The Workflow to Achieve Successful OSA *Therapy* in the Dental Office Through a Collaborative Care Approach

By Dr. Rob Veis
Dr. Jerald Simmons

1

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.**

2

Financial Relationship Disclosure

☐ **No**, I do not have a financial interest, arrangement, or affiliation with a corporate organization offering financial support or grant monies for or related to the content of my presentation.
☒ **Yes**, I do have a financial interest, arrangement, or affiliation with a corporate organization offering financial support or grant monies for or related to the content of my presentation..

Harmony Biosciences : Speaker Honorarium, Research funding for medication trial

Jazz Pharmaceuticals: Research funding for medication trial

Avadel Pharmaceuticals: Research funding for medication trial, Speaker Honorarium

Takeda Pharmaceuticals : Research funding for medication trial

SleepArchiTx: Advisory Board

REST Technologies, Inc: Owner, NIH SBIR Grant

Merck Pharmaceuticals : Speaker Honorarium

3

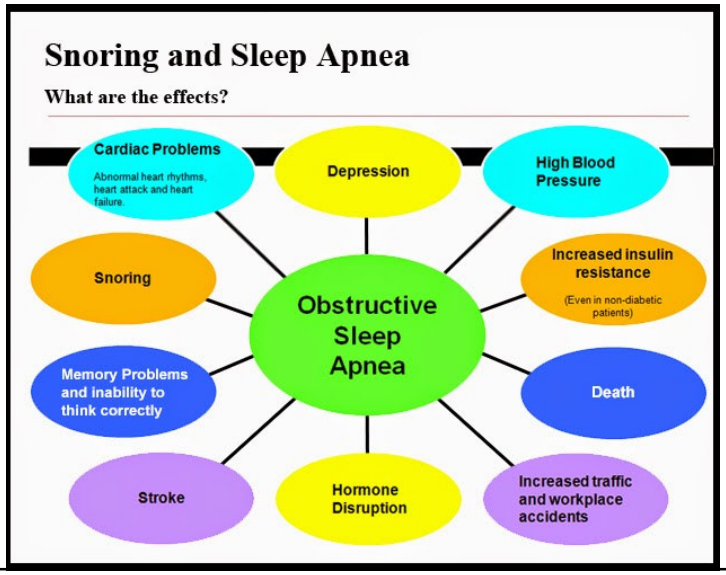
Disclaimers

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.

4

Screen **EVERYONE**
in your practice



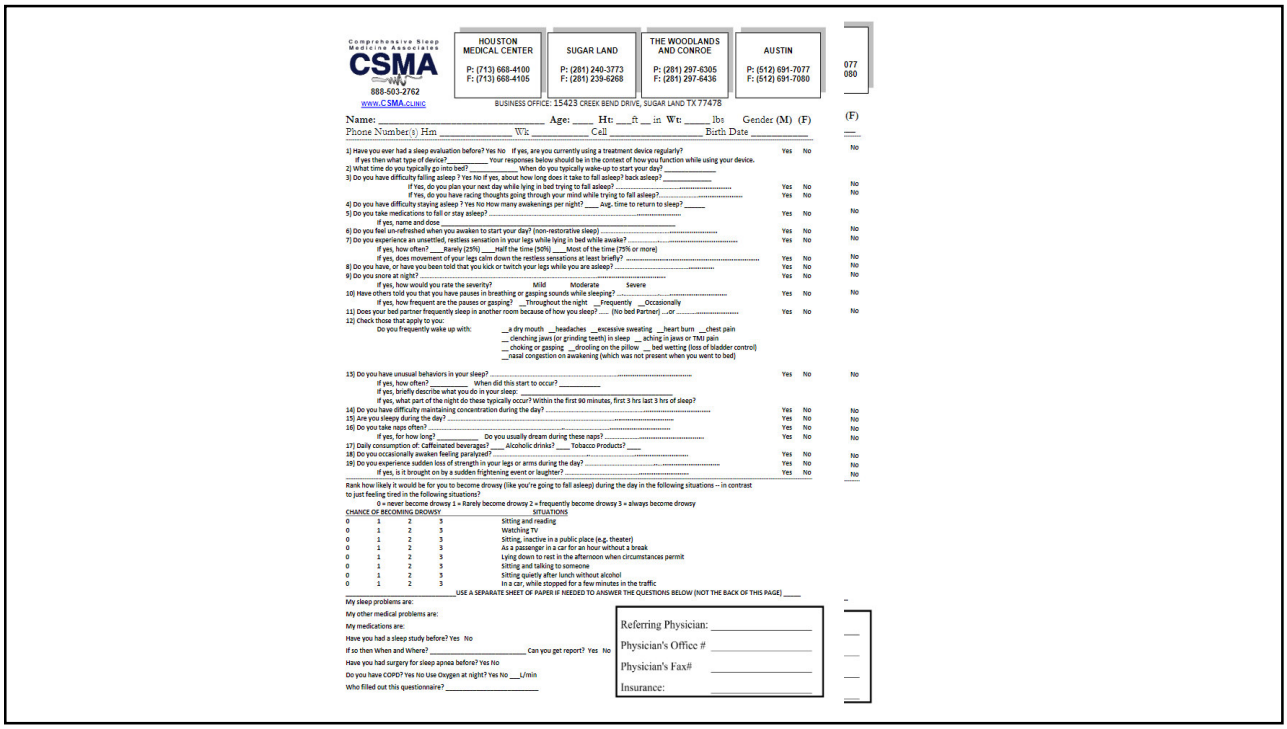
5

Simple questionnaire for adults

have been used in selected groups

8
Questions

6



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

HOUSTON MEDICAL CENTER	SUGAR LAND	THE WOODLANDS AND CONROE	AUSTIN
P: (713) 668-4100 F: (713) 668-4105	P: (281) 240-3773 F: (281) 239-6268	P: (281) 297-6305 F: (281) 297-6436	P: (512) 691-7077 F: (512) 691-7080

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(s) Hm _____ 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
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 No
If Yes, do you have racing thoughts going through your mind while 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?_____
5) Do you take medications to fall or stay asleep? ..... Yes No No
If yes, name and dose _____
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
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 No
8) Do you have, or have you been told that you kick or twitch your legs while you are asleep? ..... Yes No No
9) Do you snore at night? ..... Yes No 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 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 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)

15) Do you have unusual behaviors in your sleep? ..... Yes No 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?
14) Do you have difficulty maintaining concentration during the day? ..... Yes No No
15) Are you sleepy during the day? ..... Yes No No
16) Do you take naps often? ..... Yes No No
If yes, for how long? _____ Do you usually dream during these naps? ..... Yes No No
17) Daily consumption of: Caffeinated beverages? ____Alcoholic drinks? ____ Tobacco Products? ____
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? ..... Yes No No
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				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: _____

7

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

Red Flags of Sleep Related Breathing Disorders

- **C.** **C**rossbite or Under Bite
- **H.** **H**yperactivity
- **I.** **I**ncomplete Lip Seal
- **C.** **C**rowded Teeth
- **A.** **A**llergies
- **G.** **G**rinding / Worn Down Teeth
- **O.** **O**verweight Child / **O**pen Mouth Breathing
- **H.** **H**igh Palate from Thumb Sucking
- **E.** **E**ye Appearance / **E**nlarged Tonsils / **E**czema
- **A.** **A**nterior Opening between Teeth
- **R.** **R**etruded Chin / **R**estless Sleep
- **T.** **T**ongue Tie or Scalloped Tongue
- **S.** **S**weating during Sleep/Napping

8

9

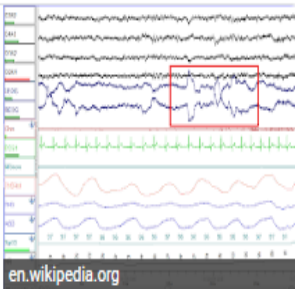
Snoring App To Monitor Trends In A Patients Snoring

10

Get that test done!

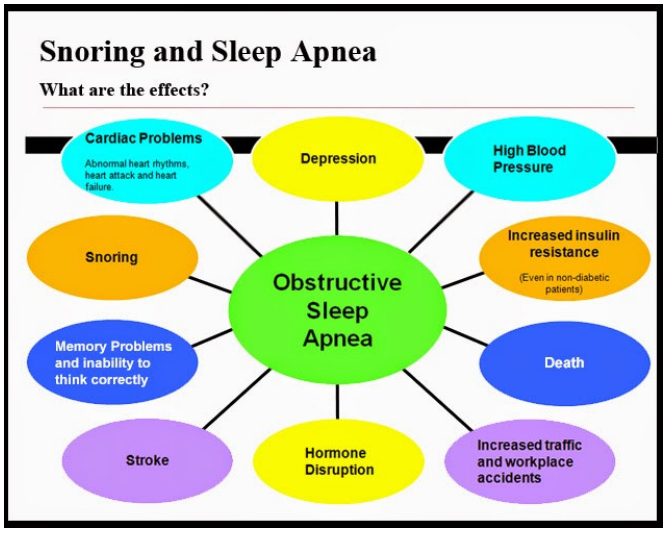
- Order the test
- Refer to the patients primary care physician
- Refer to a sleep specialist

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



11

No time like the present!

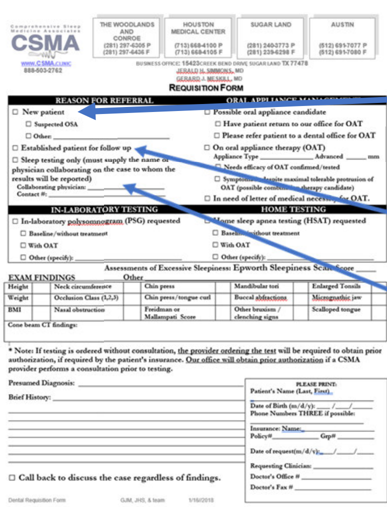


12

Don’t Forget the Kids

13

Example of a referral form. Each organization typically uses their own.



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

THE WOODLANDS AND CONROE	HOUSTON MEDICAL CENTER	SUGAR LAND	AUSTIN
(281) 297-6305 P (281) 297-6436 F	(713) 668-4100 P (713) 668-4105 F	(281) 240-3773 P (281) 239-6298 F	(512) 691-7077 P (512) 691-7080 F

BUSINESS OFFICE: 15423 CREEK BEND DRIVE SUGAR LAND TX 77478
JERALD H. SIMMONS, MD
GERARD J. MESKILL, MD

REQUISITION FORM

REASON FOR REFERRAL

- ☐ New patient
  - ☐ Suspected OSA
  - ☐ Other: ____
- ☐ Established patient for follow up
- ☐ Sleep testing only (must supply the name of physician collaborating on the case to whom the results will be reported)
  - Collaborating physician: ____
  - Contact #: ____

ORAL APPLIANCE MANAGEMENT

- ☐ Possible oral appliance candidate
  - ☐ Have patient return to our office for OAT
  - ☐ Please refer patient to a dental office for OAT
- ☐ On oral appliance therapy (OAT)
  - Appliance Type ____ Advanced ____ mm
  - ☐ Needs efficacy of OAT confirmed/tested
  - ☐ Symptoms despite maximal tolerable protrusion of OAT (possible combination therapy candidate)
- ☐ In need of letter of medical necessity for OAT.

