
- Morning Headaches / Jaw pain / TMJ Disorder
- Poor concentration and ADD / ADHD
- Fibromyalgia/ Daytime Fatigue / Irritability
- Chronic Fatigue Syndrome
- High blood pressure / Heart Disease
- Acid Reflux / Type II Diabetes
- Increased risk of heart attacks and stroke
- Ruined relationships
- Bedroom Stress
- and MORE.



Snoring can be a sign of OSA and OSA left untreated can lead to death!

SNORING threatens health, from infants to elderly— The jaw, tongue and throat relax while asleep, making the airway space narrower. This causes a vacuum effect when breathing and the tissue vibrates, causing snoring. This vacuum also spreads to the chest and strains the heart, sucks stomach acids up into the throat, drops oxygen levels and more. When not breathing well night after night, year after year, it leads to the problems listed above. Get the help you need to improve your sleep and enhance your health.

Abnormal, Obstructed Airway
The jaw falls back during sleep, collapsing the airway.
Jaw (Mandible) Falls back
Blocked Airway
OSA from collapsed airway

Dental Appliance Normalizing the Open Airway
Air flow through an unobstructed, open airway during sleep.
Dental Appliance Holding the Jaw (Mandible) in Forward Position
Base of Tongue
Dental Appliance
Soft Palate
Open Airway

Ask Your Dentist About **Dental Appliance for Treating OSA**. Get the **Treatment YOU** Need for a Longer, Healthier Life with Night-After-Night of Restful, Restorative Sleep.

Comprehensive Sleep Medicine Associates,
directed by Triple-Board Certified Neurologist and Sleep Disorders Specialist, Jerald H Simmons, MD

Wall posters can function as screening and education tools. Patient read while waiting and bring their concerns to the dentists or staff

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Simple questionnaire for adults have been used in selected groups



8
Questions

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Simple questionnaires for adults have been used in selected groups, such as the STOP BANG.

STOP questionnaire: a tool to screen patients for obstructive sleep apnea

Frances Chung¹, Balaji Yegneswaran, Pu Liao, Sharon A Chung, Santhira Vairavanathan, Sazzadul Islam, Ali Khajehdehi, Colin M Shapiro

Affiliations + expand

PMID: 18431116 DOI: 10.1097/ALN.0b013e31816d83e4

[Free article](#)

Abstract

Background: Obstructive sleep apnea (OSA) is a major risk factor for perioperative adverse events. However, no screening tool for OSA has been validated in surgical patients. This study was conducted to develop and validate a concise and easy-to-use questionnaire for OSA screening in surgical patients.

Methods: After hospital ethics approval, preoperative patients aged 18 yr or older and without previously diagnosed OSA were recruited. After a factor analysis, reliability check, and pilot study, 49 yes/no questions were used to develop this screening tool. The four questions were respectively related to snoring, tiredness during daytime, observed apnea, and high blood pressure (STOP). For validation, the score from the STOP questionnaire was evaluated versus the apnea-hypopnea index from monitored polysomnography.

Results: The STOP questionnaire was given to 2,467 patients, 27.5% classified as being at high risk of OSA. Two hundred eleven patients underwent polysomnography, 34 for the pilot test and 177 for validation. In the validation group, the apnea-hypopnea index was 20 +/- 6. The sensitivities of the STOP questionnaire with apnea-hypopnea index greater than 5, greater than 15, and greater than 30 as cutoffs were 65.6, 74.3, and 79.5%, respectively. When incorporating body mass index, age, neck circumference, and gender into the STOP questionnaire, sensitivities were increased to 83.6, 92.9, and 100% with the same apnea-hypopnea index cutoffs.

Conclusions: The STOP questionnaire is a concise and easy-to-use screening tool for OSA. It has been developed and validated in surgical patients at preoperative clinics. Combined with body mass index, age, neck size, and gender, it had a high sensitivity, especially for patients with moderate to severe OSA.

The image is a screenshot of the STOP-Bang Questionnaire web form. It features a red octagonal logo with "STOP Bang" and a "STOP BANG" button. The form contains eight questions with "Yes" and "No" radio buttons: 1. Snoring (Do you snore loudly...), 2. Tired (Do you often feel tired, fatigued, or sleepy...), 3. Observed (Has anyone observed you stop breathing or choking/awakening...), 4. Pressure (Do you take or are being treated for high blood pressure?), 5. BMI (Body Mass Index Calculator with height and weight input fields), 6. Age (Are you older than 50?), 7. Neck (Is your neck larger than 43 cm or larger?), and 8. Gender (Male/Female). A "Calculate" button is present. At the bottom, there is a "For general population" section with scoring rules and a "Property of University Health Network" footer.

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Epworth Sleepiness Scale (ESS)

What is your total score from the Epworth Sleepiness Scale?
Choose **1 if score is 0-6** **3 if score is 11-13**
 2 if score is 7-10 **4 if score is > 14**

Situation	Chance of dozing (0-3)			
Sitting and reading	0	1	2	3
Watching television	0	1	2	3
Sitting inactive in a public place - for example, a theater or meeting	0	1	2	3
As a passenger in a car for an hour without a break	0	1	2	3
Lying down to rest in the afternoon	0	1	2	3
Sitting and talking to someone	0	1	2	3
Sitting quietly after lunch (when you've had no alcohol)	0	1	2	3
In a car, while stopped in traffic	0	1	2	3
Total Score				13

0 = would never doze 2 = moderate chance of dozing
 1 = slight chance of dozing 3 = high chance of dozing

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F: (281) 238-8288

THE WOODLANDS
AND CONROE
P: (281) 297-5305
F: (281) 297-6436

AUSTIN
P: (512) 894-7077
F: (512) 894-7080

077
080

BUSINESS OFFICE: 15423 CREEK BEND DRIVE, SUGAR LAND TX 77478

Name: _____ Age: _____ Ht: _____ ft _____ in Wt: _____ lbs Gender (M) (F) (F)
 Phone Number (h) (m) _____ Wk _____ Cell _____ Birth Date _____

1) Have you ever had a sleep evaluation before? Yes No If yes, are you currently using a treatment device regularly? Yes No No

2) What time do you typically go into bed? _____ Your response below should be in the context of how you function while using your device. When do you typically wake-up to start your day? _____ Yes No No

3) Do you have difficulty falling asleep? Yes No How long does it take to fall asleep? _____ back asleep? _____ if yes, do you plan your next day while lying in bed trying to fall asleep? _____ Yes No No

4) Do you have difficulty staying asleep? Yes No How many awakenings per night? _____ Avg. time to return to sleep? _____ Yes No No

5) Do you take medications to fall or stay asleep? _____ if yes, name and dose: _____ Yes No No

6) Do you feel un-refreshed when you awaken to start your day? (non-restorative sleep) _____ Yes No No

7) Do you experience an unsettled, restless sensation in your legs while lying in bed while awake? _____ Yes No No

8) Do you have, or have you been told that you kick or twitch your legs while you are asleep? _____ if yes, how often? _____ Barely (25%) _____ All the time (100%) _____ Most of the time (75% or more) Yes No No

9) Do you snore at night? _____ if yes, how would you rate the severity? Mild Moderate Severe Yes No No

10) Have others told you that you have pauses in breathing or gasping sounds while sleeping? _____ if yes, how frequent are the pauses or gasping? _____ Throughout the night _____ Frequently _____ Occasionally Yes No No

11) Does your bed partner frequently sleep in another room because of how you sleep? _____ (No bed Partner) ...or _____ Yes No No

12) Check those that apply to you:
 Do you frequently wake up with: _____ a dry mouth _____ headaches _____ excessive sweating _____ heart burn _____ chest pain
 _____ clenching (jaw) (or grinding teeth) in sleep _____ itching in jaw or throat pain
 _____ choking or gagging _____ drooling on the pillow _____ bed wetting (loss of bladder control)
 _____ nasal congestion on awakening (which was not present when you went to bed)

13) Do you have unusual behaviors in your sleep? _____ if yes, how often? _____ When did this start to occur? _____ Yes No No

14) Do you have difficulty maintaining concentration during the day? _____ if yes, briefly describe what you do in your sleep: _____ Yes No No

15) Are you sleepy during the day? _____ if yes, what part of the night do these typically occur? Within the first 90 minutes, first 3 hrs last 3 hrs of sleep? Yes No No

16) Do you take naps often? _____ if yes, how long? _____ Do you usually dream during these naps? Yes No No

17) Daily consumption of: Caffeinated beverages? _____ Alcoholic drinks? _____ Tobacco Products? Yes No No

18) Do you occasionally awaken feeling paralyzed? _____ Yes No No

19) Do you experience sudden loss of strength in your legs or arms during the day? _____ if yes, is it brought on by a sudden frightening event or laughter? Yes No No

Rank how likely it would be for you to become drowsy (like you're going to fall asleep) during the day in the following situations -- in contrast to just feeling tired in the following situations?
 0 = never become drowsy 1 = rarely become drowsy 2 = frequently become drowsy 3 = always become drowsy

CHANCE OF BECOMING DROWSY	0	1	2	3	SITUATIONS
0	1	2	3		Sitting and reading
0	1	2	3		Watching television
0	1	2	3		Sitting inactive in a public place (e.g. theater)
0	1	2	3		As a passenger in a car for an hour without a break
0	1	2	3		Lying down to rest in the afternoon when circumstances permit
0	1	2	3		Sitting and talking to someone
0	1	2	3		Sitting quietly after lunch without alcohol
0	1	2	3		In a car, while stopped for a few minutes in the traffic

USE A SEPARATE SHEET OF PAPER IF NEEDED TO ANSWER THE QUESTIONS BELOW (NOT THE BACK OF THIS PAGE)

My sleep problems are: _____
 My other medical problems are: _____
 My medications are: _____
 Have you had a sleep study before? Yes No Can you get reports? Yes No Referring Physician: _____
 if so then When and Where? _____
 Have you had surgery for sleep apnea before? Yes No Physician's Office # _____
 Do you have CPAP? Yes No Use Oxygen at night? Yes No _____min Physician's Fax# _____
 Who filled out this questionnaire? _____ Insurance: _____

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1) Have you ever had a sleep evaluation before? Yes No If yes, are you currently using a treatment device regularly? Yes No
 If yes then what type of device? _____ Your responses below should be in the context of how you function while using your device.

