

The Dentist's Role in the Diagnosis and Treatment of Sleep Disordered Breathing

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General Information:

□ Definitions

- **Apnea** - Complete cessation of breathing for at least 10 seconds
- **Hypopnea** - Decrease in tidal volume associated with a fall in oxygen saturation (4%) or arousal response
- **Arousal** - Shift in EEG for at least 3 seconds (in REM sleep requires also increase in EMG or movement)

□ Apnea Hypopnea Index (AHI)

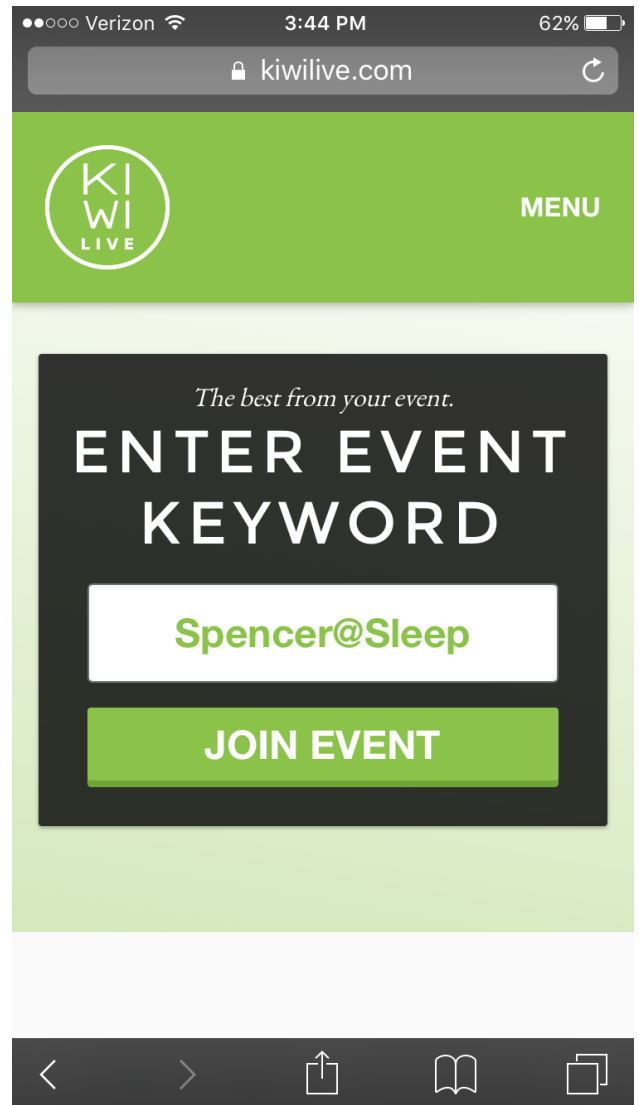
- **Normal:** less than 5 events per hour
- **Mild:** 5-15 events per hour
- **Moderate:** 16-30 events per hour
- **Severe:** over 30 events per hour

□ Oxygen Saturation

- Normally, the blood oxygen level should be above 90%. With obstructions, you can have varying degrees of desaturations. The severity of the problem depends on how much of a drop below 90%:
 - ⇒ Mild problem: 85-90%
 - ⇒ Moderate problem: 80-84%
 - ⇒ Severe problem: below 80%

□ Abbreviations

- Apnea Index **AI**
- Apnea Hypopnea Index **AHI**
- Respiratory Disturbance Index **RDI (RDI = AHI + RERA)**
- Oxygen Desaturation Index **ODI**
- Respiratory Effort Related Arousal **RERA**



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Sleep Screening Questionnaire

Please answer the questions below to help us assess the possibility of a sleep disorder which may be related to your dental and overall health. There is often a correlation between grinding of the teeth, TMJ disorders, breakdown of the teeth and sleep disorders. Sleep apnea may also increase your risk for many different health conditions including heart attack and stroke. If you are here with your child (under 16), please fill out the lower portion marked "For children only" for your child.

Name: _____ Height: _____ Weight: _____

Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations, in contrast to just feeling tired?

- | | |
|--------------------------------------|--|
| 0 = I would never doze | 2 = I have a moderate chance of dozing |
| 1 = I have a slight chance of dozing | 3 = I have a high chance of dozing |

Situation	Chance of Dozing
1. Sitting and reading	_____
2. Watching TV	_____
3. Sitting inactive in a public place (e.g. a theater or a meeting)	_____
4. As a passenger in a car for an hour without a break	_____
5. Lying down to rest in the afternoon when circumstances permit	_____
6. Sitting and talking to someone	_____
7. Sitting quietly after lunch without alcohol	_____
8. In a car while stopped for a few minutes in traffic	_____
Total Score	_____