IN-LABORATORY TESTING

- ☐ In-laboratory polysomnogram (PSG) requested
  - ☐ Baseline/without treatment*
  - ☐ With OAT
  - ☐ Other (specify): ____

HOME TESTING

- ☐ Home sleep apnea testing (HSAT) requested
  - ☐ Baseline/without treatment
  - ☐ With OAT
  - ☐ Other (specify): ____

Assessments of Excessive Sleepiness: Epworth Sleepiness Scale Score ____
Other ____

EXAM FINDINGS

Height		Neck circumference		Chin press		Mandibular tori		Enlarged Tonsils	
Weight		Occlusion Class (1,2,3)		Chin press/tongue curl		Buccal abfractions		Micrognathic jaw	
BMI		Nasal obstruction		Freidman or Mallampati Score		Other bruxism / clenching signs		Scalloped tongue	
Cone beam CT findings:									

* Note: If testing is ordered without consultation, the provider ordering the test will be required to obtain prior authorization, if required by the patient's insurance. Our office will obtain prior authorization if a CSMA provider performs a consultation prior to testing.

Presumed Diagnosis: ____
Brief History: ____

☐ Call back to discuss the case regardless of findings.

PLEASE PRINT:
Patient's Name (Last, First) ____
Date of Birth (m/d/y): ___/___/___
Phone Numbers THREE if possible: ____
Insurance: Name: ____
Policy# ____ Grp# ____
Date of request(m/d/y): ___/___/___
Requesting Clinician: ____
Doctor's Office # ____
Doctor's Fax # ____

Dental Requisition Form GJM, JHS, & team 1/16/2018

Reasons for referral

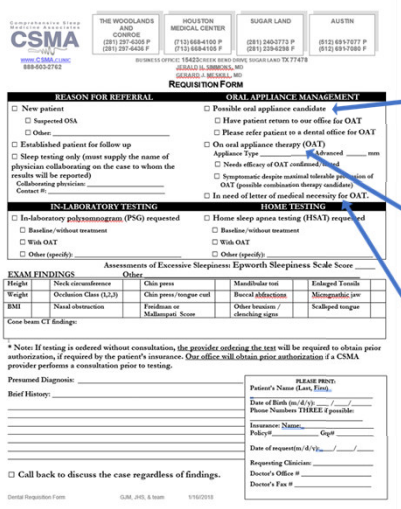
New patient –
Screening in the office suggests OSA or patient has a prior Hx of OSA but not Tx

Clinical concern of some other problem

Established patient for follow up –
Patient who did not follow up as originally intended and is in need of follow up

Sleep testing only – Texas Dental Practice Rules require any patient treated for OSA by a dentist must be treated in conjunction with a physician. If CSMA is not going to be involved beyond the testing, then the physician who will be involved with the case needs to be listed here so the results can be sent to that physician.

14



CSMA

THE WOODLANDS AND CONROE (281) 297-6305 P (281) 297-6436 F
HOUSTON MEDICAL CENTER (713) 668-4100 P (713) 668-4105 F
SUGAR LAND (281) 240-3773 P (281) 239-6298 F
AUSTIN (512) 691-7077 P (512) 691-7080 F

www.CSMA.clinic 888-503-2762

BUSINESS OFFICE: 15423 CREEK BEND DRIVE SUGAR LAND TX 77478

JERALD H. SIMMONS, MD
GERARD J. MCSKILL, MD

REQUISITION FORM

REASON FOR REFERRAL	ORAL APPLIANCE MANAGEMENT
☐ New patient	☐ Possible oral appliance candidate
☐ Suspected OSA	☐ Have patient return to our office for OAT
☐ Other: _____	☐ Please refer patient to a dental office for OAT
☐ Established patient for follow up	☐ On oral appliance therapy (OAT)
☐ Sleep testing only (must supply the name of physician collaborating on the case to whom the results will be reported)	Appliance Type _____ Advanced _____ mm
Collaborating physician: _____	☐ Needs efficacy of OAT confirmed/tested
Contact #: _____	☐ Symptomatic despite maximal tolerable protrusion of OAT (possible combination therapy candidate)
	☐ In need of letter of medical necessity for OAT.

IN-LABORATORY TESTING	HOME TESTING
☐ In-laboratory polysomnogram (PSG) requested	☐ Home sleep apnea testing (HSAT) requested
☐ Baseline/without treatment	☐ Baseline/without treatment
☐ With OAT	☐ With OAT
☐ Other (specify): _____	☐ Other (specify): _____

Assessments of Excessive Sleepiness: Epworth Sleepiness Scale Score ____
Other _____

EXAM FINDINGS

Height	Neck circumference	Chin press	Mandibular toti	Enlarged Tonsils	
Weight	Occlusion Class (I,2,3)	Chin press/tongue curl	Buccal aldsections	Micrognathic jaw	
BMI	Nasal obstruction	Freidman or Mallampati Score	Other bruxism / clenching signs	Scalloped tongue	

Cone beam CT findings:

* Note: If testing is ordered without consultation, the provider ordering the test will be required to obtain prior authorization, if required by the patient's insurance. Our office will obtain prior authorization if a CSMA provider performs a consultation prior to testing.

Presumed Diagnosis: _____
Brief History: _____

PLEASE PRINT:
Patient's Name (Last, First): _____
Date of Birth (m/d/y): ___/___/___
Phone Numbers THREE if possible: _____
Insurance: Name: _____
Policy#_____ Grp# _____
Date of request(m/d/y)___/___/___
Requesting Clinician: _____
Doctor's Office # _____
Doctor's Fax # _____

☐ Call back to discuss the case regardless of findings.

Dental Requisition Form GJM, JHS, & team 1/16/2018

Oral Appliance Management

Possible oral appliance candidate –
Not all patients are good candidates for OAT as a mono therapy. This does NOT exclude possible combination therapy in conjunction with PAP Tx.

Not all dentists are comfortable or interested in making OAT devices. We want to know the referring dentists intention.

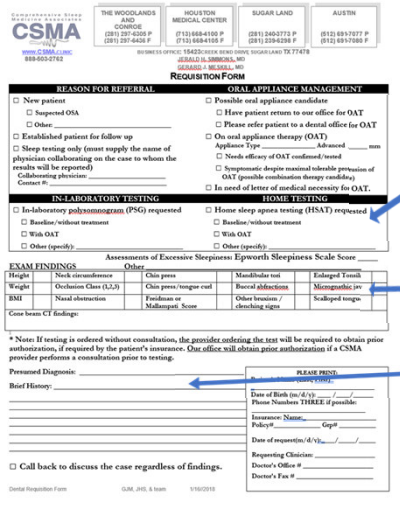
The patient is already on OAT. Let us know what type of device and how far it is advanced (horizontal and vertical).

Is the patient being referred to demonstrate efficacy of Tx?

Is the patient still symptomatic on OAT?

Is there a need for a letter of medical necessity for the insurance company for approval of OAT?

15



CSMA

THE WOODLANDS AND CONROE (281) 297-6305 P (281) 297-6436 F
HOUSTON MEDICAL CENTER (713) 668-4100 P (713) 668-4105 F
SUGAR LAND (281) 240-3773 P (281) 239-6298 F
AUSTIN (512) 691-7077 P (512) 691-7080 F

www.CSMA.clinic 888-503-2762

BUSINESS OFFICE: 15423 CREEK BEND DRIVE SUGAR LAND TX 77478

JERALD H. SIMMONS, MD
GERARD J. MCSKILL, MD

REQUISITION FORM

REASON FOR REFERRAL	ORAL APPLIANCE MANAGEMENT
☐ New patient	☐ Possible oral appliance candidate
☐ Suspected OSA	☐ Have patient return to our office for OAT
☐ Other: _____	☐ Please refer patient to a dental office for OAT
☐ Established patient for follow up	☐ On oral appliance therapy (OAT)
☐ Sleep testing only (must supply the name of physician collaborating on the case to whom the results will be reported)	Appliance Type _____ Advanced _____ mm
Collaborating physician: _____	☐ Needs efficacy of OAT confirmed/tested
Contact #: _____	☐ Symptomatic despite maximal tolerable protrusion of OAT (possible combination therapy candidate)
	☐ In need of letter of medical necessity for OAT.

IN-LABORATORY TESTING	HOME TESTING
☐ In-laboratory polysomnogram (PSG) requested	☐ Home sleep apnea testing (HSAT) requested
☐ Baseline/without treatment	☐ Baseline/without treatment
☐ With OAT	☐ With OAT
☐ Other (specify): _____	☐ Other (specify): _____

Assessments of Excessive Sleepiness: Epworth Sleepiness Scale Score ____
Other _____

EXAM FINDINGS

Height	Neck circumference	Chin press	Mandibular toti	Enlarged Tonsils	
Weight	Occlusion Class (I,2,3)	Chin press/tongue curl	Buccal aldsections	Micrognathic jaw	
BMI	Nasal obstruction	Freidman or Mallampati Score	Other bruxism / clenching signs	Scalloped tongue	

Cone beam CT findings:

* Note: If testing is ordered without consultation, the provider ordering the test will be required to obtain prior authorization, if required by the patient's insurance. Our office will obtain prior authorization if a CSMA provider performs a consultation prior to testing.

Presumed Diagnosis: _____
Brief History: _____

PLEASE PRINT:
Patient's Name (Last, First): _____
Date of Birth (m/d/y): ___/___/___
Phone Numbers THREE if possible: _____
Insurance: Name: _____
Policy#_____ Grp# _____
Date of request(m/d/y)___/___/___
Requesting Clinician: _____
Doctor's Office # _____
Doctor's Fax # _____

☐ Call back to discuss the case regardless of findings.

Dental Requisition Form GJM, JHS, & team 1/16/2018

Type of Testing Requested

Not all testing is the same.
In-lab testing, with or without an appliance (Baseline or Treatment study)

Exam findings

What are the findings on exam. Many sleep centers or sleep labs may not ask this, but that can be an indication that they are not very focused on dental collaboration or dental aspects of sleep.

History and Brief overview of referral indication.

What is the presumed diagnosis (i.e. suspect OSA)
What is the brief history. (i.e. patient with snoring, sleep bruxism, HTN and EDS).

16

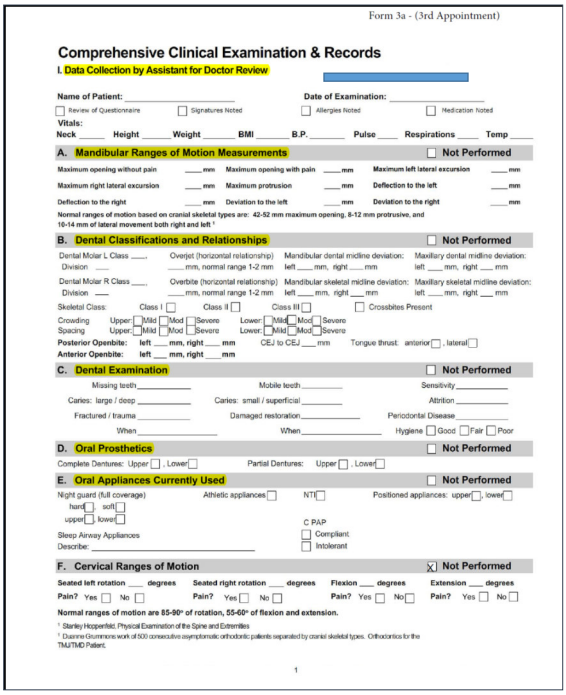
The Clinical Exam

Have a consistent way to maintain your Records

17

Comprehensive Clinical Examination & Records

- Designed to capture as much information about the patients existing condition as possible.



