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# Sleep Studies A Brief Introduction

*What to Expect at the Sleep Lab*

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## ***What is a Sleep Study?***

Sleep studies, or polysomnographic (PSG) studies are a series of tests that help your physician to evaluate what happens to your body and mind during sleep.

A sleep study is ordered by a physician when it is thought that a sleep disorder may be affecting their patient's health. A number of sleep disorders can have a profound effect on our well-being, such as:

- Problems staying awake (excessive daytime sleepiness)
- Narcolepsy - The sudden loss of consciousness associated with laughter or strong emotion.
- Sleep disordered breathing, which may be caused by certain obstructive or central nervous system disorders.
- Problems maintaining a regular sleep/wake schedule
- Problems with sleep-disruptive behaviors (sleep walking, night terrors, bed wetting)
- Problems with falling or staying asleep including insomnias.
- Problems with a persons "sleep architecture" or pattern of sleep.

The most common studies we perform at BSL Sleep Labs are:

- **Polysomnography (PSG).** This electrophysiologic procedure records a variety of body functions during sleep, including electrical activity of the brain, eye movement, muscle activity, heart rate, breathing, air flow through the nose and mouth, snoring, and blood oxygen level.
- **CPAP Titration.** Continuous Positive Airway Pressure, or CPAP, is the most effective and common treatment for OSA. CPAP blows air into your airway under gentle pressure to keep it open. A CPAP Titration is done in order to determine the amount of pressure is needed to allow the patient a healthy night's sleep.
- **Multiple Sleep Latency Test (MSLT).** This test is done to measure how long it takes a person to fall asleep during the course of a day.
- **Maintenance of Wakefulness (MWT).** This test is done to measure how well a person can stay awake during the day.



## ***Why is it done?***

Long term consequences of untreated sleep disorders are substantial to be sure. They are associated with numerous, serious medical illnesses, including:

**High Blood Pressure**

**Obesity**

**Heart Attack**

**Mental Impairment**

**Heart Failure**

**Fetal and childhood growth retardation**

**Stroke**

**Depression and other mood disorders**

Getting good sleep can have a tremendous impact upon your health. You should wake up feeling refreshed and alert, and you should generally not feel sleepy during the day. If this is not the case it is very important to consider that you may have an unrecognized sleep disorder. It may surprise you to learn that chronic sleep deprivation, regardless of its cause, significantly affects your health, performance, and safety.

There are a number of causes of sleep deprivation. The stress of daily living may make it difficult for us to sleep well, or perhaps, like many Americans, we willingly trade sleep for more work or play time. After a typical night's sleep, you may not wake feeling restored and refreshed and be sleepy during the course of the day, and still not be aware that you are sleep-deprived or have a sleep disorder. You might think, "It's just stress," or you might "I always feel this way" and not realize that you should feel differently. This lack of awareness compounds the problems, because so many people remain undiagnosed for years.

- The National Highway Traffic Safety Administration (NHTSA) estimates conservatively that each year sleepy drivers are responsible for at least 100,000 automobile crashes, 71,000 injuries, and over 1,500 fatalities.
- Excessive sleepiness also contributes to a greater than two-fold higher risk of on-the-job injury.
- Decreased alertness and excessive daytime sleepiness impair your memory and your cognitive ability - your ability to think and to process information.
- Disruption of a bed partner's sleep due to a sleep disorder may cause significant problems for the relationship (for example, separate bedrooms, conflicts, moodiness, etc.).
- You may experience a poor quality of life. For example, you might be unable to participate in certain activities that require sustained attention, like going to the movies, seeing your child in a school play, or reading a book.
- Sleep deprivation induces significant reductions in performance and alertness. Reducing your nighttime sleep by as little as one and a half hours for just one night could result in a reduction of daytime alertness by as much as a third.

## ***Why is it done? (cont.)***

Studies show an increased mortality for those reporting less than either six or seven hours per night, as well as those reporting more than eight hours of sleep time per night. Study findings are eye opening; one found that reduced sleep time is a greater mortality risk than smoking, high blood pressure or heart disease.