2) What time do you typically go into bed? _____ When do you typically wake-up to start your day? _____

3) Do you have difficulty falling asleep? Yes No If yes, about how long does it take to fall asleep? back asleep? _____
 If Yes, do you plan your next day while lying in bed trying to fall asleep? _____ Yes No
 If Yes, do you have racing thoughts going through your mind while trying to fall asleep? _____ Yes No

4) Do you have difficulty staying asleep? Yes No How many awakenings per night? _____ Avg. time to return to sleep? _____

5) Do you take medications to fall or stay asleep? _____ Yes No
 If yes, name and dose _____

6) Do you feel un-refreshed when you awaken to start your day? (non-restorative sleep) _____ Yes No

7) Do you experience an unsettled, restless sensation in your legs while lying in bed while awake? _____ Yes No
 If yes, how often? _____ Rarely (25%) _____ Half the time (50%) _____ Most of the time (75% or more)
 If yes, does movement of your legs calm down the restless sensations at least briefly? _____ Yes No

8) Do you have, or have you been told that you kick or twitch your legs while you are asleep? _____ Yes No

9) Do you snore at night? _____ Yes No
 If yes, how would you rate the severity? Mild Moderate Severe

10) Have others told you that you have pauses in breathing or gasping sounds while sleeping? _____ Yes No
 If yes, how frequent are the pauses or gasping? _____ Throughout the night _____ Frequently _____ Occasionally

11) Does your bed partner frequently sleep in another room because of how you sleep? _____ (No bed Partner) ...or _____ Yes No

12) Check those that apply to you:
 Do you frequently wake up with: _____ a dry mouth _____ headaches _____ excessive sweating _____ heart burn _____ chest pain
 _____ clenching jaws (or grinding teeth) in sleep _____ aching in jaws or TMJ pain
 _____ choking or gasping _____ drooling on the pillow _____ bed wetting (loss of bladder control)
 _____ nasal congestion on awakening (which was not present when you went to bed)

13) Do you have unusual behaviors in your sleep? _____ Yes No
 If yes, how often? _____ When did this start to occur? _____
 If yes, briefly describe what you do in your sleep: _____
 If yes, what part of the night do these typically occur? Within the first 90 minutes, first 3 hrs last 3 hrs of sleep?

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14) Do you have difficulty maintaining concentration during the day? _____ Yes No

15) Are you sleepy during the day? _____ Yes No

16) Do you take naps often? _____ Yes No
 If yes, for how long? _____ Do you usually dream during these naps? _____ Yes No

17) Daily consumption of: Caffeinated beverages? _____ Alcoholic drinks? _____ Tobacco Products? _____

18) Do you occasionally awaken feeling paralyzed? _____ Yes No

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 If yes, is it brought on by a sudden frightening event or laughter? _____ Yes No

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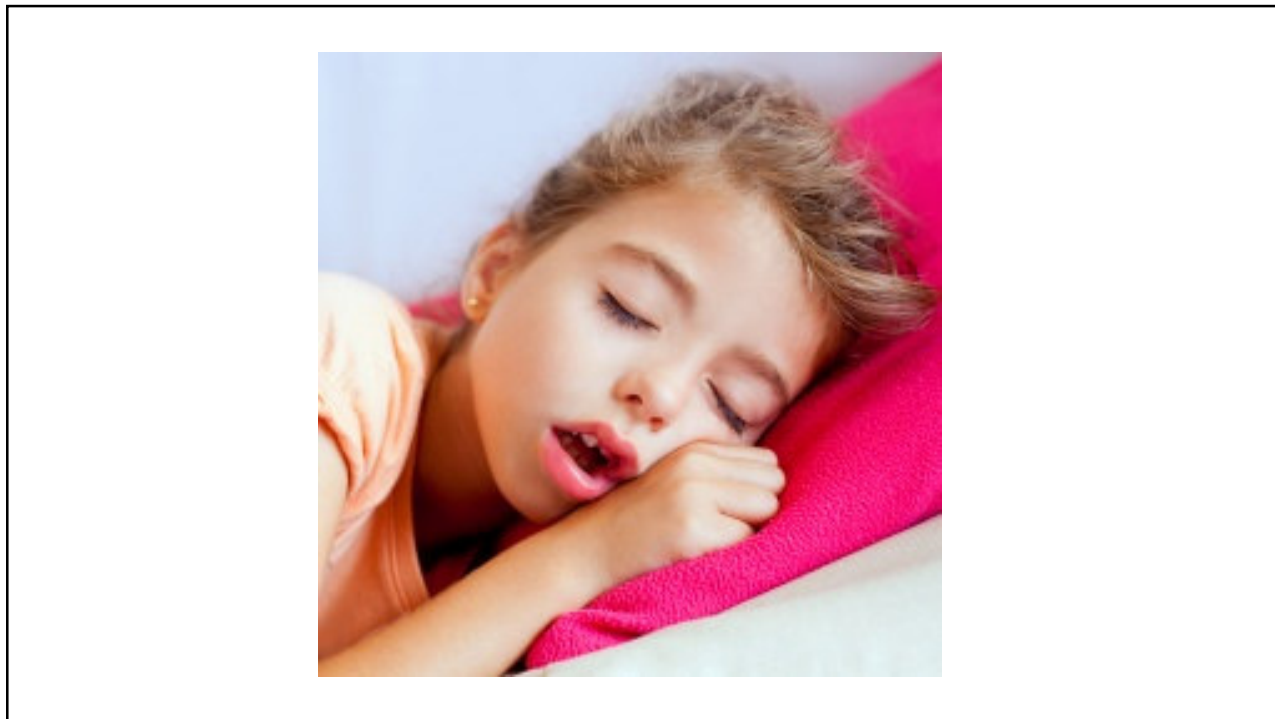
CHANCE OF BECOMING DROWSY	SITUATIONS		
0 1 2 3	Sitting and reading		
0 1 2 3	Watching TV		
0 1 2 3	Sitting, inactive in a public place (e.g. theater)		
0 1 2 3	As a passenger in a car for an hour without a break		
0 1 2 3	Lying down to rest in the afternoon when circumstances permit		
0 1 2 3	Sitting and talking to someone		
0 1 2 3	Sitting quietly after lunch without alcohol		
0 1 2 3	In a car, while stopped for a few minutes in the traffic		

USE A SEPARATE SHEET OF PAPER IF NEEDED TO ANSWER THE QUESTIONS BELOW (NOT THE BACK OF THIS PAGE) _____

My sleep problems are:
 My other medical problems are:
 My medications are:
 Have you had a sleep study before? Yes No
 If so then When and Where? _____ Can you get report? Yes No
 Have you had surgery for sleep apnea before? Yes No
 Do you have COPD? Yes No Use Oxygen at night? Yes No _____ L/min
 Who filled out this questionnaire? _____

Referring Physician: _____
 Physician's Office # _____
 Physician's Fax# _____
 Insurance: _____

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A screenshot of a web browser displaying an article on the Verywell Health website. The browser's address bar shows the URL: verywellhealth.com/surprising-signs-sleep-apnea-children-3015162. The article title is "10 Surprising Signs of Sleep Apnea in Children". Below the title, it says "Watch out for Sleepwalking, Bedwetting, Snoring and Other Signs in Your Child". The author is listed as "By Brandon Peters, MD" and it is noted as "Medically reviewed by a board-certified physician". The article was updated on January 07, 2020. The text begins with: "When you think of sleep apnea, you may not think of a child as the most typical person to have the condition. In fact, you may not think of children as potential sufferers of sleep apnea at all. However, snoring and sleep apnea are increasingly common conditions that can affect children. This...". The page also features a navigation menu, a search icon, and a "PRINT" button.

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ORIGINAL ARTICLE

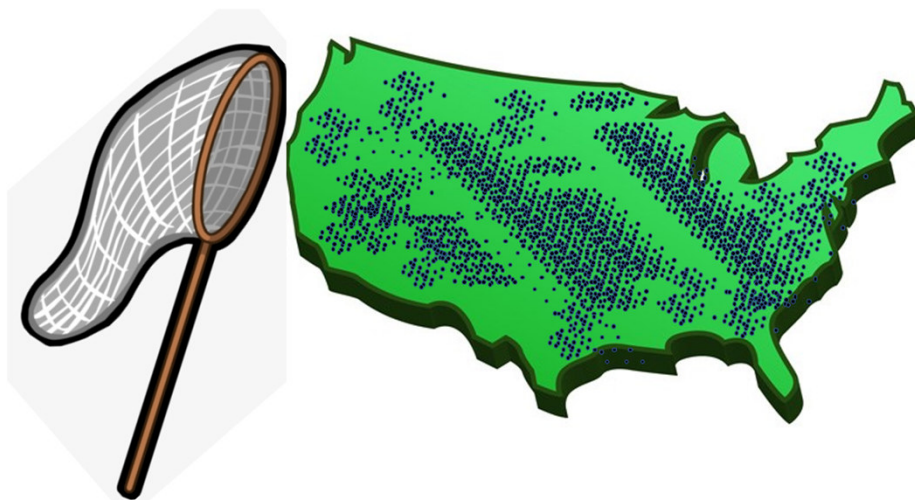
Sleep Disorders in Children Beginning School: Their Causes and Effects

Gerd Lehmkuhl, Alfred Wiater, Alexander Mitschke, Leonie Fricke-Oerkermann

**Prevalence: 25%-43% of children
1-5 years of age**

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**We need to a protocol that would act as a large net
to catch all kids that are at risk of OSA.**



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Screening Questions

- Does your child breathe through their mouth?
- Does your child Snore?
- Can you hear your child grinding their teeth at night?
- Does your child fall asleep during the day inappropriately?
- Is your child Hyper-active?
- Is your child bedwetting?