Form 3a - (3rd Appointment)

Comprehensive Clinical Examination & Records

I. Data Collection by Assistant for Doctor Review

Name of Patient: _____ Date of Examination: _____

☐ Review of Questionnaire ☐ Signatures Noted ☐ Allergies Noted ☐ Medication Noted

Vitals:

Neck _____ **Height** _____ **Weight** _____ **BMI** _____ **B.P.** _____ **Pulse** _____ **Respirations** _____ **Temp** _____

A. Mandibular Ranges of Motion Measurements ☐ Not Performed

Maximum opening without pain ____mm **Maximum opening with pain** ____mm **Maximum left lateral excursion** ____mm

Maximum right lateral excursion ____mm **Maximum protrusion** ____mm **Deflection to the left** ____mm

Deflection to the right ____mm **Deviation to the left** ____mm **Deviation to the right** ____mm

Normal ranges of motion based on cranial skeletal types are: 42-52 mm maximum opening, 8-12 mm protrusive, and 10-14 mm of lateral movement both right and left [1]

B. Dental Classifications and Relationships ☐ Not Performed

Dental Molar L Class ____ Division ____ Overjet (horizontal relationship) ____mm, normal range 1-2 mm Mandibular dental midline deviation: left ____mm, right ____mm Maxillary dental midline deviation: left ____mm, right ____mm

Dental Molar R Class ____ Division ____ Overbite (horizontal relationship) ____mm, normal range 1-2 mm Mandibular skeletal midline deviation: left ____mm, right ____mm Maxillary skeletal midline deviation: left ____mm, right ____mm

Skeletal Class: Class I ☐ Class II ☐ Class III ☐ ☐ Crossbites Present

Crowding Upper: ☐ Mild ☐ Mod ☐ Severe Lower: ☐ Mild ☐ Mod ☐ Severe

Spacing Upper: ☐ Mild ☐ Mod ☐ Severe Lower: ☐ Mild ☐ Mod ☐ Severe

Posterior Openbite: left ____mm, right ____ mm CEJ to CEJ ____mm Tongue thrust: anterior ☐, lateral ☐

Anterior Openbite: left ____ mm, right ____mm

C. Dental Examination ☐ Not Performed

Missing teeth_____ Mobile teeth_____ Sensitivity_____

Caries: large / deep _____ Caries: small / superficial_____ Attrition _____

Fractured / trauma _____ Damaged restoration_____ Periodontal Disease_____

When_____ When_____ Hygiene ☐ Good ☐ Fair ☐ Poor

D. Oral Prosthetics ☐ Not Performed

Complete Dentures: Upper ☐, Lower ☐ Partial Dentures: Upper ☐, Lower ☐

E. Oral Appliances Currently Used ☐ Not Performed

Night guard (full coverage) hard ☐ soft ☐ upper ☐ lower ☐ Athletic appliances ☐ NTI ☐ Positioned appliances: upper ☐, lower ☐

C PAP ☐ Compliant ☐ Intolerant

Sleep Airway Appliances Describe: _____

F. Cervical Ranges of Motion ☒ Not Performed

Seated left rotation ____ **degrees** **Pain?** Yes ☐ No ☐ **Seated right rotation** ____ **degrees** **Pain?** Yes ☐ No ☐ **Flexion** ____ **degrees** **Pain?** Yes ☐ No ☐ **Extension** ____ **degrees** **Pain?** Yes ☐ No ☐

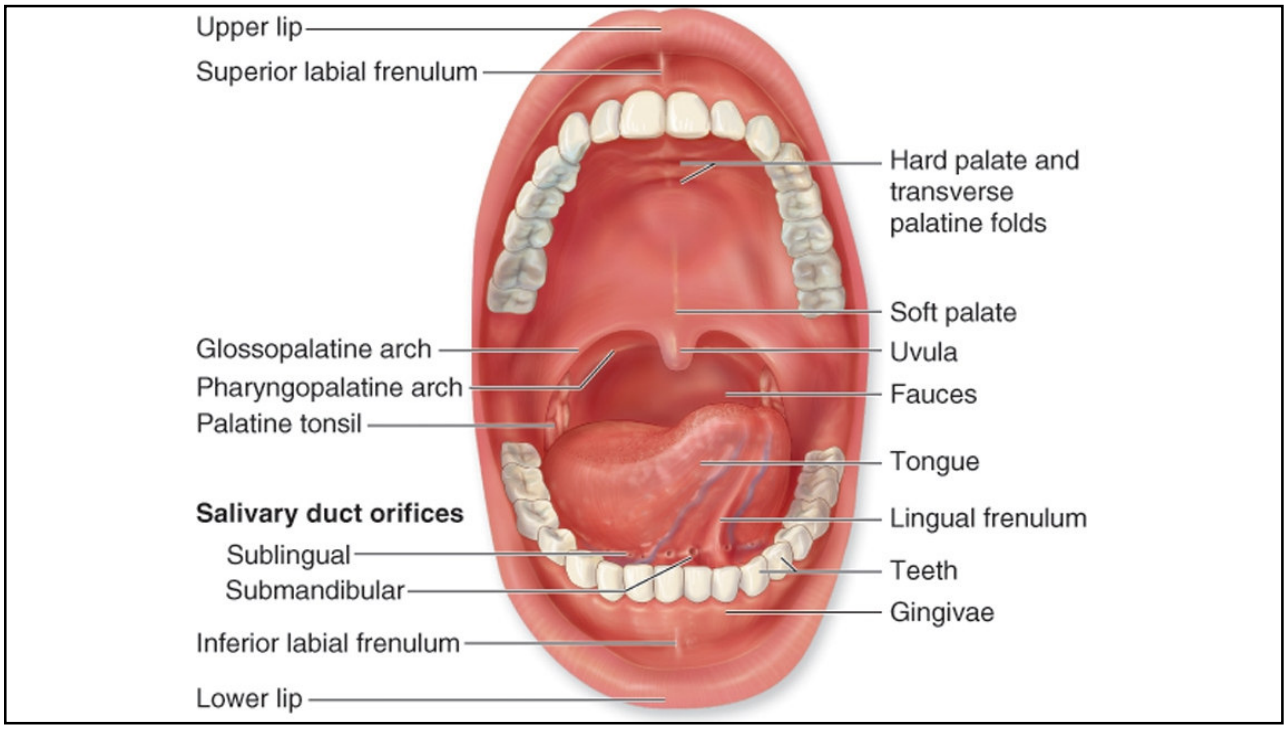
Normal ranges of motion are 85-90° of rotation, 55-60° of flexion and extension.

[1] Stanley Hoppenfeld, Physical Examination of the Spine and Extremities

[1] Duanne Grummons work of 500 consecutive asymptomatic orthodontic patients separated by cranial skeletal types. Orthodontics for the TMJ/TMD Patient.

1

18



19

Diagnostic/ Working Casts

20

AN ACCURATE CONSTRUCTION BITE

21

Accurate, High Quality Impressions

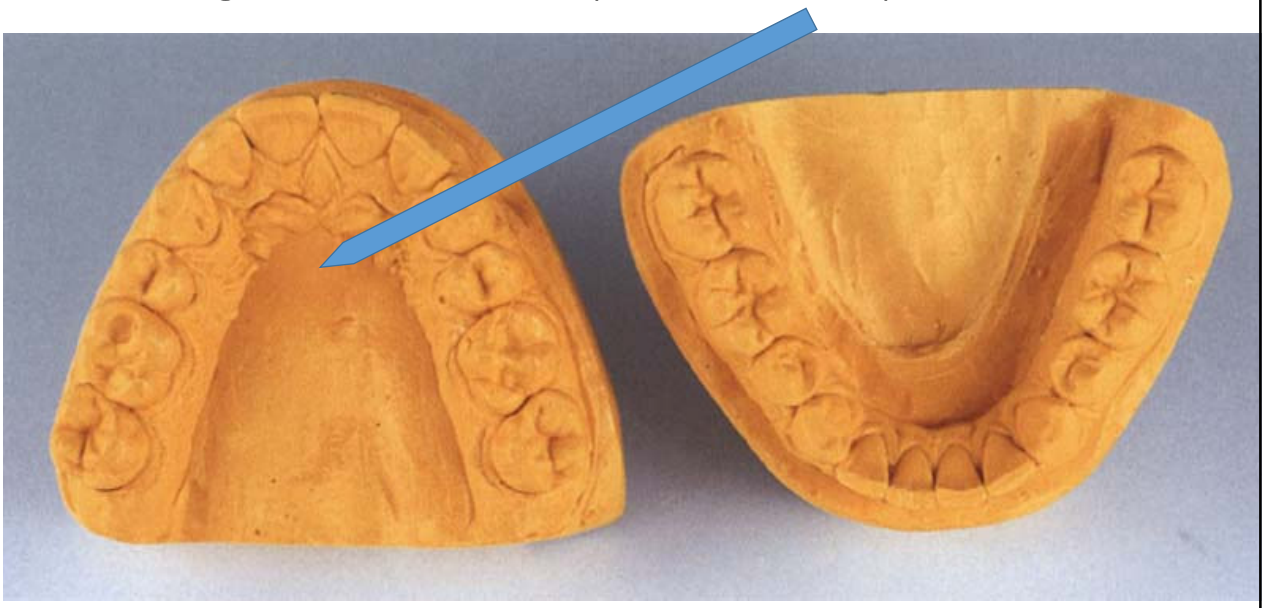
An Underrated Procedure In Dentistry

- Over 50% do not meet minimum standards.
- 90% of impressions are inadequate.

  - Dr. Gordon J. Christiansen
- The Value is often overlooked.
- #1 problem at the Laboratory but…
- Most technicians won't reject them!

