



How to Schedule and Interpret Your Home Sleep Study (HSS)

A Home Sleep Study (HSS) is recommended when the following conditions are noted by the patient or the patient's partner. This test is used for Obstructive Sleep Apnea, not all sleep issues.

- Snoring gasping/choking, temporary cessation of breathing during sleep
- Daytime sleepiness and/or Chronic Fatigue
- Drowsy driving
- Headaches, dry mouth, sore throat
- Difficulty swallowing
- Cognitive changes, mood changes, poor concentration
- Twitching or jerking movements of legs at night
- Insomnia
- REM (Deep sleep) disorders
- Depression
- Sensitive teeth from clenching and/or grinding at night

FREQUENTLY ASKED QUESTIONS:

What does the HSS test evaluate?

- Sleep Apnea (cessation of breathing)
- Oxygen saturation levels
- Bruxism (clenching and/or grinding)

Why is a HSS test recommended if I don't experience the symptoms above or do not find they affect my daily activities?

- You have wear on your teeth or you break dental restorations due to clenching/grinding (this often occurs during apnea episodes so patients do not always know they are clenching and/or grinding).
- You've had a Cone beam x-ray (CBCT), and it reveals a narrow airway

- Your images reveal a tongue posture that obstructs visualizing the uvula and back of the throat
 - Scalloping of the tongue
 - Crowding of the teeth
 - High, narrow palate
 - Recession of Gums
 - Abfractions (a loss of tooth structure not caused by tooth decay, it is suggested that these lesions are caused by forces placed on the teeth during biting, eating, chewing and grinding)

What is the benefit of a home sleep study vs. a sleep center study?

- Sleep Center
 - You must sleep in a strange place and be monitored all night
 - The average cost is \$2500—\$3500 (even a 20% co-pay would be an out of pocket expense of \$500)
 - Does test for restless leg syndrome
 - Does not test for bruxism, which we know has detrimental effects on your dental health.
- Home Sleep Study (HSS)
 - Allows you to sleep at home in familiar surroundings, using the NOXT3 system
 - The HSS fee is \$250: \$225 of which is applied toward treatment if recommended
 - \$25 for follow up studies to determine the effectiveness of the treatment
 - Does not test for restless leg syndrome
 - Does test for bruxism
 - A pilot study of 40 individuals found that the values for Apnea and Oxygen desaturations were consistent between both the NOXT3 and Sleep Center Studies

Will the home sleep study give me a diagnosis?

- We will run a preliminary software score on your test to determine if Apnea is present
- If the results are positive, we will have a Board Certified Sleep Physician run a manual scoring of your test and give us an official diagnosis. The fee for this is \$115.00
- Once we have this diagnosis, you can take a pre-printed prescription to your Primary Care Doctor or you may sign a Records Release form and we will communicate directly with your doctor.

Who do I talk to if I want to learn more about this?

- Dr. Sambataro, Dr. Graham, Dr. Meltzer, as well as any of the Julian Center team would be happy to help you
- You may also contact our Sleep Program Coordinator, Karan Earles directly by calling the office or by email at kearles@julianctr.com

What are the steps to getting a sleep study done at the Julian Center?

- Meet with our Program Coordinator to fill out the necessary paperwork
 - We will need your Medical Insurance cards (we are unable to bill Medicare or Medicare Supplemental)
 - Receive instructions, watch a brief video and take your Home Sleep Study test

What about insurance reimbursement?

- If you have medical insurance and you are found to have Sleep Apnea, we may be able to help you obtain medical insurance reimbursement for treatment. This may consist of an oral sleep appliance (OSA), Manual therapy, and/or Laser treatment.
- The first step in this process is to verify your medical insurance benefits for treatment of Apnea and OSA. This will also let us know if your carrier requires a pre-authorization
- Once this step is complete, you may schedule for your first appointment to get you on your way to better, healthier sleep
- If you do not have medical insurance or choose not to use your insurance, you may schedule treatment anytime after your diagnosis, completed Julian Protocol Work-up and consultation with Dr. Sambataro

What is the treatment?