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C.H.I.C.A.G.O. H.E.A.R.T.S.



Red Flags of Sleep Related Breathing Disorders

- ♥ **C.** Crossbite or Under Bite
- ♥ **H.** Hyperactivity
- ♥ **I.** Incomplete Lip Seal
- ♥ **C.** Crowded Teeth
- ♥ **A.** Allergies
- ♥ **G.** Grinding / Worn Down Teeth
- ♥ **O.** Overweight Child / Open Mouth Breathing
- ♥ **H.** High Palate from Thumb Sucking
- ♥ **E.** Eye Appearance / Enlarged Tonsils / Eczema
- ♥ **A.** Anterior Opening between Teeth
- ♥ **R.** Retruded Chin / Restless Sleep
- ♥ **T.** Tongue Tie or Scalloped Tongue
- ♥ **S.** Sweating during Sleep/Napping

Kevin Boyd, MS, DDS

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Grinding / Worn Down Teeth

Does the child grind their teeth when napping or sleeping?



CHICAGO HEARTS

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High Palate (roof of mouth)

pushed up from prolonged sucking on
thumbs, fingers or clothes



CHICAGO HEARTS

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Eczema

Does the child have eczema?
Did the child have cradle cap?

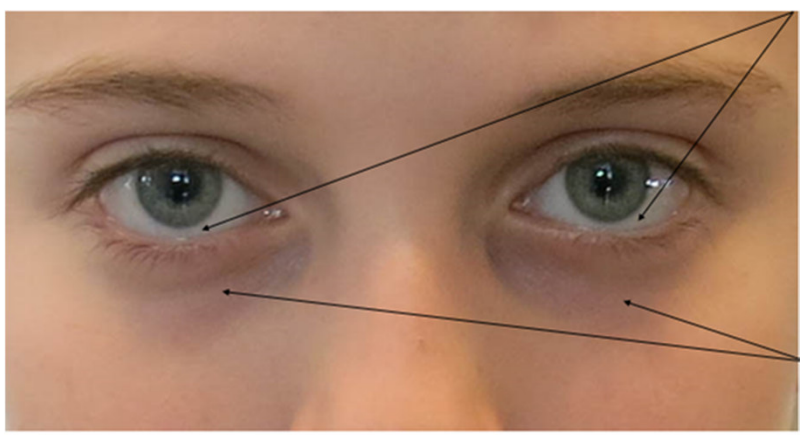


CHICAGO HEARTS

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Eye Appearance



Can you see the whites of the eyes under the colored iris?

Can you see darkening or dark circles under the eyes?

CHICAGO HEARTS

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PSQ – Pediatric Sleep Questionnaire by Ronald Chervin, MD, MS

22 Questions

	Yes	No	Don't Know
While sleeping does your child...			
Snore more than half the time?			
Always snore?			
Snore loudly?			
Have "heavy" or loud breathing?			
Have trouble breathing or struggle to breathe?			
Have you ever...			
Seen your child stop breathing during the night?			
Does your child...			
Tend to breathe through the mouth during the day?			
Have a dry mouth on waking up in the morning?			
Occasionally wet the bed?			
Wake up feeling un-refreshed in the morning?			
Have a problem with sleepiness during the day?			
Has a teacher or other supervisor commented that your child appears sleepy during the day?			
Is it hard to wake your child up in the morning?			
Does your child wake up with headaches in the morning?			
Did your child stop growing at a normal rate at any time since birth?			
Is your child overweight?			
This child often...			
Does not seem to listen when spoken to directly			
Has difficulty organizing tasks			
Is easily distracted by extraneous stimuli			
Fidgets with hands or feet or squirms in seat			
Is "on the go" or often acts as if "driven by a motor"			
Interrupts or intrudes on others (e.g. butts into conversations or games)			

Total Number of "Yes" Responses _____

If eight or more statements are answered "yes", consider referring for sleep evaluation

CHEVINE ET AL. PEDIATRIC SLEEP QUESTIONNAIRE: VALIDITY AND RELIABILITY OF SCALES FOR SLEEP DISORDERED BREATHING, SNORING, SLEEPINESS, AND BEHAVIORAL PROBLEMS. SLEEP MEDICINE 2000;1:21-32

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SLEEP DISORDERS INVENTORY FOR STUDENTS – CHILDREN'S FORM (SDIS - C)

Ages 2 through 10 years

© 2004 Marsha Luginbuehl, Ph.D., Child Uplift, Inc.

30 Questions

Please rate your child/teen's behaviors based on the following rating scale:

- 1 = **NEVER:** The student *never* exhibited this behavior immediately before evaluation.
 - 2 = **RARELY:** The student exhibited the behavior maybe **once every month or two.**
 - 3 = **OCCASIONALLY:** Student exhibited the behavior **3-to-4 times per month.**
 - 4 = **SOMETIMES:** The student exhibited the behavior **several times per week.**
 - 5 = **OFTEN:** Student exhibited this behavior on a **daily basis** before the evaluation.
 - 6 = **ALMOST ALWAYS:** Student exhibited behavior **multiple times per day or night.**
 - 7 = **ALWAYS:** Student exhibited this behavior *multiple times per hour daily or nightly.*
- 1 = Never 2 = Rarely 3 = Occasionally 4 = Sometimes 5 = Often 6 = Almost Always 7= Always

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Myofunctional Therapy Screening

structural

- asymmetrical facial structures / torticollis
- recessed jaw more than 25% (micrognathia)
- tethered tissues
- poor weight gain/failure to thrive
- prematurity (under 37 weeks)

functional

- snoring
- noisy breathing, stridor or open mouth at any time
- reflux, colic, recurrent vomiting
- difficulties in breast and bottle feeding with latch, draining the breast, increased feeding times over 20 minutes
- atypical sleeping positions to promote neck extension

Kristie Gatto
MA, CCC-SLP, COM®

sleep-related breathing disorders in little ones

This list is not all inclusive or comprehensive in nature, but rather a starting point for becoming aware of red flags in younger children.

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Kristie Gatto, MA, CCC-SLP, COM®

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kristie@slchouston.com
www.slchouston.com

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Many Children are Undiagnosed

ALL Children Must Be Screened

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CAST: five categories of signs and symptoms

Air Pathway

Breathing Sounds

Sleep Activities

Morning Conditions

Daytime Function

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C-GASP – Pilot version

Children’s General Airway Screening Protocol



Optimizing Pediatric Airway Health

Doctor's Name _____
First Last Degree

CAST

Children's Airway Screener Taskforce For ages 2 through 12 years old

Child's Initials: _____ Gender (circle): Male / Female Birth Date: _____ Date: _____
Relationship to Patient: Mother Father Guardian Child's Age _____ years _____ months

Oral health has been recognized to be associated with sleep and daytime well-being.

Please fill out this questionnaire so we can address any related health issues in your child.

Directions: Please complete this form by checking "Yes", "No", or IDK ("I Don't Know") for each question.

	YES	NO	IDK
1. Other than when sick, does your child typically breathe with his/her mouth open or lips apart , either while awake or asleep?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Other than when sick, does your child SNORE or have pauses in breathing or STOP breathing while sleeping, or does your child have noisy breathing or difficulty breathing while awake or asleep?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. While sleeping, does your child frequently do ANY of the following: toss and turn, kick, sleepwalk or talk in their sleep, grind or clench teeth, sleep on the stomach, kneel, or sleep with the head extended backwards/upwards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. In the morning, other than when sick, does your child frequently have ANY of the following: difficulty waking up, nasal congestion, dry mouth, jaw pain, or headaches?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Does your child frequently have ANY of the following: unusual sleepiness or tiredness during the day, difficulty sitting still, concentrating, or problems with behaviors, emotions or poor school performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How hard was it for you to complete this form? Easy Average Difficult
If difficult Why? _____

7. How much time did it take you to complete this form?
5 minutes or less 6-10 minutes 11-15 minutes >16 minutes

Thank you for participating to help advance airway health and wellness.

FOR OFFICE USE ONLY:


STAFF _____

Ver 08-30-2020

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C-GASP Level 1 Screener

Children's General Airway Screening Protocol. Developed by the Children's Airway Screener Taskforce (CAST) committee of the ADA



DOES YOUR CHILD FREQUENTLY HAVE ANY OF THE FOLLOWING: *

	YES	NO	I DON'T KNOW
1. Mouth Breathing / Lips Apart either while Awake or Asleep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. While sleeping or napping; snore (even slightly) / have noisy breathing / difficulty breathing / pauses or gasping while breathing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Neck Extended Upwards when Sleeping / Restless Sleep / Frequent Awakenings / Grinding or Clenching Teeth during Sleep?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Upon waking; Dry Mouth / Sore or achy Jaw / Headaches / Stuffy Nose / Difficulty Awakening in the Morning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Daytime Sleepiness or Tiredness / Daily Behavioral or Emotional Issues / Difficulty paying Attention / Hyperactivity / Difficulty at School?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How hard was it to complete this form? *

Easy Average Hard

[Complete](#)

41

To Register to try out the C-GASP in your pediatric patients 2-12 Go to the link or QR code below.

C-GASP Level 1 Screener Registration

Children's General Airway Screening Protocol. Developed by the Children's Airway Screener Taskforce (CAST) committee of the ADA

Clinic Name

Clinic Type:

Clinic Address

Clinician


Phone Number

Email

Contact Person

[Sign up](#)

<https://airwayassessment.azurewebsites.net/register>



42

From Pediatrics to Geriatrics...