Have you ever been diagnosed with:	Yes	No
1. Impaired Cognition (i.e. difficulty concentrating or thinking)	<input type="checkbox"/>	<input type="checkbox"/>
2. Mood Disorders/Depression	<input type="checkbox"/>	<input type="checkbox"/>
3. Insomnia	<input type="checkbox"/>	<input type="checkbox"/>
4. Hypertension (high blood pressure)	<input type="checkbox"/>	<input type="checkbox"/>
5. Ischemic Heart Disease (Coronary Artery Disease/Atherosclerosis)	<input type="checkbox"/>	<input type="checkbox"/>
6. History of Stroke	<input type="checkbox"/>	<input type="checkbox"/>
7. Sleep Apnea	<input type="checkbox"/>	<input type="checkbox"/>
If yes: Did you try to use CPAP	<input type="checkbox"/>	<input type="checkbox"/>
8. TMJ problems significant enough to require treatment	<input type="checkbox"/>	<input type="checkbox"/>
9. Gastric Reflux (GERD) or Heartburn	<input type="checkbox"/>	<input type="checkbox"/>

Are you aware of (or have you been told):	Yes	No
1. Snoring on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>
2. Feeling tired or fatigued on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>
3. Clenching or grinding your teeth (bruxism)	<input type="checkbox"/>	<input type="checkbox"/>
4. Having frequent headaches	<input type="checkbox"/>	<input type="checkbox"/>
5. Your neck size being > 17 inches (male) or > 16 inches (female)	<input type="checkbox"/>	<input type="checkbox"/>
6. Anyone in your family having sleep apnea	<input type="checkbox"/>	<input type="checkbox"/>
7. Stopping breathing when sleeping/awakening with a gasp	<input type="checkbox"/>	<input type="checkbox"/>

For children only (filled out by parent or guardian)

Are you aware of your child:	Yes	No
1. Snoring/noisy breathing while sleeping	<input type="checkbox"/>	<input type="checkbox"/>
2. Grinding his or her teeth	<input type="checkbox"/>	<input type="checkbox"/>
3. Wetting the bed	<input type="checkbox"/>	<input type="checkbox"/>
4. Having difficulty in school/learning	<input type="checkbox"/>	<input type="checkbox"/>
5. Being treated for ADD or ADHD	<input type="checkbox"/>	<input type="checkbox"/>
6. Breathing primarily through their mouth	<input type="checkbox"/>	<input type="checkbox"/>
7. Having frequent nightmares/night terrors	<input type="checkbox"/>	<input type="checkbox"/>
8. Having frequent ear aches	<input type="checkbox"/>	<input type="checkbox"/>

Dental Exam Findings:	<input type="checkbox"/> Evidence of Bruxism	<input type="checkbox"/> Scalloping of the tongue	<input type="checkbox"/> Crowded airway
	<input type="checkbox"/> Tori or Bone Loss	<input type="checkbox"/> Anterior wear	<input type="checkbox"/> Retrognathia / Class II

Think You Know Everything About Bruxism? Think Again

Jamison R. Spencer, DMD, MS

For years we have searched for answers regarding why some of our patients clench and/or grind their teeth. We have blamed this parafunctional activity on everything from premature occlusal contacts, dysfunctional mandibular position (too far forward, too far backward, too much vertical, too little vertical, in “CR,” not in “CR”), and of course emotional and psychological stress. We often see the results of bruxism in children and hear from the parents of the violent and loud nature of this parafunctional activity. We have provided every type of plastic to place between the teeth of patients to “control” their parafunctional behavior, or at least to protect their teeth and periodontium from damage—but often our attempts to control the behavior seem futile, and the patient continues to fight whatever piece of plastic we place in their mouth, or worse yet destroy their teeth and restorations. Why?

For decades a few practitioners have looked at the connection between the airway and temporomandibular disorders, particularly from a growth and development standpoint. In the last 20 years there have been more and more studies looking at exactly what is happening during bruxism events. These parafunctional activities have become better defined and described, but the “why” still remains.

However, recent studies indicate that in many cases parafunctional activity may actually be an attempt by the central and autonomic nervous systems to protect the organism. As dentists have become more involved in the treatment of obstructive sleep apnea, we are learning how very important the airway is. We’ve always recognized the “ABC’s” and know that “airway and breathing” are first and foremost, because without a proper airway we can’t breathe, and if we can’t breathe, we’re dead.

One study that should keep you awake at night (pun intended) was a pilot study which showed that 5 of the 10 sleep apnea patients had their sleep apnea WORSEN when using a flat plane nightguard, just like the ones you use to protect your patients from their bruxism. The authors state in their conclusion:

This open study suggested that the use of an occlusal splint is associated with a risk of aggravation of respiratory disturbances. It may therefore be relevant for clinicians to question patients about snoring and sleep apnea when recommending an occlusal splint.

The good news is that when bruxism is related to airway issues appropriate therapy with a mandibular advancement device can reduce or even eliminate the bruxism. Knowing this can help you protect your patient’s teeth, protect your restorations (saving you thousands in remakes) and literally protect your patient’s lives.

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