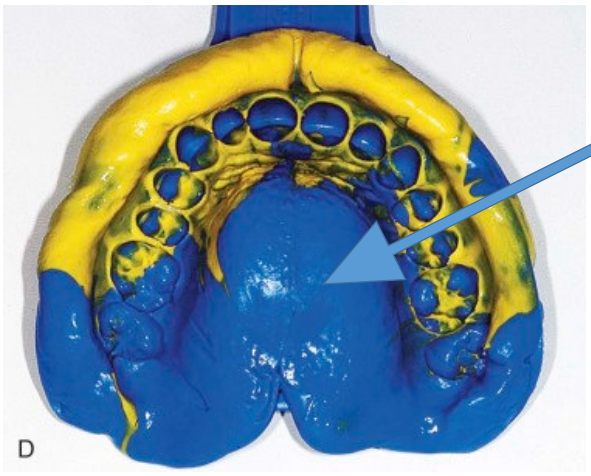
22

Looks good… But …. No palate was captured



23

Polyvinyl impression materials



- Captured the palate

24

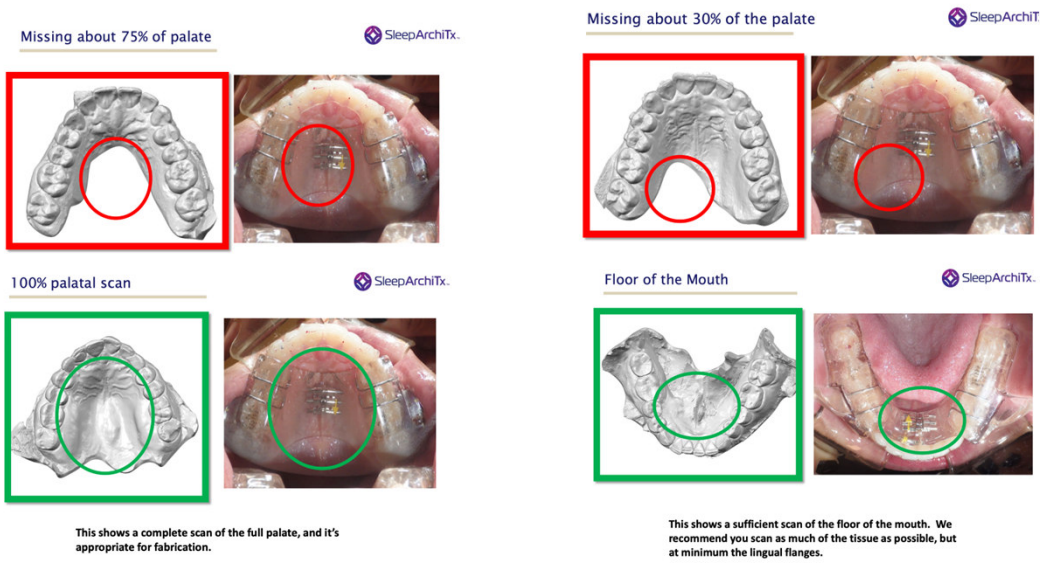
Digital Scans

25

Digital Printed models

26

SOFT TISSUE INTRA-ORAL SCANS



27

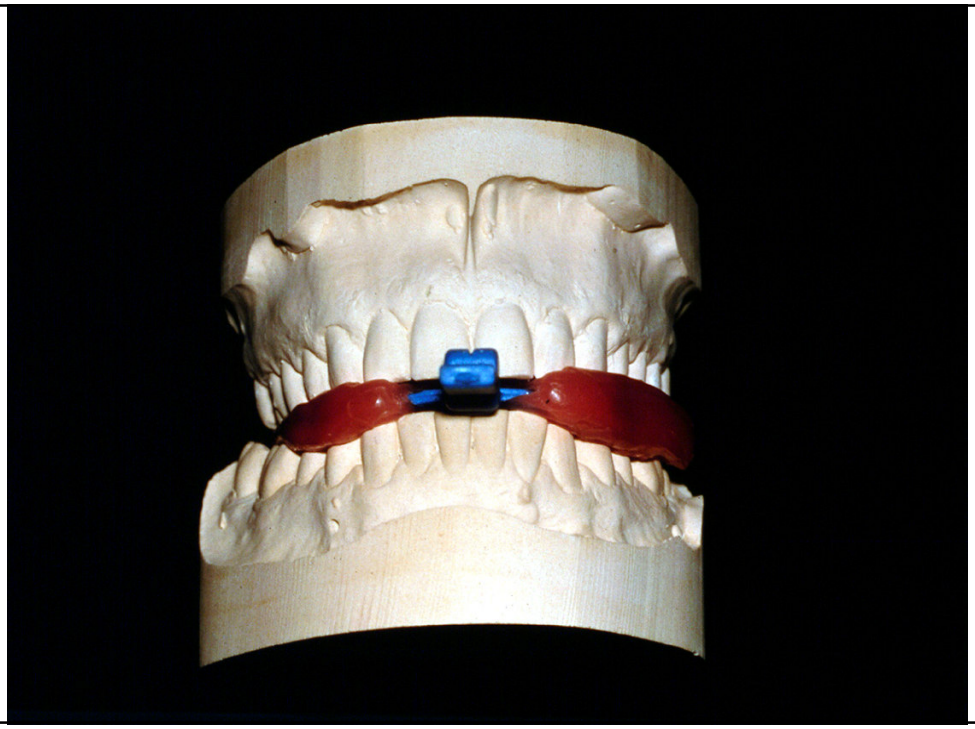
The purpose of a Construction Bite is to capture the desired positional relationship between the Maxilla and the Mandible that you have chosen for appliance fabrication. It should capture the:

- Vertical distance between the Maxillary occlusion and the Mandibular occlusion.
- Anterior/Posterior Mandibular Position relative to the Maxilla.
- Desired relationship of the Maxillary and Mandibular midlines in the postured AP position.

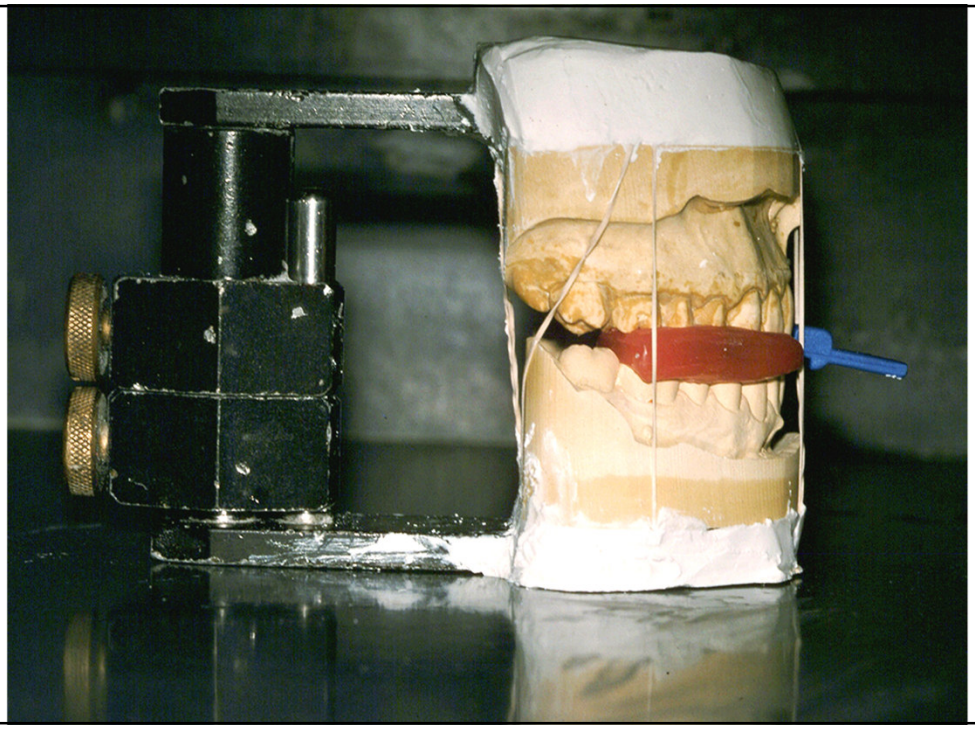
28

Polyvinyl Bite materials

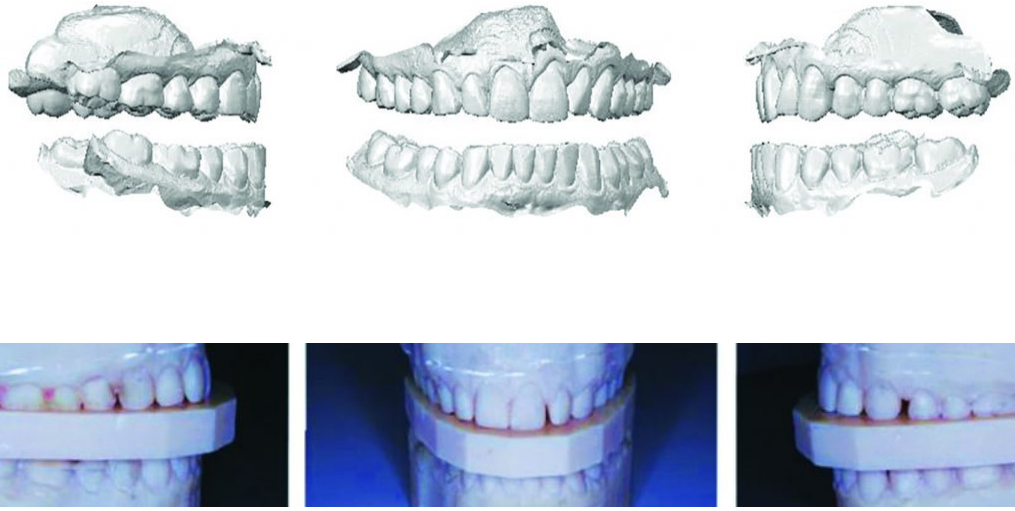
29



30



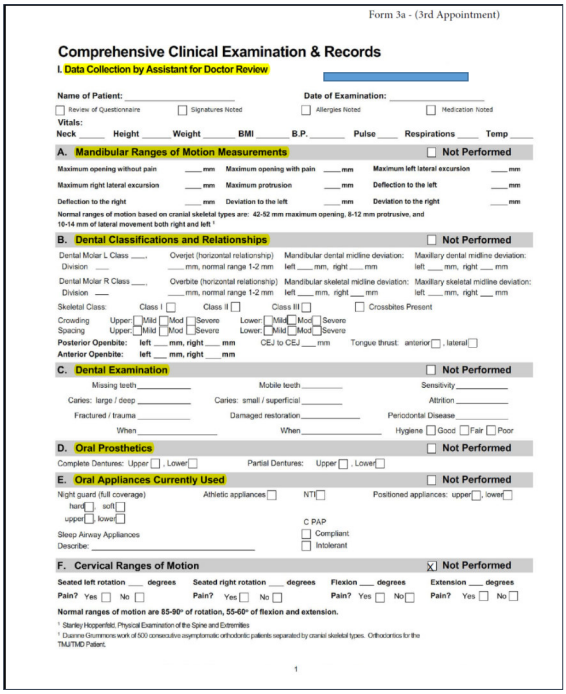
31



32

Share a summary of your Comprehensive Clinical Examination & Records

- Designed to capture as much information about the patients existing condition as possible.



Form 3a - (3rd Appointment)

Comprehensive Clinical Examination & Records

I. Data Collection by Assistant for Doctor Review

Name of Patient: _____ Date of Examination: _____

☐ Review of Questionnaire ☐ Signatures Noted ☐ Allergies Noted ☐ Medication Noted

Vitals:

Neck _____ Height _____ Weight _____ BMI _____ B.P. _____ Pulse _____ Respirations _____ Temp _____

A. Mandibular Ranges of Motion Measurements ☐ Not Performed

Maximum opening without pain ____ mm | Maximum opening with pain ____ mm | Maximum left lateral excursion ____ mm

Maximum right lateral excursion ____ mm | Maximum protrusion ____ mm | Deflection to the left ____ mm

Deflection to the right ____ mm | Deviation to the left ____ mm | Deviation to the right ____ mm

Normal ranges of motion based on cranial skeletal types are: 42-52 mm maximum opening, 8-12 mm protrusive, and 10-14 mm of lateral movement both right and left [1]

B. Dental Classifications and Relationships ☐ Not Performed

Dental Molar L Class ____ Division ____ | Overjet (horizontal relationship) ____ mm, normal range 1-2 mm | Mandibular dental midline deviation: left ____ mm, right ____ mm | Maxillary dental midline deviation: left ____ mm, right ____ mm

Dental Molar R Class ____ Division ____ | Overbite (horizontal relationship) ____ mm, normal range 1-2 mm | Mandibular skeletal midline deviation: left ____ mm, right ____ mm | Maxillary skeletal midline deviation: left ____ mm, right ____ mm

Skeletal Class: Class I ☐ Class II ☐ Class III ☐ ☐ Crossbites Present

Crowding Upper: ☐ Mild ☐ Mod ☐ Severe Lower: ☐ Mild ☐ Mod ☐ Severe

Spacing Upper: ☐ Mild ☐ Mod ☐ Severe Lower: ☐ Mild ☐ Mod ☐ Severe

Posterior Openbite: left ___ mm, right ___ mm CEJ to CEJ ___ mm Tongue thrust: anterior ☐, lateral ☐