43

ADA American Dental Association®

Definition of Dentistry

Resolved, that dentistry is defined as the evaluation, diagnosis, prevention and/or treatment (nonsurgical, surgical or related procedures) of diseases, disorders and/or conditions of the oral cavity, maxillofacial area **and/or the adjacent and associated structures and their impact on the human body**; provided by a dentist, within the scope of his/her education, training and experience, in accordance with the ethics of the profession and applicable law.

- Adopted, American Dental Association House of Delegates, 10/21/97.

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ADA American Dental Association®

The term "**physician**," when used in connection with the performance of any function or action, means: a doctor of medicine or osteopathy legally authorized to practice medicine and surgery by the state in which he performs such function or action (including a physician within the meaning of section 1101(a)(7)); a **doctor of dental surgery or of dental medicine** who is legally authorized to practice dentistry by the state in which he performs such function and who is acting within the scope of his license when he performs such functions; a doctor of podiatric medicine for the purposes of subsections (k), (m), (p)(1), and (s) of this section and sections 1814(a), 1832(a)(2)(F)(ii), and 1835

45

Snoring App To Monitor Trends In A Patients Snoring

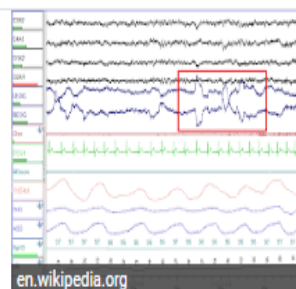


46

Get that test done!

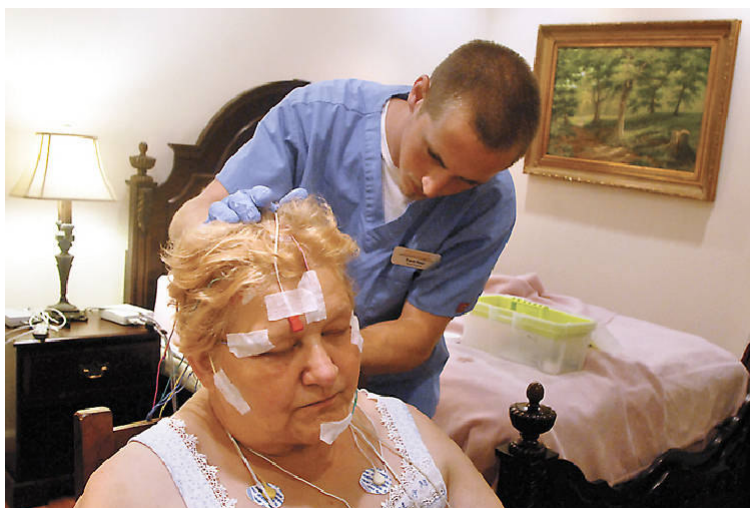
- Order the test
- Refer to the patients primary care physician
- Refer to a sleep specialist

Polysomnography, also called a sleep study, is a test used to diagnose sleep disorders. **Polysomnography** records your brain waves, the oxygen level in your blood, heart rate and breathing, as well as eye and leg movements during the study. Nov 17, 2018



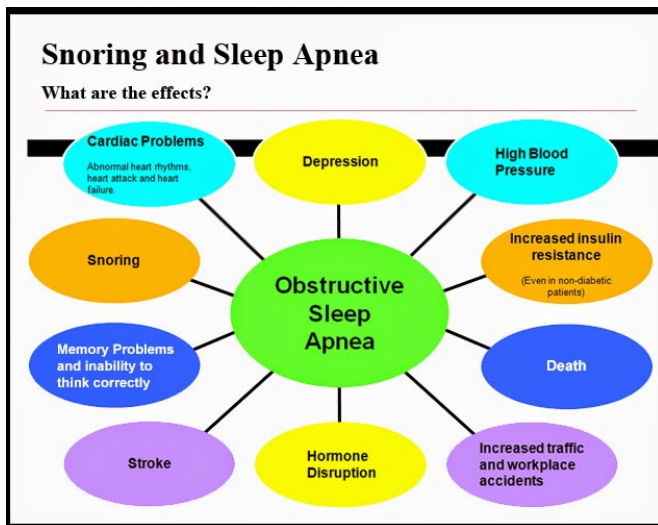
47

Polysomnography



48

No time like the present!



49



50

- Unlike in adults, where an [apnea-hypopnea index \(AHI\)](#) greater than five is considered abnormal, these episodes can occur just **one time per hour in children and be deemed significant.**



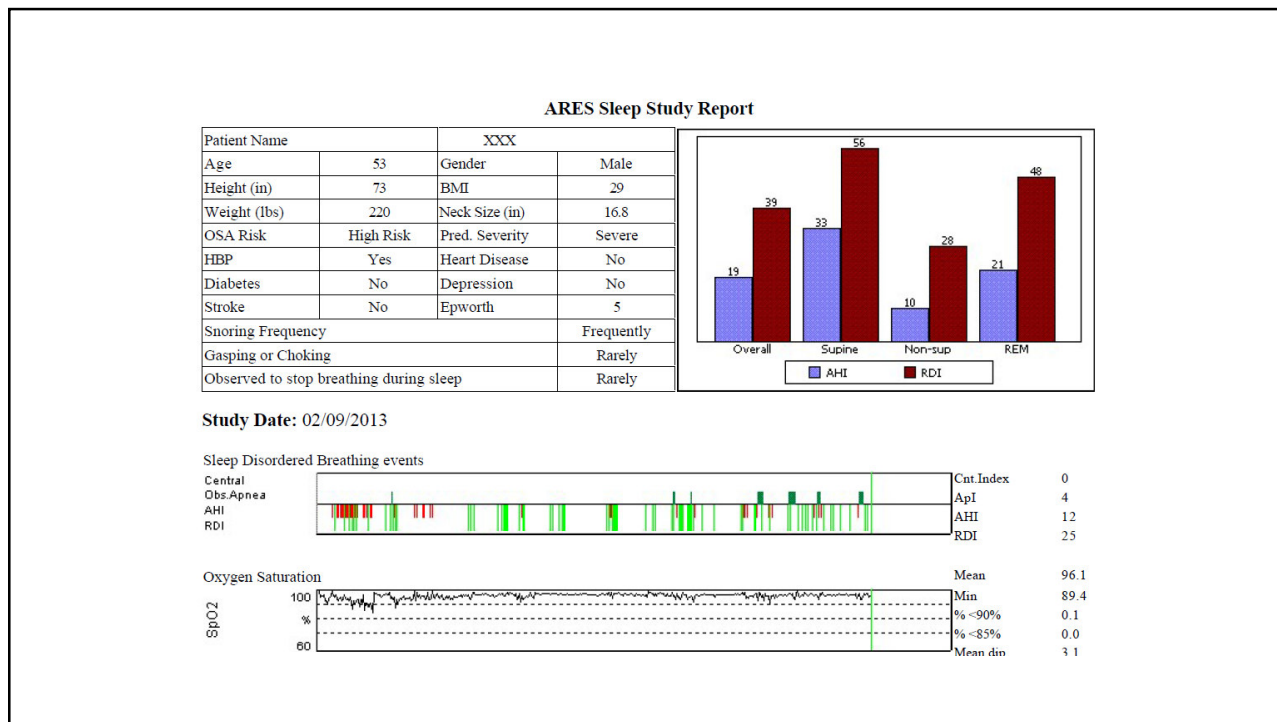
51

Home Sleep Testing



Type III devices

52



53

PATIENT: XXXX
DOB: xx/xx/1959 **AGE:** 53 **GENDE:** male
PATIENT CONTACT: XXXX
STUDY TYPE: (HST) Home Sleep Test-95800/95801
INSURANCE TYPE: Blue Cross Blue Shield
REFERRING PHYSICIAN: Robert Booher, D.D.S.
INTERPRETING PHYSICIAN: Justin Fu, M.D.

HEIGHT: 73"
WEIGHT: 220 lbs.
NECK SIZE: 16.8" **BMI:** 29
DEVICE TYPE: ARES / Class II
STUDY DATE: 02/10/2013

HISTORY:

- Patient was referred to EZ sleep in-home testing to evaluate symptoms associated with sleep disordered breathing. History indicates high blood pressure, gasping/choking and witnessed apnea. Sleep Health Questionnaire score of 19 indicates a severe risk factor of sleep disordered breathing.

DIAGNOSIS:

- Moderate positional sleep apnea and hypopnea.
- (AHI) apnea hypopnea index overall (TST) was moderate at 25.0 events per hour.
- (RDI) respiratory distress index overall (TST) was severe at 52.0 events per hour.

DISCUSSION:

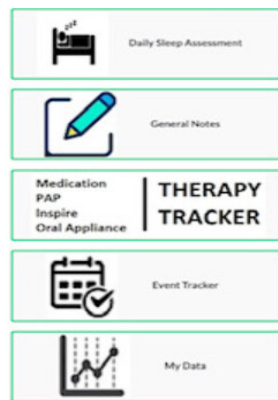
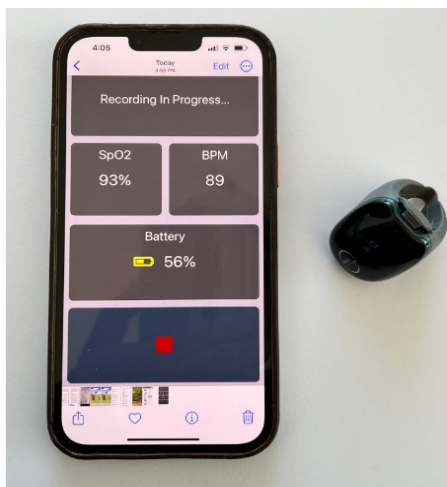
- Mild oxygen desaturation in association with these disordered breathing events from an average saturation level of 97.4%
- Mean nadir for desaturation events: 94.2%.
- Moderate snoring. (32.7%>40dB)
- Latency to sleep onset was short at 9.0 min. (normally 10-20 min.) indicating increased pressure to sleep.
- Sleep efficiency was normal at 86.4% (normally 85-99%)

RECOMMENDATIONS:

- Consultation by a dental specialist to determine use of oral appliance therapy for treatment of sleep apnea and related disordered breathing events.