- The treatment plan will be developed by gathering information provided by you, along with the results of your Julian Protocol Work-up as well as the results of your sleep study
- Because the Julian Center creates custom/individualized treatment plans, we aren't able to say initially what your plan will consist of until the treatment plan is prepared and you've had your one on one consult with Dr. Sambataro

How to Interpret Your Sleep Study Results

The primary value that NOXT3 uses to determine Sleep Apnea is the AHI (Apnea/Hypopnea Index)

- Apnea refers to a complete airway collapse, causing cessation of airflow at the nose and mouth for at least 10 seconds, with a drop in oxygen level and arousal from sleep (you may not be aware of these arousals but they interrupt deep sleep).
- Hypopnea is overly shallow breathing or an abnormally low respiratory rate. Hypopnea is defined by some to be less severe than [apnea](#) (the complete cessation of breathing), while other researchers have discovered hypopnea to have a "similar if not indistinguishable impact" on the negative outcomes of sleep breathing disorders.
- There are three types of Sleep Apnea:
 - Obstructive - usually tissue from the soft palate and tongue obstructing airflow
 - Central - this comes from the body "forgetting" to breathe (this occurs in the brain)
 - Mixed - combination of obstructive and central
- AHI Values:
 - 0 - 4 = Within Normal Limits
 - 5 - 14 = Mild Apnea
 - 15 - 29 = Moderate Apnea
 - 30+ = Severe Apnea
- First line treatment for mild or moderate Apnea is an Oral Sleep Appliance
- First line treatment for severe Apnea is CPAP (Continuous Positive Airway Pressure) **UNLESS** it has been determined that you are/have not or would not be compliant with CPAP Treatment
- ODI (Oxygen Desaturation Index) refers to the number of times your oxygen levels fall below 97% divided by the total number of hours you have slept during the recording. Oxygen saturation is ideally 98-100% and it refers to the available oxygen in your blood. These desaturations can lead to disruption of any cellular process requiring oxygen - all cells!
- SI (Snore Index) refers to the total duration of time spent snoring during the recording. Snoring is to some extent, a survival mechanism because it does wake you, or your bed partner, so that you wake slightly and shift position and begin to breathe again. If you find that you wake startled, choking, or panicked, you may have Sleep Apnea.
- BEI (Bruxism Episode Index) refers to the number of clenching/grinding events that occur during the test. If you only brux at night, there is a good possibility that the events are related to an attempt to open the airway by clenching the teeth. This is because tightening the jaw muscle

causes the neck muscles to relax. Humans are designed this way for the purpose of swallowing, however, chronic bruxing can cause significant damage to the teeth, as well as gum recession which can lead to tooth loss.

- BEI Values:
 - 0 - 2.5= Within Normal Limits
 - 2.5 - 5.0 = Significantly Destructive Bruxism, which usually requires treatment
 - 5.0 + = Highly Destructive Bruxism, which usually requires multiple methods of treatments
- It is important to understand how upper airway resistance and Sleep Apnea affect the body over time. Airway resistance does not meet the criteria for Apnea but it may still have an affect due to the oxygen desaturation events. Diseases that are closely correlated with chronically low oxygen levels include but may not be limited to cardiovascular events such as sudden heart attack and stroke, diabetes, cancer and dementia. Chronic desaturation of oxygen may not be apparent but this is a progressive disease and is made worse by stress, decreased time in REM (deep) sleep, weight gain, and other co-morbidities such as hypertension, insomnia, impaired cognition, or any illness that puts the body under stress causing it to need more oxygen. Lack of REM sleep puts you at risk for auto and other accidental injury. Not getting deep REM sleep is like staying in a state of fight or flight all night.

THE BOTTOM LINE:

Undiagnosed and untreated Sleep Apnea can lead to illness, disease and even pre-mature death!