Anterior Openbite: left ___ mm, right ___ mm

C. Dental Examination ☐ Not Performed

Missing teeth _____ Mobile teeth _____ Sensitivity _____

Caries: large / deep _____ Caries: small / superficial _____ Attrition _____

Fractured / trauma _____ Damaged restoration _____ Periodontal Disease _____

When _____ When _____ Hygiene ☐ Good ☐ Fair ☐ Poor

D. Oral Prosthetics ☐ Not Performed

Complete Dentures: Upper ☐, Lower ☐ Partial Dentures: Upper ☐, Lower ☐

E. Oral Appliances Currently Used ☐ Not Performed

Night guard (full coverage) hard ☐, soft ☐ upper ☐, lower ☐ | Athletic appliances ☐ | NTI ☐ | Positioned appliances: upper ☐, lower ☐

Sleep Airway Appliances Describe: _____ C PAP ☐ Compliant ☐ Intolerant

F. Cervical Ranges of Motion ☒ Not Performed

Seated left rotation ___ degrees Pain? Yes ☐ No ☐ | Seated right rotation ___ degrees Pain? Yes ☐ No ☐ | Flexion ___ degrees Pain? Yes ☐ No ☐ | Extension ___ degrees Pain? Yes ☐ No ☐

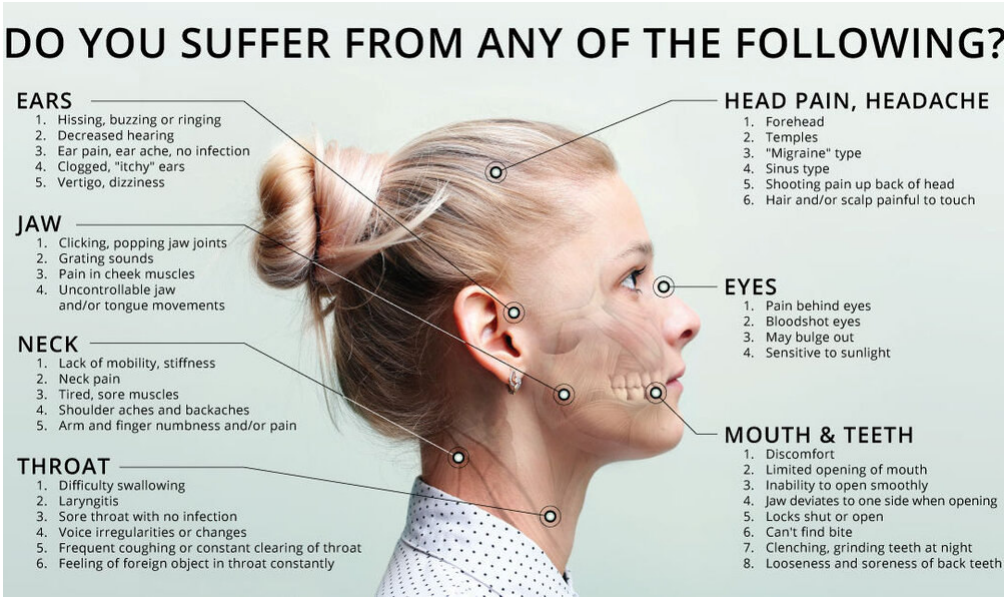
Normal ranges of motion are 85-90° of rotation, 55-60° of flexion and extension.

[1] Stanley Hoppenfeld, Physical Examination of the Spine and Extremities

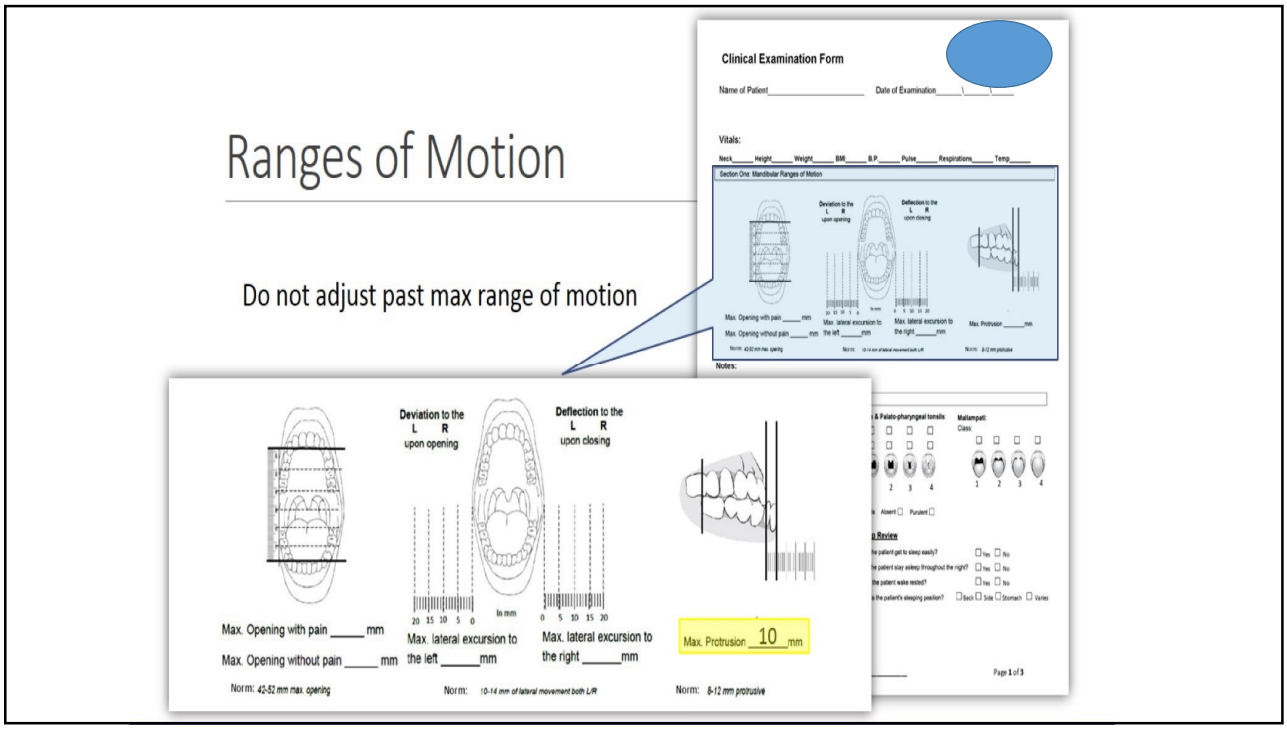
[2] Duanne Grummons work of 500 consecutive asymptomatic orthodontic patients separated by cranial skeletal types. Orthodontics for the TMJ/TMD Patient.

1

33



34



35

Normal Bite Opening

What Is The Normal Opening Of The Mouth? The normal range of mouth opening differs from person to person, varying **between 40 – 60 mm and averaging between 35 – 55 mm** which is equal to the width of three fingers. It has been shown that gender may be a factor in mouth opening.Apr 4, 2013

36

37

Dental Classifications and Relationships

Section Four: Dental Classification, Relationship and Examination

Dental Classification and Relationship

Dental Molar L Class _____ (Division ____)

Dental Molar R Class _____ (Division ____)

Overjet (horizontal relationship) ____ mm (Normal: 1 -2mm)

Over/Deep Bite (vertical relationship) ____ % (Normal: 10-30%)

Anterior Open Bite (vertical relationship) _____ mm

Anterior Crowding:

Upper: _____mm < 6mm > _____mm

Lower: _____mm < 6mm > _____mm

Mandible: ☐ WNL ☐ Narrow ☐ Micrognathia

Maxilla - *Level of hard palate:*
☐ WNL ☐ Vaulted ☐ Mod-vaulted ☐ Narrow

Cross bite Present:

Anterior: ☐ No ☐ Yes, greater than / less than 2mm

Posterior: ☐ No ☐ Yes, greater than / less than 2mm

Tongue size: ☐ Normal ☐ Large ☐ Scalloped

Tongue thrust: ☐ Anterior ☐ Lateral

Dental Examination

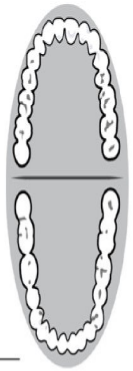
Please use the illustration below to draw in the following:

Missing Teeth: _____

Restored Teeth: _____

Teeth w/ Mobility of 2+: _____

Abfraction Present (tooth#): _____

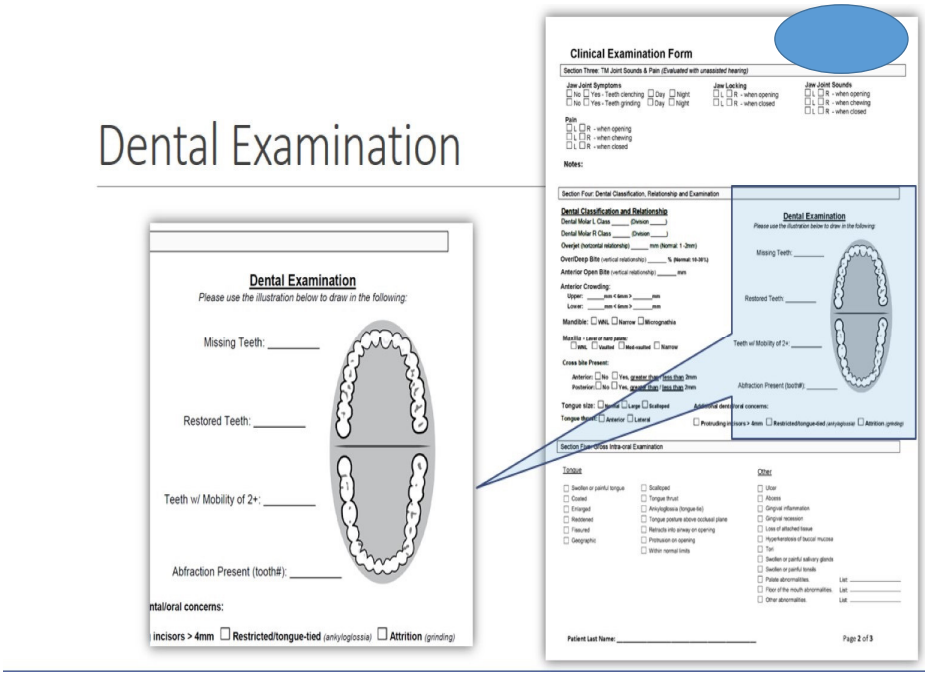


Additional dental/oral concerns:

☐ Protruding incisors > 4mm ☐ Restricted/tongue-tied *(ankyloglossia)* ☐ Attrition *(grinding)*

38

Dental Examination



39

40

41

42

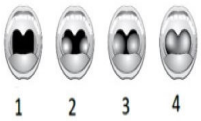
Significant Bone loss

43

Section Two: Sleeping, Airway and Oropharyngeal Crowding

Hypertrophied pharyngeal tonsils:

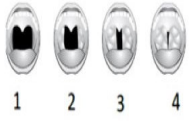
Right: ☐ ☐ ☐ ☐
Left: ☐ ☐ ☐ ☐



1 2 3 4

Palato-glossus & Palato-pharyngeal tonsils:

Right: ☐ ☐ ☐ ☐
Left: ☐ ☐ ☐ ☐



1 2 3 4

Mallampati:

Class: ☐ ☐ ☐ ☐

1 2 3 4

Uvula ☐ Elongated ☐ Within normal limits ☐ Absent ☐ Edematous ☐ Enlarged ☐ Obstructs airway

Tonsils Absent ☐ Purulent ☐

Soft Palate ☐ Firm ☐ Low draping ☐ Loss of tone ☐ Within normal limits ☐ Appears to obstruct airway