54

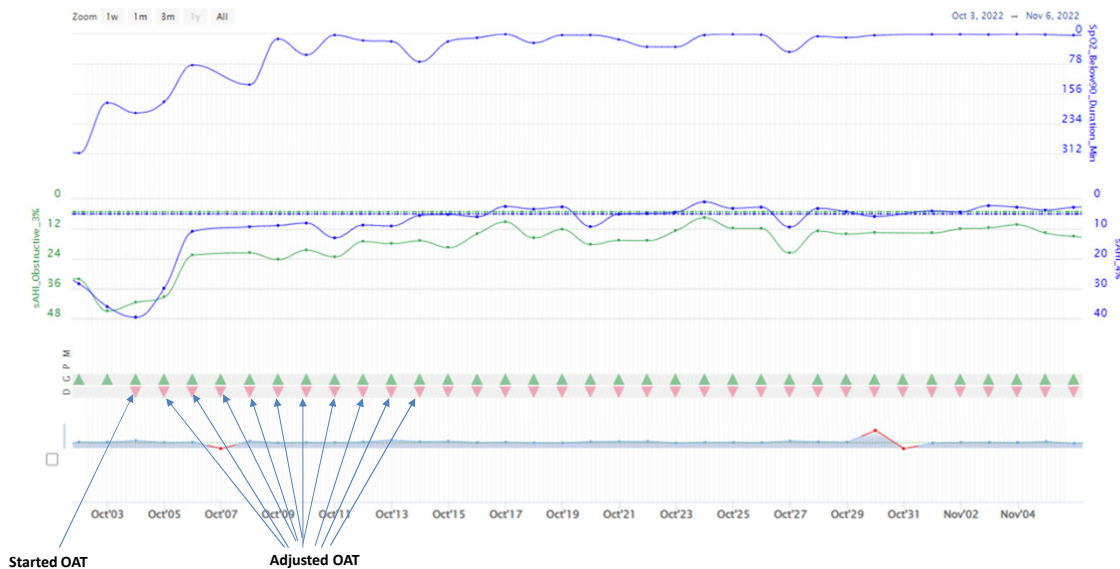
Nightly Monitoring



@mention a user or group to cha

55

Dental Appliance Mono Therapy



56


Treatment choices

Scholarly articles for **Team approach to treating sleep apnea**

... advancement surgery for obstructive **sleep apnea** ... - PRINSELL - Cited by 145

Surgical therapy for **severe** refractory **sleep apnea** in ... - Burstein - Cited by 72

Snoring and obstructive **sleep apnea** from a dental ... - Veis - Cited by 25

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Multidisciplinary approach as a tool for personalised treatment ...

by D Carioli - 2017

We recommend. **Multidisciplinary** evaluation can find effective alternative **treatment** to **CPAP** in OSA patients. SAHS and stroke. High flow nasal cannula for children with **severe** obstructive **sleep apnea** not compliant with continuous positive airway pressure.

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The Clinical Exam

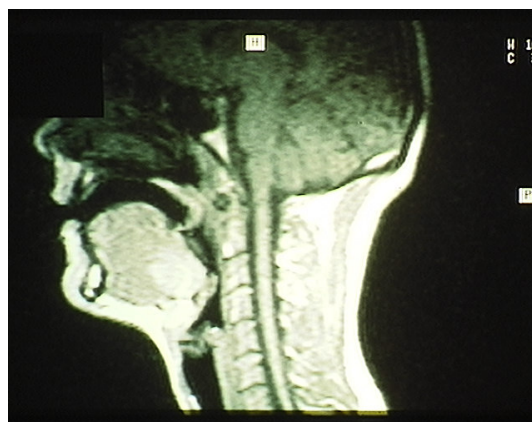
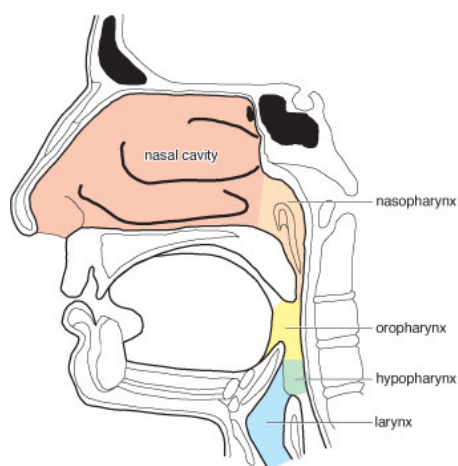
*Have a consistent way to
maintain your Records*

58

Successful treatment of snoring and sleep apnea is dependent on accurate diagnosis of the region(s) of obstruction, and treatment directed to the etiology.

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Airway Divisions

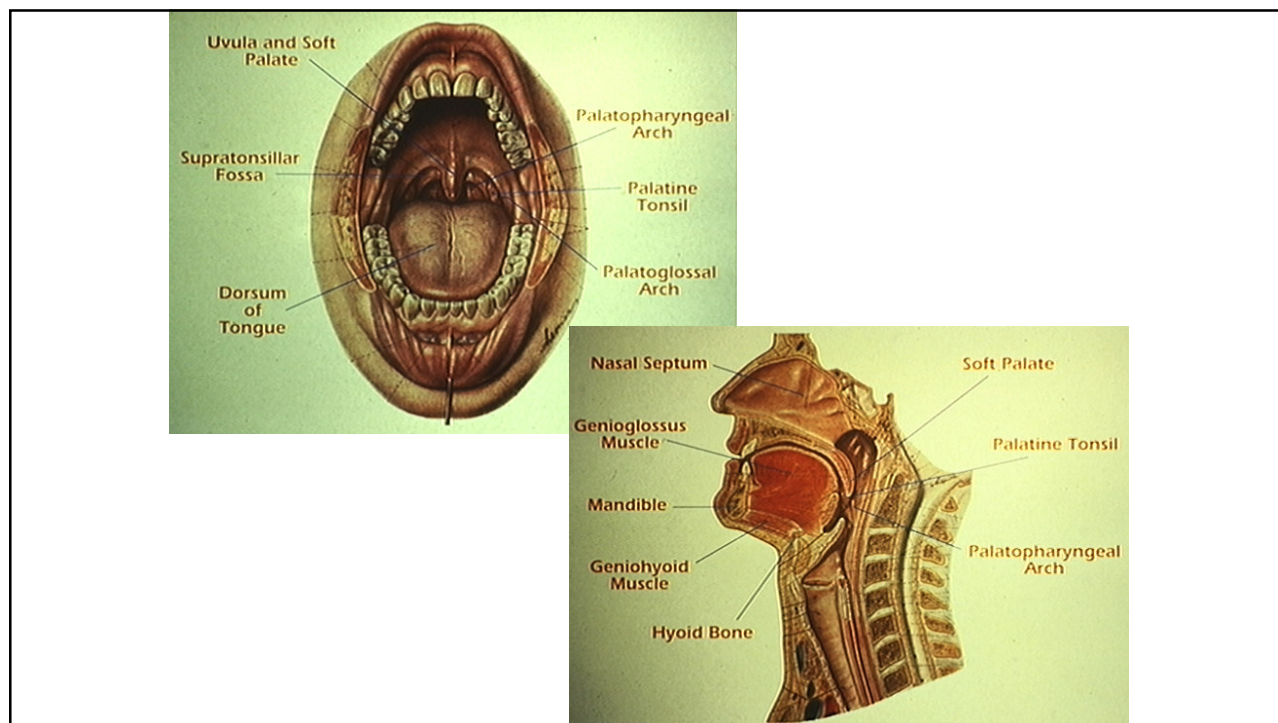


60

Sites of Anatomic Obstruction

- Nasal: Turbinate Hypertrophy, Septal Deviation, Polyps
- Elongated Soft Palate & Uvula, Tonsillar Hypertrophy
- Macroglossia, Enlarged Base of Tongue
- Retrognathic Chin, Maxilla or Mandible
- Inferiorly Positioned Hyoid Bone
- Laryngeal Obstruction: Polyps, Vocal Cord Paralysis

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Comprehensive Clinical Examination & Records

- Satisfies History of Present illness elements
- Designed to capture as much information about the patients existing condition as possible.