Gag Reflex ☐ Firm ☐ Within normal limits ☐ Exaggerated

Sleep Review

Can the patient get to sleep easily? ☐ Yes ☐ No

Can the patient stay asleep throughout the night? ☐ Yes ☐ No

Does the patient wake rested? ☐ Yes ☐ No

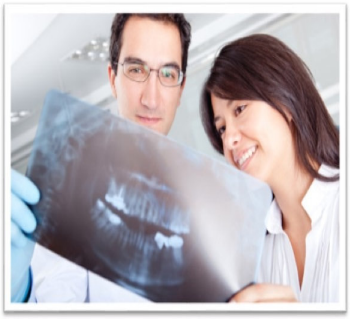
What is the patient's sleeping position? ☐ Back ☐ Side ☐ Stomach ☐ Varies

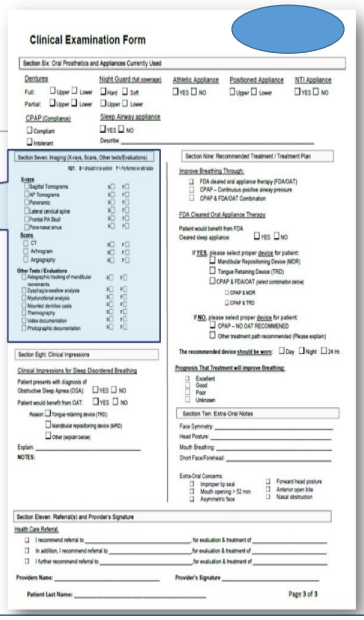
44

45

Pre-treatment Images

- Photos
- CBCT scans
- Pano's
- FMX

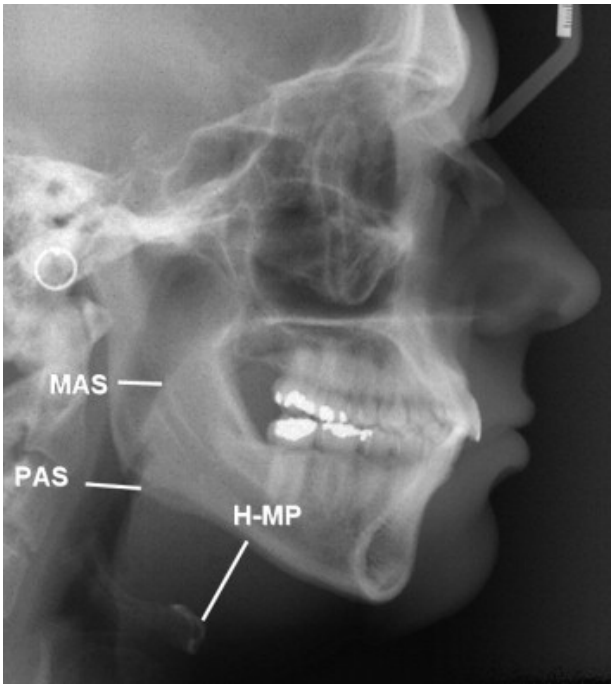




46

LATERAL CEPH

47



48

Intraoral Photographs


49

Exostosis

50

Capture the vestibule
In your impression or scan

51

Facial Profile and Skeletal Relationship

52

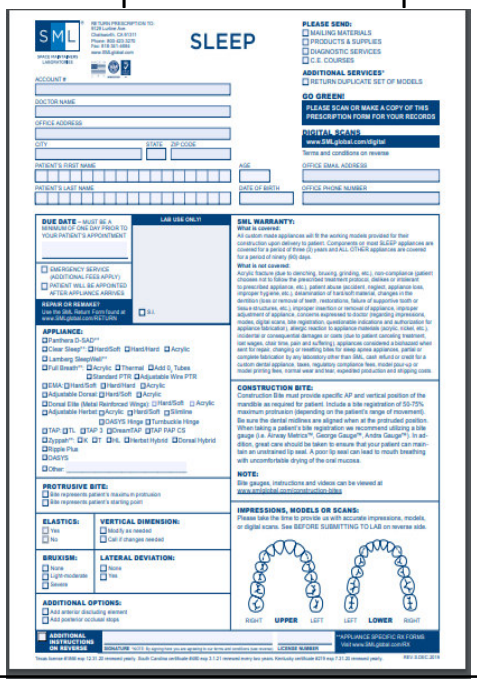

Habits change the size, shape and position of the maxilla and the mandible

53

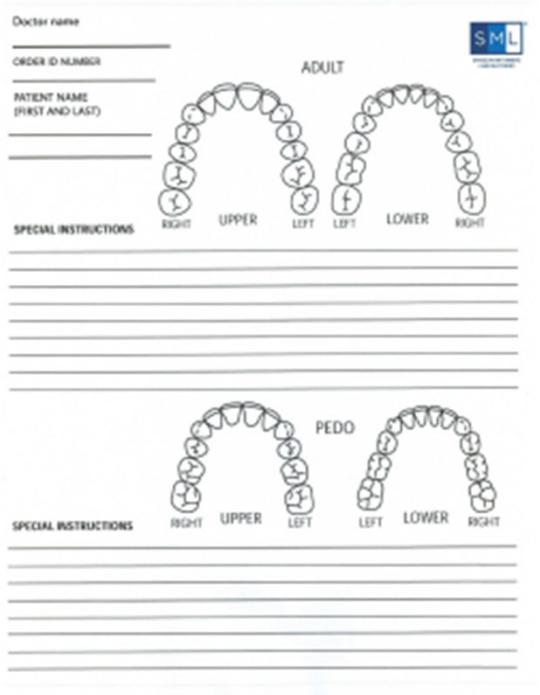
54

55

Complete a lab slip



56



57

In summary

The best results will be attained when you provide the lab with:

1. Diagnostic records
2. Accurate working dental casts
3. A Construction Bite that captures the desired starting position
4. A COMPLETED Lab slip.
5. Any and All Data that will help the lab help you in Appliance Selection

58

Appliance Delivery

59

Give yourself time to review the lab work before your patients appointment.

- You should receive: Intact working models, The construction bite, The appliance, Drs. instructions, Pt. instructions, Titration tools
- Check the following:

  Was the Prescription followed.

  Was the appliance made to the construction bite (Vertical/AP).

  Does it fits the casts.

  Is there a Path of insertion issue.

60

The Delivery Appointment

- Capture their current CO Bite in a Morning Repositioner.
- Insert the appliance and adjust it as needed for comfort, retention and ease of insertion and removal.
- Set the initial titration position. This is appliance dependent.
- Teach the Pt. how to properly insert and remove the appliance. Make them demonstrate their ability to do so.
- Teach the patient how to use a morning repositioner and discuss its importance.

61

The Delivery Appointment

- Review instructions with the patient
- Set realistic expectations
- Do not dismiss the patient immediately. Make sure the appliance is comfortable.
- Set a schedule for appliance adjustments
- Monitor success on a daily basis

62

Problems in the making!

63

Posterior Open Bite

64

Posterior Open Bite

65

Class II Div2

66

Changes in the TMJ after treatment with a functional appliance

After treatment :

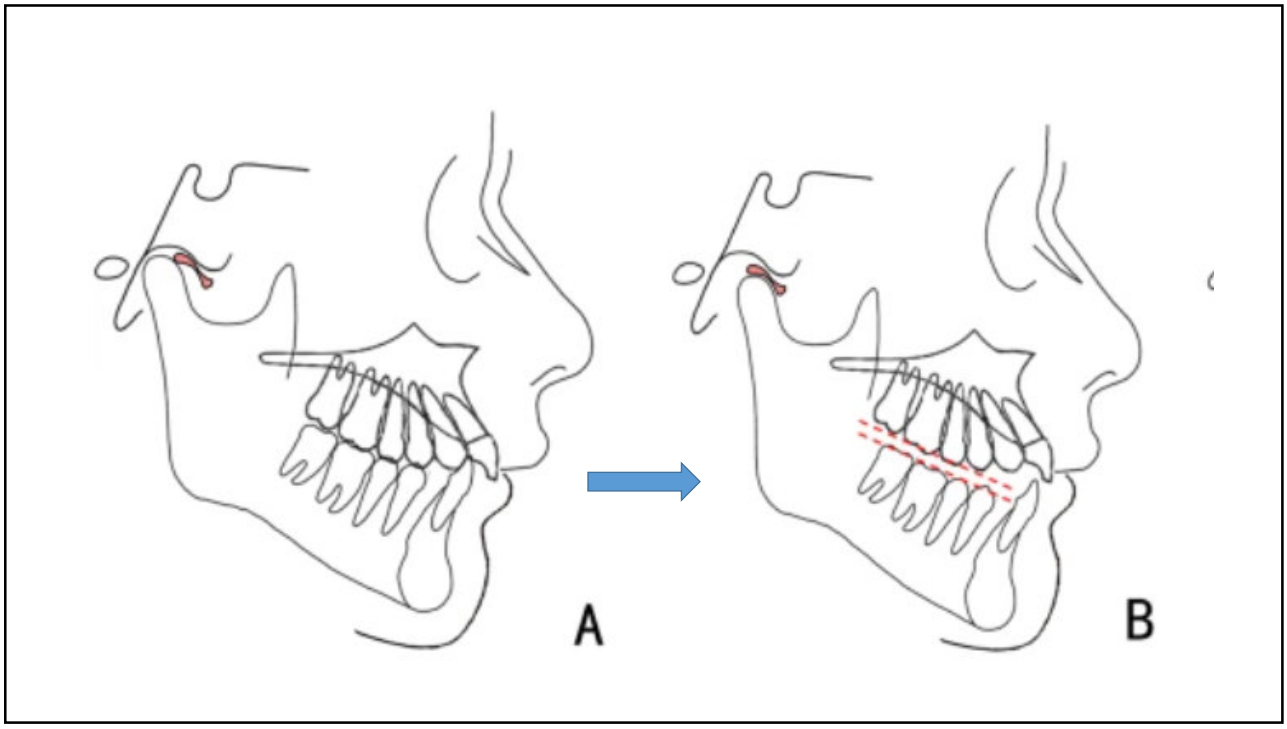
- the height, internal and external diameter, anterior and posterior diameter, volume, surface area of the condyle,and the depth of the articular fossa increased,
- also the length of the mandibular rami, length of the mandibular body, width of the mandibular rami, and mandibular length also increased.

Three-dimensional spatial analysis of temporomandibular joint in adolescent Class II division 1 malocclusion patients: comparison of Twin-Block and clear functional aligner

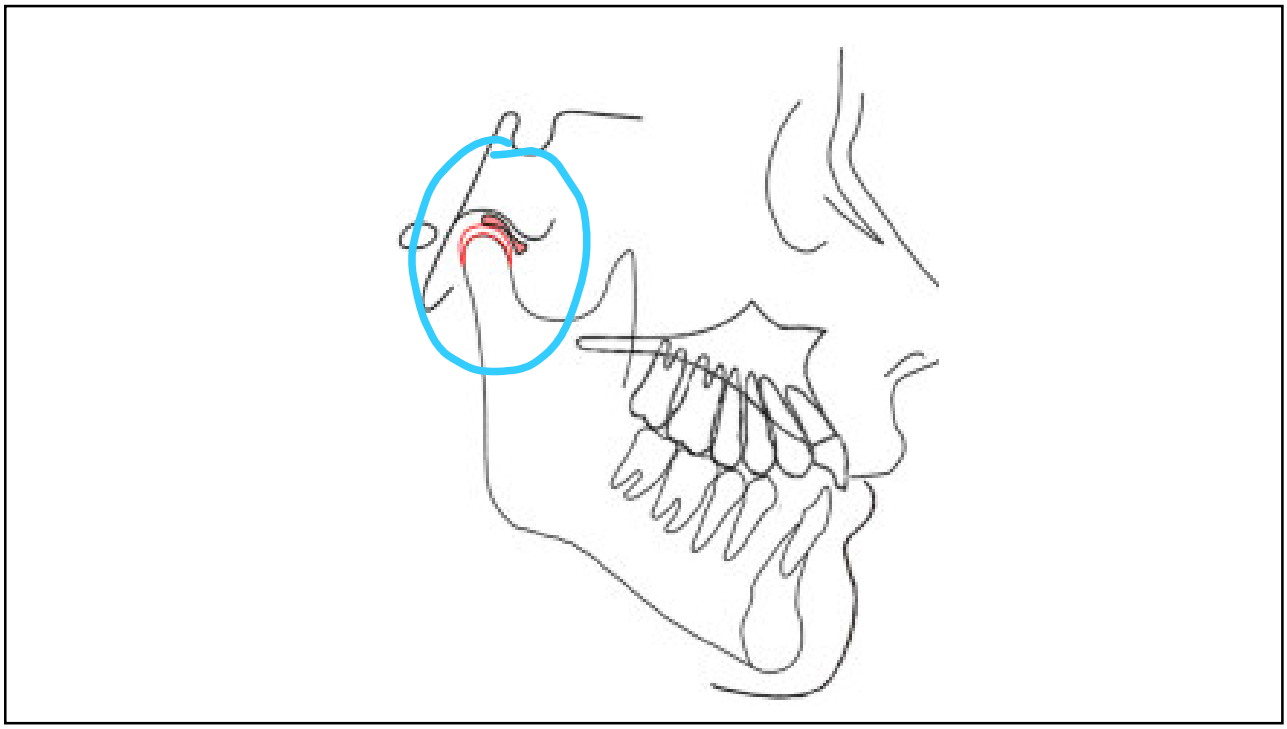
Yueying Zhang, Jiajing Zheng,Qiuyue Wu,Tianlu Jiang,Hua Xiao,Yusen Du, Yizhe Qi,Zuolin Jin &Feifei Li

Head & Face Medicine **volume 20**, Article number: 4 (2024)

67



68



69

Jaw Position Changes

Fluid Accumulation and Joint Stiffness:

- The jaw joints (temporomandibular joints or TMJ) are designed to move back and forth, which helps to pump synovial fluid in and out of the joint. When the jaw is held in a forward position for several hours, the upper synovial compartment may not be compressed, leading to fluid accumulation and potential stiffness.

Muscle Adaptation and Shortening:

- The muscles that control jaw movement can adapt to the appliance's position, potentially leading to foreshortening of the muscles and making it harder for the jaw to return to its normal position in the morning.

70

Morning Repositioner

71

Morning Repositioner

72

Good morning Positioner

73

AM Repositioner

74

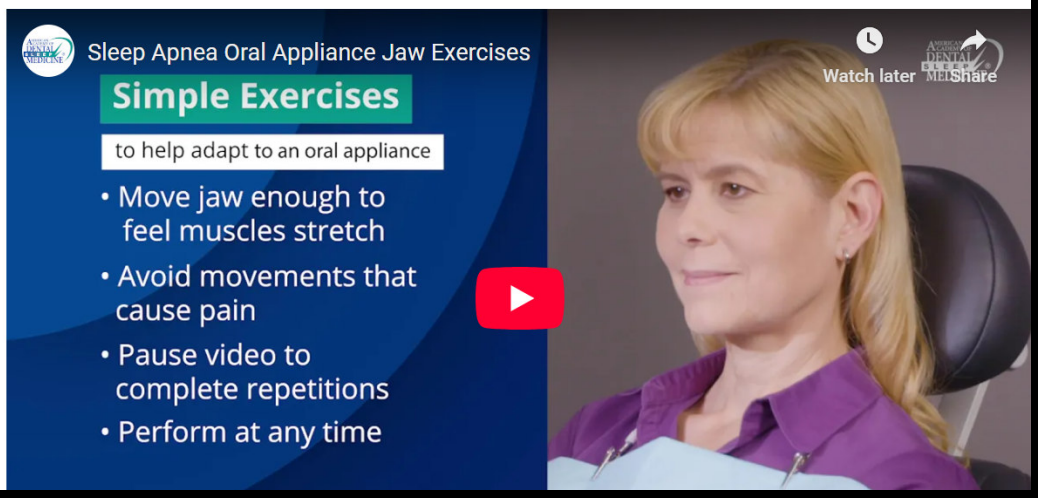
Digital Morning Repositioner

- Captures the patients **Centric Occlusion** Prior to treatment.

75

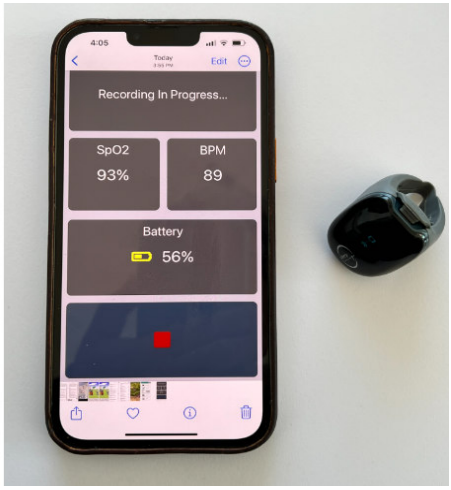
Recommended jaw stretches by the American Academy of Dental Sleep Medicine (AADSM)

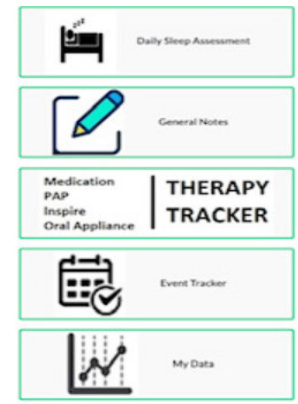
Here is a list of stretches recommended by the American Academy of Dental Sleep Medicine (AADSM). You can follow along for a clearer video demonstration here:



76

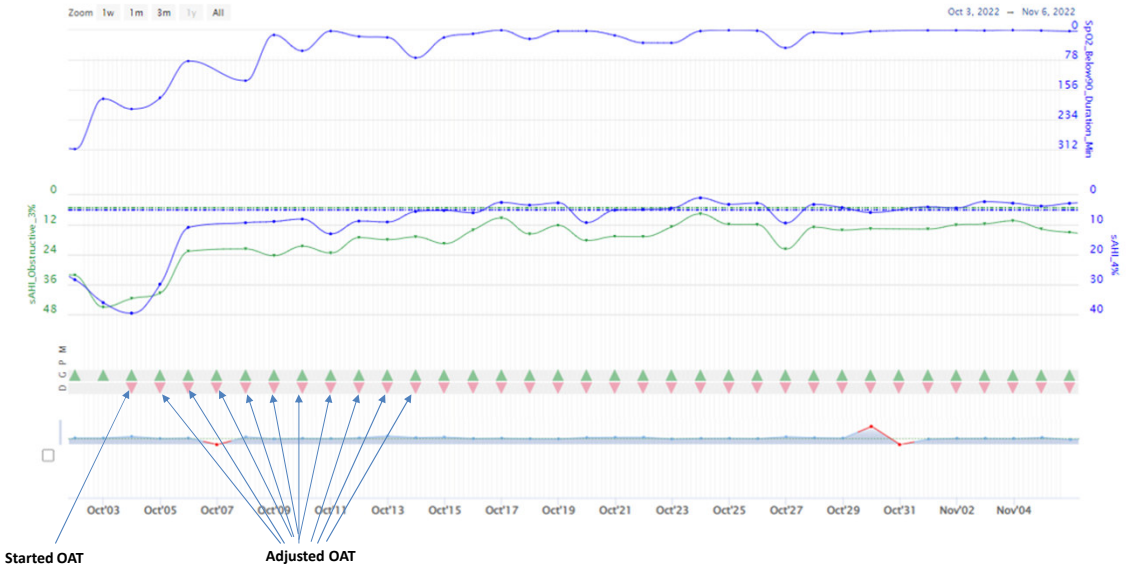
Nightly Monitoring





77

Dental Appliance Mono Therapy

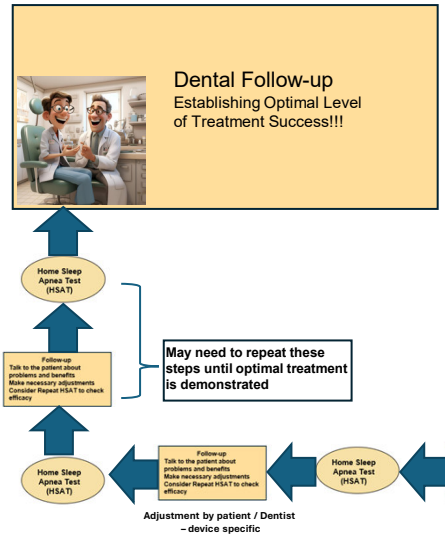


78

Non-Collaborative Dental Oral Appliance Therapy Management Plan

Note: Some States, such as Texas, require all patients treated by dentists for OSA to have a physician involved in the management in a collaborative fashion.

Dental OAT Management Plan:



Follow up Appointments

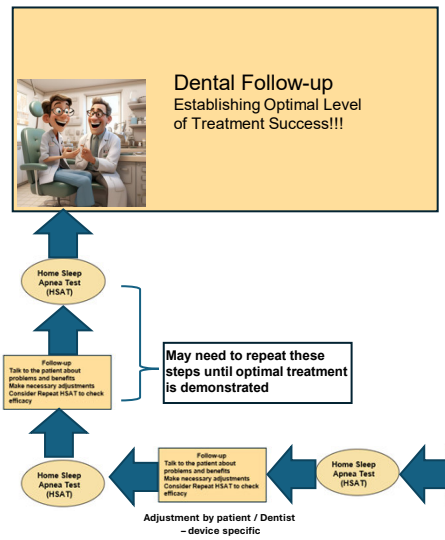
- Initially the normal range is between titration appointments is one to two weeks.
- This is done until the patient indicates they are experiencing improvements.
- However, the frequency of follow up visits is case dependent.

79

Non-Collaborative Dental Oral Appliance Therapy Management Plan

Note: Some States, such as Texas, require all patients treated by dentists for OSA to have a physician involved in the management in a collaborative fashion.

Dental OAT Management Plan:



At every appointment we:

- track the patient's progress.
- make any necessary adjustments to optimize fit and function.
- address any patient concerns.
- ensure the continued effectiveness of the appliance.

80

Medical Dental Collaborative Algorithms (Pathways)

Two Pathways:

1) Dental Medical Collaborative OAT Pathway: **Dentist screens and sends to sleep medical team for testing and treatment decision making.**

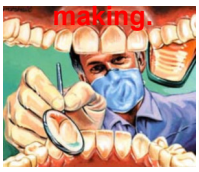
A) without nightly monitoring
B) with nightly monitoring

2) **Dental led Collaborative OAT Pathway** **(Dentist orders the sleep test – should be read by physician)**
If there are co-morbid conditions of concern, then needs physician evaluation and Tx. –
Examples include:
Severe cardiac disease, Stroke, Pulmonary disease, Severe daytime sleepiness, severe symptoms of RLS, anxiety, insomnia … etc.

A) wihtout nightly monitoring
B) **with nightly monitoring**
Most likely pathway to provide efficent care. See following slides

81

Pathway 1 PLAN : Dental Medical Collaborative OAT Algorithm
Dentist Screens and sends to sleep medical team for testing and treatment decision making.