Patient Data Information

Full Name (do not write name, Page)
 Patient Name: _____
 Patient Record ID: _____ Date of Birth: ____/____/____ Date of Exam: ____/____/____

Assessment, Measurements and Vital Signs

Height: _____ Body Mass Index: _____ Pulse Rate: _____ Blood Pressure: _____
 Weight: _____ Neck Circumference: _____ Respiratory Rate: _____ Body Temperature: _____

Airway Evaluation

Palatine Tonsils Hypertrophy **Mallampati Classification**

TONSILS
 None Absent Present

TONSIL ASSESSMENT
 None Large Scalloped Swollen Terges to lymphatics

SOFT PALATE
 None Absent Enlarged Shaggy Retracts Airway None Low Placing None Asym to distal airway Nasal

Temporomandibular Joint Evaluation and Mandibular Movements

1. Measure the following quantitative movements in millimeters
 Unassisted Opening without pain (mm) _____ Disassisted Opening with pain (mm) _____ Full Pain Full Functional Pain
 Max Assisted Opening - passive stretch (mm) _____ Maximum Protrusion (mm) _____ Full Pain Full Functional Pain
 Left Lateral Movement (mm) _____ Left Lateral Movement (mm) _____

2. Pain on muscle palpation
 (0 = 0 mm of movement)

Right Temporals Full Pain Full Functional Pain Right Lateral Excursion Full Pain Full Functional Pain Right Masseter Full Pain Full Functional Pain
 Left Temporals Full Pain Full Functional Pain Left Lateral Excursion Full Pain Full Functional Pain Left Masseter Full Pain Full Functional Pain

3. Pain on joint palpation
 (1 R. of pressure lateral joint; 2-3 for anterior lateral joint)

Right Lateral Pain Full Pain Full Functional Pain Opening Right Click Left Click Right Crepitus Left Crepitus
 Left Lateral Pain Full Pain Full Functional Pain Closing Right Click Left Click Right Crepitus Left Crepitus
 Anterior Right Lateral Pain Full Pain Full Functional Pain Right Excursion Right Click Left Click Right Crepitus Left Crepitus
 Anterior Left Lateral Pain Full Pain Full Functional Pain Left Excursion Right Click Left Click Right Crepitus Left Crepitus
 Protrusion Right Click Left Click Right Crepitus Left Crepitus

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Vital Signs

Assessment, Measurements and Vital Signs

Height _____ Body Mass Index _____ Pulse Rate _____ Blood Pressure _____
 Weight _____ Neck Circumference _____ Respiratory Rate _____ Body Temperature _____

64

Blood Pressure



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Neck Size



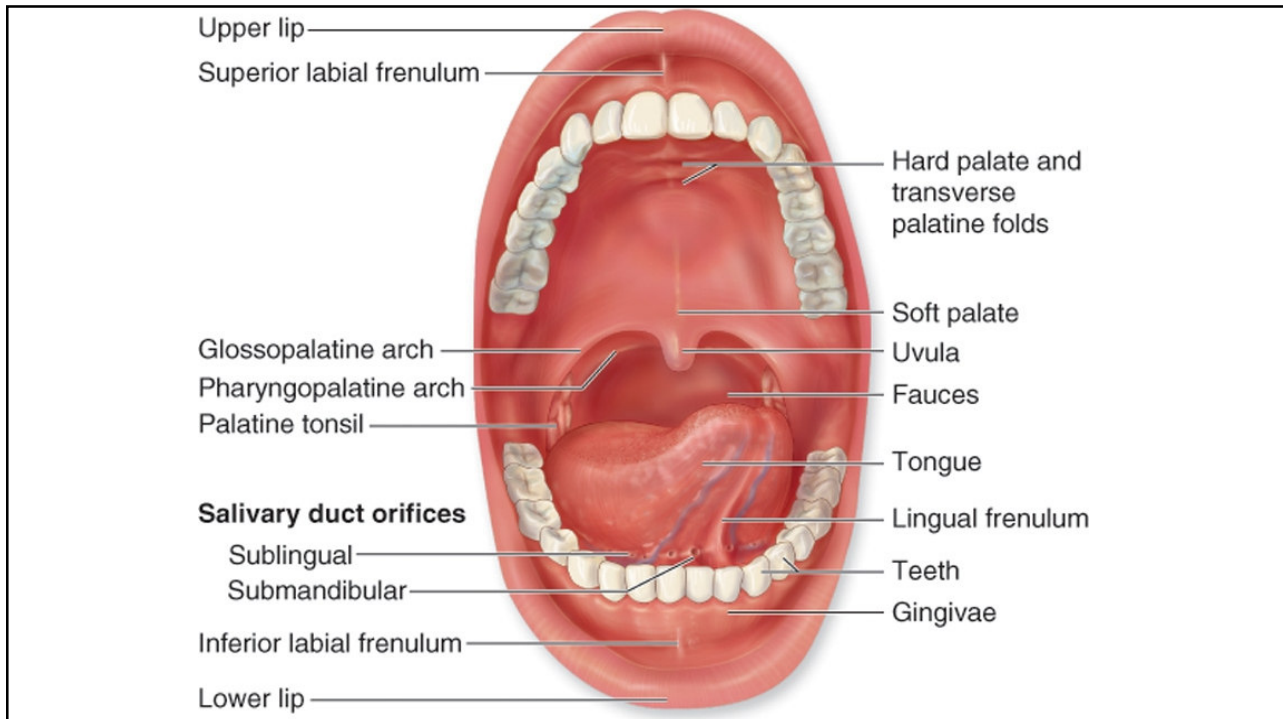
Vitals:
Neck **18"** Height ____ Weight ____ BMI ____ B.P. ____ Pulse ____ Respirations ____ Temp ____

66

Neck Circumference



67



68

Comprehensive Clinical Examination & Records

- Designed to capture as much information about the patient's existing condition.
- Satisfies History of Present illness elements

Patient Data Information

141 New South Wales Ave, Croydon
 Patient Name: _____
 Patient Record ID: _____ Date of Birth: ____/____/____ Date of Exam: ____/____/____

Assessment, Measurements and Vital Signs

Height: _____ Body Mass Index: _____ Pulse Rate: _____ Blood Pressure: _____
 Weight: _____ Neck Circumference: _____ Respiratory Rate: _____ Body Temperature: _____

Airway Evaluation

Palatine Tonsils Hypertrophy

Grade 1 Grade 2 Grade 3 Grade 4

Mallampati Classification

Class 1 Class 2 Class 3 Class 4

TONSILS
 WNL Absent Purulent

TONGUE ASSESSMENT
 WNL Large Scalloped Swollen Tongue-tie (ankyloglossia)

UVULA
 WNL Absent Elongated Enlarged Obstructs Airway

SOFT PALATE
 WNL Low draping Firm Appears to obstruct airway Flaccid

Temporomandibular Joint Evaluation and Mandibular Movements

1. Measure the following mandibular movements in millimeters

Unassisted opening without pain (mm) _____ Unassisted Opening with pain (mm) _____ Full Pain Full Familiar Pain
 Max Assisted Opening - passive stretch (mm) _____ Maximum Retraction (mm) _____ Full Pain Full Familiar Pain
 Left Lateral Movement (mm) _____ Left Lateral Movement (mm) _____

2. Pain on muscle palpation
 (0 = 2 cm of pressure)

Right Temporalis Full Pain Full Familiar Pain Right Lateral Excursion Full Pain Full Familiar Pain Right Masseter Full Pain Full Familiar Pain
 Left Temporalis Full Pain Full Familiar Pain Left Lateral Excursion Full Pain Full Familiar Pain Left Masseter Full Pain Full Familiar Pain

3. Pain on joint palpation
 (7 B. of pressure lateral ptery; 2-3 lbs. around lateral ptery)

Right Lateral Ptery Full Pain Full Familiar Pain Left Lateral Ptery Full Pain Full Familiar Pain
 Around Right Lateral Ptery Full Pain Full Familiar Pain Left Lateral Ptery Full Pain Full Familiar Pain
 Around Left Lateral Ptery Full Pain Full Familiar Pain

4. Joint Sounds (assess over 20 cycles)

Opening Right Click Left Click Right Crepitus Left Crepitus
 Closing Right Click Left Click Right Crepitus Left Crepitus
 Right Excursion Right Click Left Click Right Crepitus Left Crepitus
 Left Excursion Right Click Left Click Right Crepitus Left Crepitus
 Protrusion Right Click Left Click Right Crepitus Left Crepitus

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Airway Evaluation

Palatine Tonsils Hypertrophy



Mallampati Classification



TONSILS

WNL Absent Purulent

UVULA

WNL Absent Elongated Enlarged Obstructs Airway

TONGUE ASSESSMENT

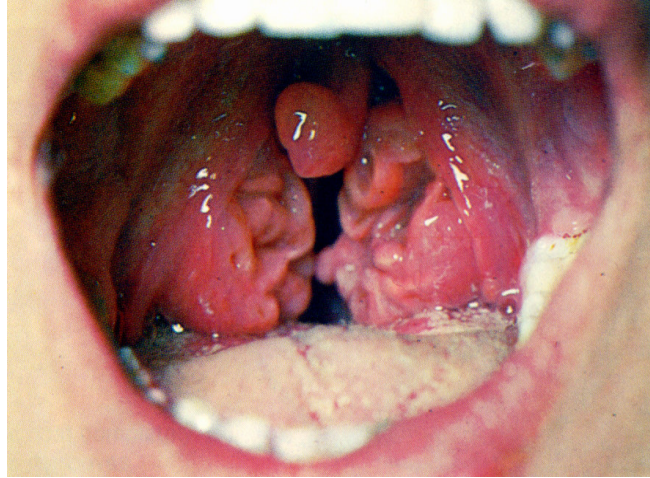
WNL Large Scalloped Swollen Tongue-tie (ankyloglossia)

SOFT PALATE

WNL Low draping Firm Appears to obstruct airway Flaccid

70

Tonsilar Enlargement- 4+



71

Clinical Examination



- Low Palatal Arch

72

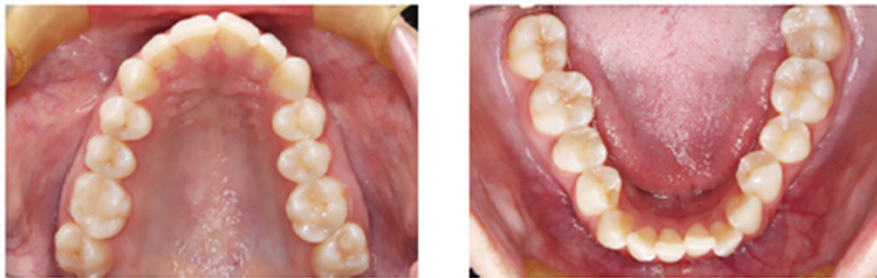
Enlarged Tongue ?



Scalloped Borders

73

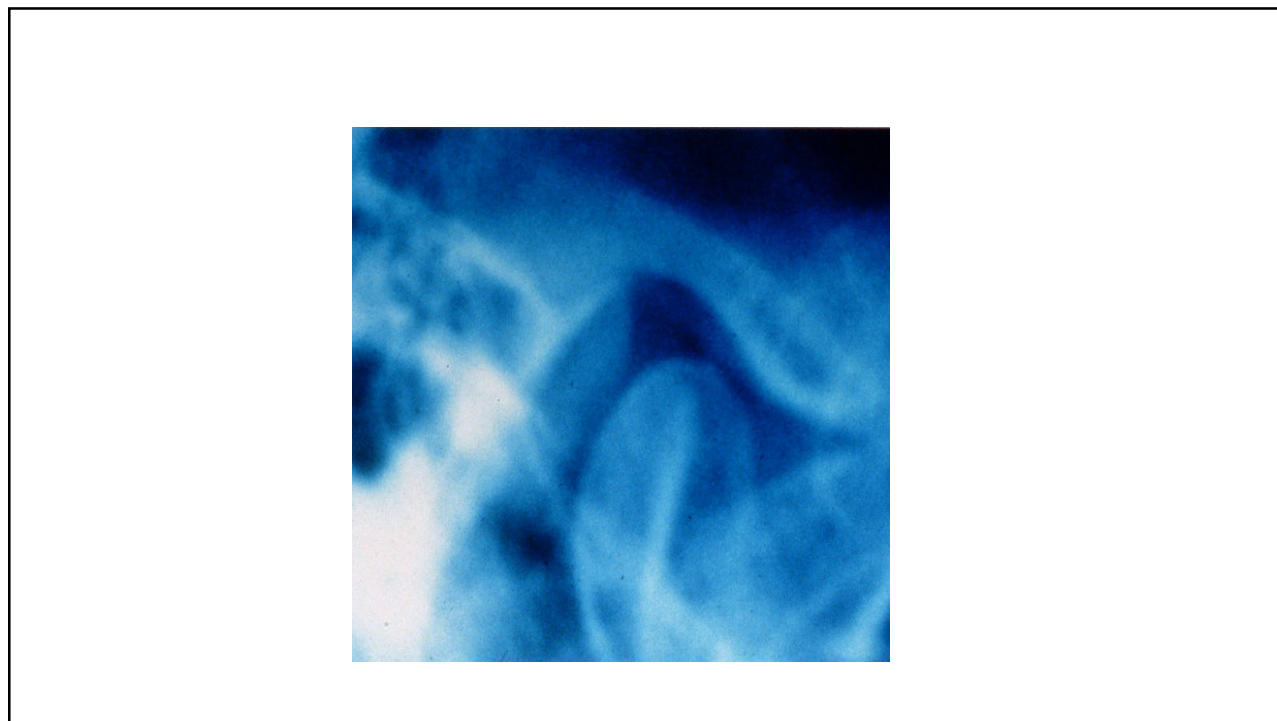
Narrow Maxilla and Mandible



74

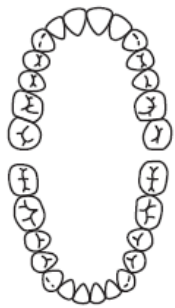
Temporomandibular Joint Evaluation and Mandibular Movements			
1. Measure the following mandibular movements in millimeters			
Unassisted opening without pain (mm)	<input type="text"/>	Unassisted Opening with pain (mm)	<input type="text"/> <input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
Max Assisted Opening - passive stretch (mm)	<input type="text"/>	Maximum Potrusion (mm)	<input type="text"/> <input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
Left Lateral Movement (mm)	<input type="text"/>	Left Lateral Movement (mm)	<input type="text"/>
2. Pain on muscle palpations (2 - 3 lbs of pressure)			
Right Temporalis	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Right Lateral Excursion	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
Left Temporalis	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Left Lateral Excursion	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
		Right Masseter	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
		Left Masseter	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain
3. Pain on joint palpations (1 lb. of pressure lateral pole; 2-3 lbs. around lateral pole)		4. Joint Sounds (assessed by palpation)	
Right Lateral Pole	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Opening	<input type="checkbox"/> Right Click <input type="checkbox"/> Left Click <input type="checkbox"/> Right Crepitus <input type="checkbox"/> Left Crepitus
Left Lateral Pole	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Closing	<input type="checkbox"/> Right Click <input type="checkbox"/> Left Click <input type="checkbox"/> Right Crepitus <input type="checkbox"/> Left Crepitus
Around Right Lateral Pole	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Right Excursion	<input type="checkbox"/> Right Click <input type="checkbox"/> Left Click <input type="checkbox"/> Right Crepitus <input type="checkbox"/> Left Crepitus
Around Left Lateral Pole	<input type="checkbox"/> Felt Pain <input type="checkbox"/> Felt Familiar Pain	Left Excursion	<input type="checkbox"/> Right Click <input type="checkbox"/> Left Click <input type="checkbox"/> Right Crepitus <input type="checkbox"/> Left Crepitus
		Protrusion	<input type="checkbox"/> Right Click <input type="checkbox"/> Left Click <input type="checkbox"/> Right Crepitus <input type="checkbox"/> Left Crepitus
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Dental Examination



Indicate any and all teeth conditions by tooth number below:

Missing Teeth _____ Fractured / Trauma _____

Mobile Teeth _____ Damaged Restoration _____

Attrition _____ Periodontal Disease _____

Hygiene Good Fair Poor

Dental Classifications and Relationship

Dental Molar Left _____ classification _____ division _____

Dental Molar Right _____ classification _____ division _____

Skeletal Class Class I Class II Class III

Maxilla WNL Narrow Vaulted Mod-vaulted

Overjet (horizontal relationship - mm) _____

Over/Deep Bite (vertical relationship - %) _____

Anterior Open Bite (vertical relationship - mm) _____

Mandible WNL Narrow Micrognathia

77



78

Lamberg Sleep Well -Smartrusion



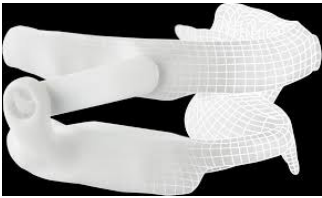
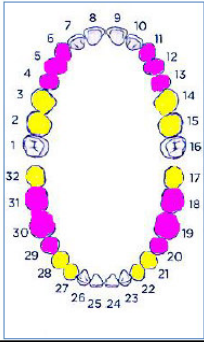
79



80

Panthera

- Uses the clinical crown and undercuts for retention. Therefore it needs a sufficient number of posterior teeth for anchorage that have an acceptable clinical crown length
- CAD/CAM appliance made from nylon
- Adjusts using connecting rods that change easily in 1mm increments up to 15 mm range
- Vertical uses Adjunctive pieces
- Freedom of jaw movement is adequate
- Smaller Lighter and Flexible
- Does not touch the incisors

81



82



Habits change the size, shape and position of the maxilla and the mandible

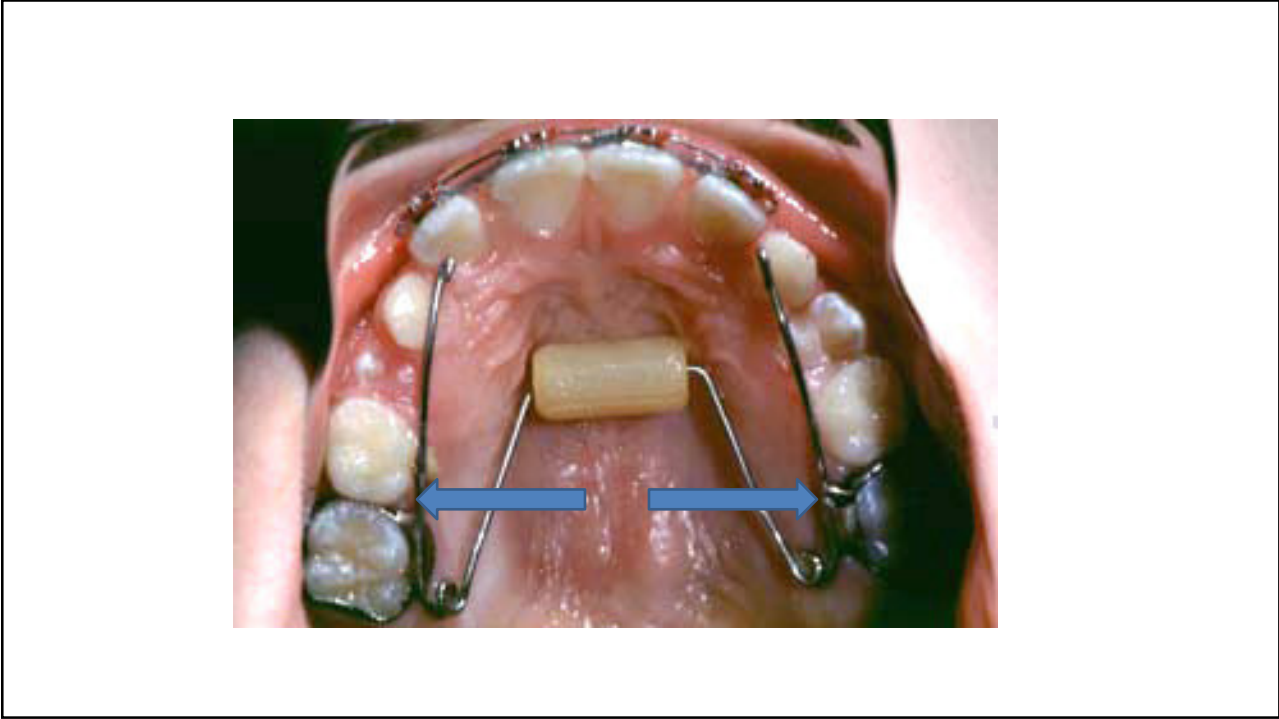
83



84

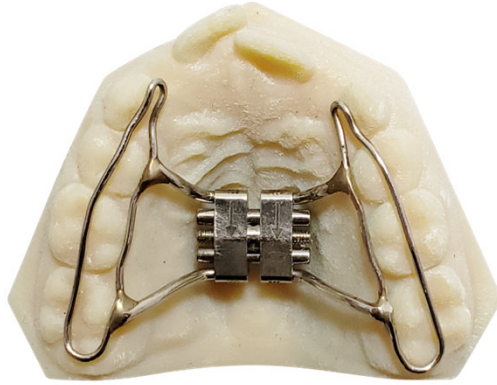


85



86

Early orthodontic tx for airway improvement



87

What do you see?