Dental Evaluation

Screening

- sleep questions on intake questionnaire
- Consider Detailed Sleep Questionnaire
- Airway Exam & Sleep history

+ Positive responses

What to send?
1. Sleep Questionnaire
2. Sleep Evaluation & Referral Requisition form

Requisition form includes:
A) Dentist consideration for OAT
B) Exam findings plus vital signs
C) Any additional important info

Sleep physician or Sleep clinic where the patient is evaluated by a clinician knowledgeable in Sleep Medicine.

The clinician will determine the type of testing. They will perform the test and follow up with the patient on the results of the test and discuss treatment options.

Consider OAT based on the dentists referring input and the test results.

Sleep Testing
HSAT vs NPSG etc.

Clinician Follow-up
Review Sleep Study Result
Discussion Treat Options
Discuss Treatment Plan to include possible OAT
Alternative Plan if not OAT
Dental F/U discussed

+ if plan for OAT treatment, then move forward

Both Dentist and Medical (Sleep) Clinician Follow The Patient

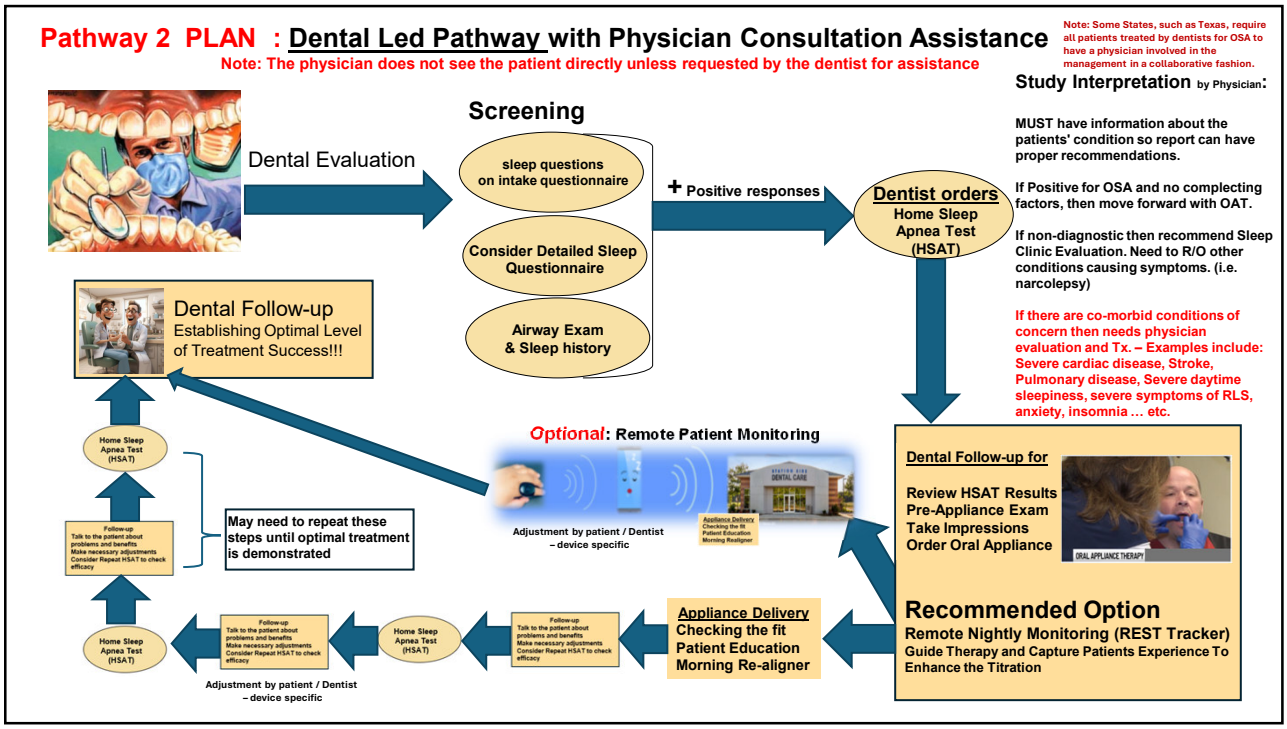
Optional: Remote Patient Monitoring

Dental Follow-up:

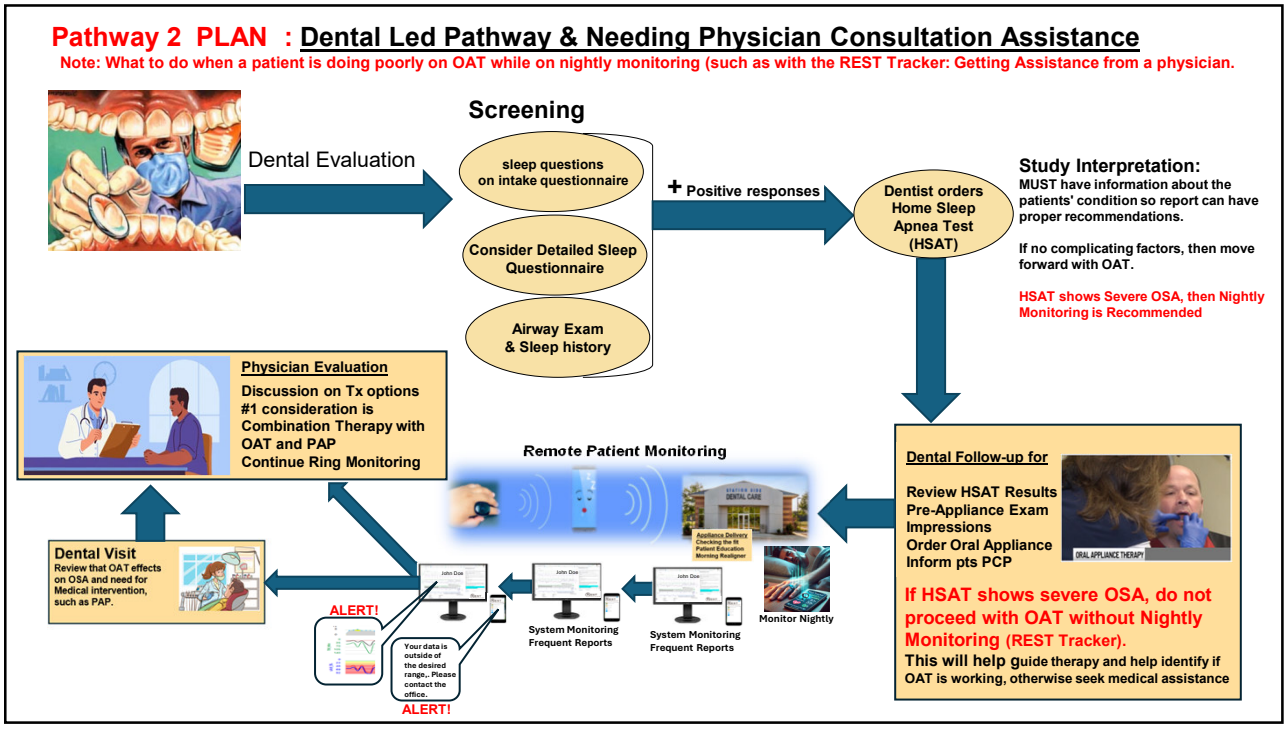
Pre-Appliance Exam
Take Impressions
Order Oral Appliance
Plan For Follow-up

Dental OAT Management Plan:
Either
- Standard Plan or
- Remote Monitoring

82


Pathway 2 PLAN : Dental Led Pathway with Physician Consultation Assistance
Note: The physician does not see the patient directly unless requested by the dentist for assistance
Note: Some States, such as Texas, require all patients treated by dentists for OSA to have a physician involved in the management in a collaborative fashion.
Study Interpretation by Physician:
MUST have information about the patients' condition so report can have proper recommendations.
If Positive for OSA and no complecting factors, then move forward with OAT.
If non-diagnostic then recommend Sleep Clinic Evaluation. Need to R/O other conditions causing symptoms. (i.e. narcolepsy)
If there are co-morbid conditions of concern then needs physician evaluation and Tx. – Examples include: Severe cardiac disease, Stroke, Pulmonary disease, Severe daytime sleepiness, severe symptoms of RLS, anxiety, insomnia … etc.
Screening
Dental Evaluation
sleep questions on intake questionnaire
Consider Detailed Sleep Questionnaire
Airway Exam & Sleep history
+ Positive responses
Dentist orders
Home Sleep Apnea Test (HSAT)
Dental Follow-up
Establishing Optimal Level of Treatment Success!!!
Optional: Remote Patient Monitoring
Adjustment by patient / Dentist – device specific
Dental Follow-up for
Review HSAT Results
Pre-Appliance Exam
Take Impressions
Order Oral Appliance
Recommended Option
Remote Nightly Monitoring (REST Tracker)
Guide Therapy and Capture Patients Experience To Enhance the Titration
Appliance Delivery
Checking the fit
Patient Education
Morning Re-aligner
Home Sleep Apnea Test (HSAT)
Follow-up
Talk to the patient about problems and benefits
Make necessary adjustments
Consider Repeat HSAT to check efficacy
May need to repeat these steps until optimal treatment is demonstrated
Adjustment by patient / Dentist – device specific

83


Pathway 2 PLAN : Dental Led Pathway & Needing Physician Consultation Assistance
Note: What to do when a patient is doing poorly on OAT while on nightly monitoring (such as with the REST Tracker: Getting Assistance from a physician.
Screening
Dental Evaluation
sleep questions on intake questionnaire
Consider Detailed Sleep Questionnaire
Airway Exam & Sleep history
+ Positive responses
Dentist orders
Home Sleep Apnea Test (HSAT)
Study Interpretation:
MUST have information about the patients' condition so report can have proper recommendations.
If no complicating factors, then move forward with OAT.
HSAT shows Severe OSA, then Nightly Monitoring is Recommended
Physician Evaluation
Discussion on Tx options
#1 consideration is Combination Therapy with OAT and PAP
Continue Ring Monitoring
Remote Patient Monitoring
Dental Follow-up for
Review HSAT Results
Pre-Appliance Exam
Impressions
Order Oral Appliance
Inform pts PCP
If HSAT shows severe OSA, do not proceed with OAT without Nightly Monitoring (REST Tracker).
This will help guide therapy and help identify if OAT is working, otherwise seek medical assistance
Dental Visit
Review that OAT effects on OSA and need for Medical intervention, such as PAP.
ALERT!
Your data is outside of the desired range,. Please contact the office.
ALERT!
System Monitoring Frequent Reports
System Monitoring Frequent Reports
Monitor Nightly

84

Determining Treatment Efficacy

Clinical end points:

- Resolution of presenting symptoms such as excessive daytime sleepiness
- Resolution of medical ramification of OSA (co-morbidities) such as improved HTN, GERD, TMD

Objective Clinical end points:

- Usually consists of a repeat Sleep Study demonstrating resolution of OSA.
  The type of test needs to be the same as that which established the diagnosis.
  In otherwards, if a pre-treatment HSAT was negative, justifying an in-lab NPSG, which was positive, you can not perform a HAST to demonstrate treatment efficacy of OSA.

*May Consider using Remote Monitoring and may not need to have a repeat in lab or formal HSAT

If patient continue to have EDS after Tx of OSA then consider:

- Narcolepsy
- Idiopathic Hypersomnia
- PLMS (even without RLS)
- Insufficient Sleep Syndrome
- Medications

Need a Medical Evaluation – COLLABORATION!

85

QUESTIONS ?????

86

THANK YOU!

87