88

What do you see?

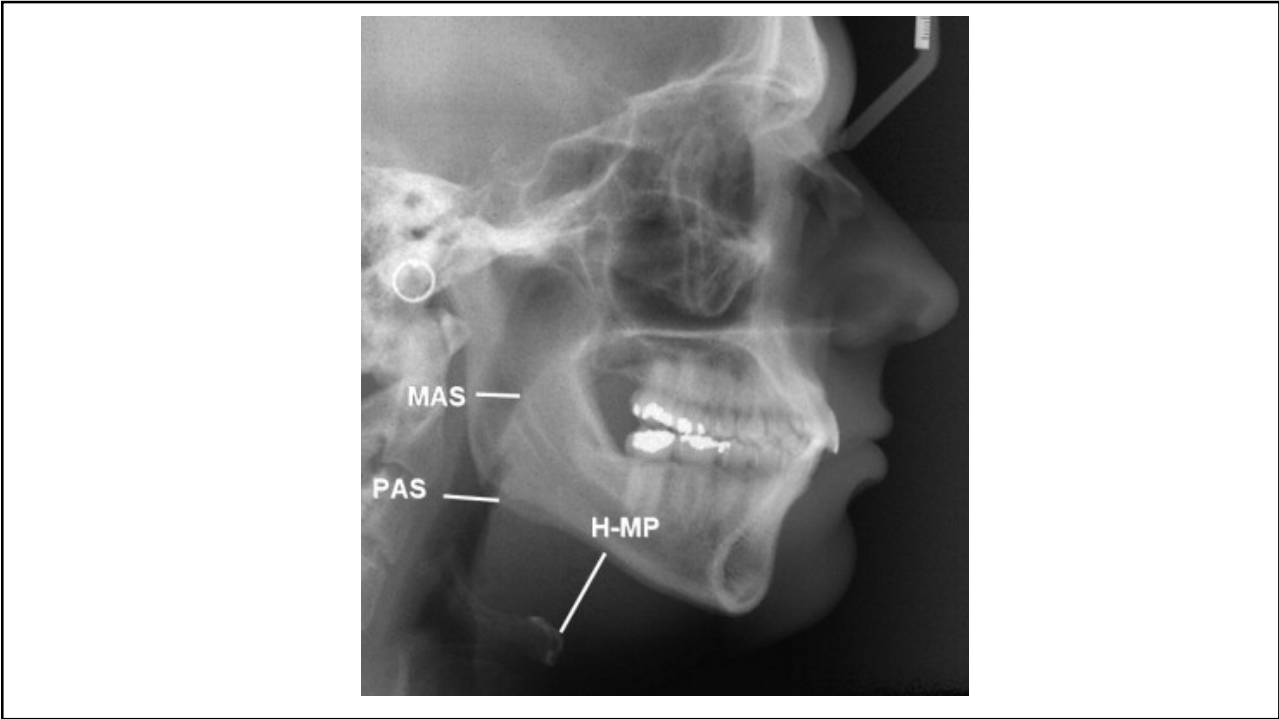


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Airway Examination

- **Lateral Cephalometric Film**
- **CT Scan**

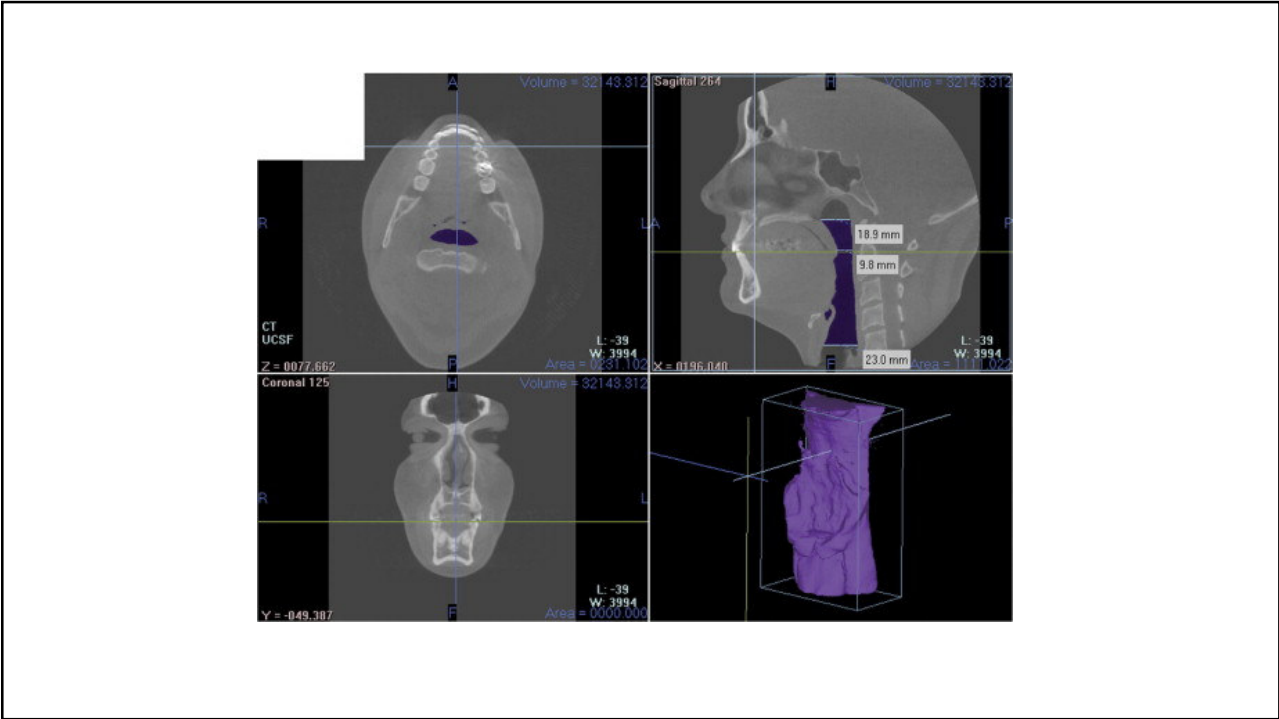
90



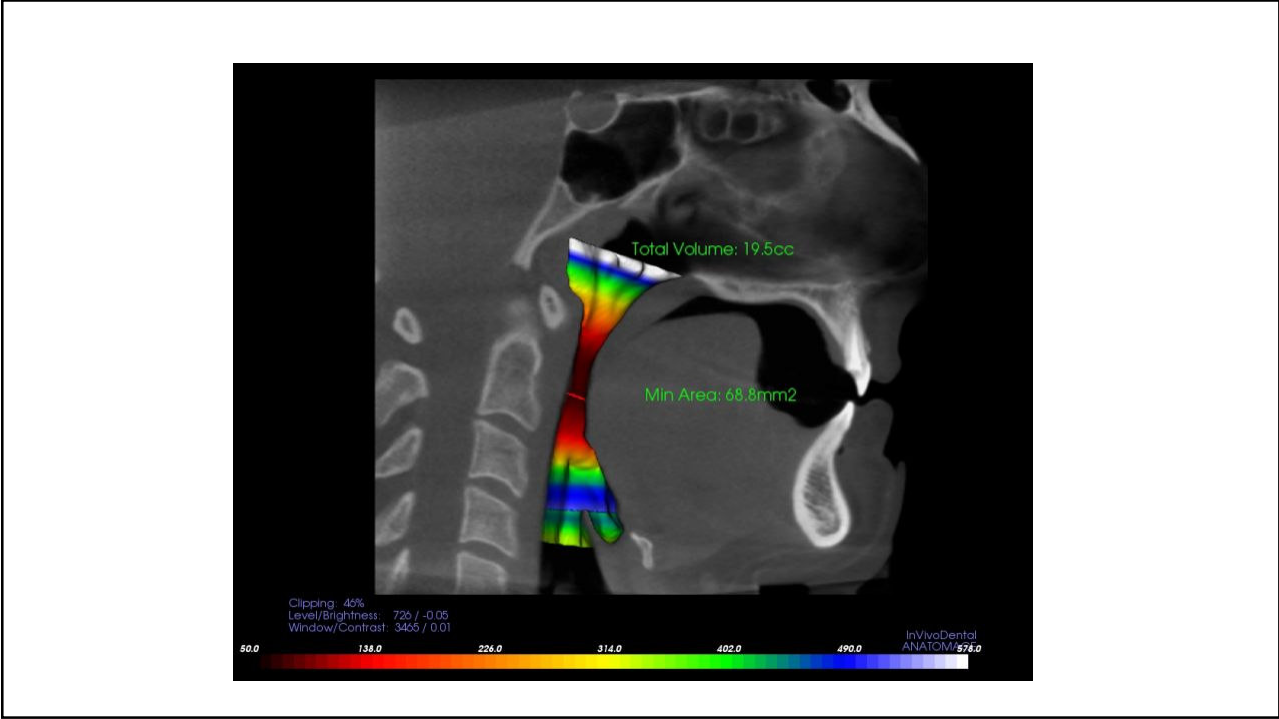
91



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93



94

Diagnostic/ Working Casts



95

Digital Scans



96

Are you an Appliance Candidate?



97

Sometimes your just not a candidate!



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Summary

- Every patient should be screened for sleep disordered breathing issues.
- Implement a repeatable method of evaluation and data collection to select those patients who may benefit from a sleep appliance.
- **In the quiet of your office review the data!**
- Work in a team approach!
- Understand that the chosen method of treatment is dependent upon the patients existing oral and medical conditions.