It is crucial to understand the extent and prevalence of these disorders; more than 80 sleep disorders are recognized by the American Sleep Disorders Association, affecting more than 70 million Americans. Most cases, unfortunately, go undiagnosed and untreated.

The good news for many of the disorders that cause sleep deprivation is that after risk assessment, education and treatment, memory and cognitive deficits improve, health risks are lessened, and the number of injuries decreases. You've already taken the first step in talking with your primary care physician, but it is important for you to follow through on the course of treatment and diagnosis they prescribe in order to achieve the best result: healthy restful sleep.

## ***How do I prepare for a sleep study?***

- **In the days leading up to your study, try to follow your normal sleep routine and habits. Arrive for testing neither deprived of sleep nor over-rested.**
- **As best as you can, avoid taking any naps on the day of your study.**
- **Do not drink or eat any products containing caffeine such as coffee, tea, carbonated beverages, and chocolate on the day of the study.**
- **Alcohol is known to disrupt sleep so avoid its use prior to the test.**
- **Take a shower or bath before leaving home, but do not apply sprays, oils, or gels to you hair.**
- **FEMALES - Wash any make-up off, and avoid any skin creams or lotions.**
- **MALES – Please shave any new facial stubble – full growth can be worked around.**
- **You will be asked to remove any earrings or necklaces, so you may consider leaving them at home.**
- **Bring a list of medications you are currently taking.**
- **Wear comfortable loose fitting clothes to sleep in.**
- **Bring your insurance card for check-in.**
- **Time your arrival at BSL Sleep Labs at your scheduled time, typically at 8:30 pm or 9:30pm.**



## ***How is it done?***

The BSL Sleep Labs consist of two bedrooms, each, that are connected to a larger room where all monitoring equipment is kept. Warmly decorated bedrooms are designed to seem more like home, and less like a clinic. In addition, the rooms are sound-dampened, temperature-controlled, and pitch black when the lights are turned out.

Two pre-sleep assessments are performed to establish the patient particulars for the evening. The first, completed by the patient (or guardian if the patient is a child), asks about your previous night's sleep, the day's activities, medications, as well as your current mood and feelings of fatigue or sleepiness. Our technicians also perform a pre-sleep assessment which includes noting your blood pressure, sleep schedule, sleep problems, other important questions prior to your study.

In order to identify and classify sleep, it is necessary to record the electrical activity of three systems: the brain, the eyes, and the muscles. In diagnosing sleep disorders we must also monitor the activity of the cardiopulmonary systems, the heart and lungs, and record the occurrence of any irregularities. These systems are monitored simultaneously by a digital polygraph, which allows continuous monitoring throughout the night without disturbing the sleeping subject.

For PSG studies, small metal disks called electrodes will be attached at various points to the head and body (see photo on the next page). These electrodes are small and cupped to hold a minimum amount of conductive paste. They are held in place by small pieces of tape or gauze, and the process is entirely without pain or discomfort.

The electrodes will record your brain activity, eye movements, heart rhythm and rate, leg movements, blood oxygen levels, and snoring. Elastic belts will be placed around your chest and abdomen to measure your breathing.

**We know it sounds like an overwhelming amount of equipment, but they are designed to be as comfortable as possible and, truly, shouldn't interfere with your ability to sleep. Should you need to get up during the night, the equipment is readily unhooked from the digital polygraph to make pausing the test a simple matter.**

One of our knowledgeable sleep technicians will be in a separate room monitoring the data being recorded and will be able to answer most any question you might have during the process.

For most studies, you will be required to spend at least 6 hours overnight in our sleep lab.





How do I get to the lab?

## **BSL Bastrop** -

- 441 Hwy. 71 W., Bastrop, Texas 78602



- Going East on HWY 71 you will take the Hasler Exit
- Stay on frontage road to Loop 150
- Turn left at the light
- Turn left at Hospital Dr.
- Turn right just past Grady Truck Ln
- Follow behind Tractor Supply
- You will see "Bastrop Sleep Lab" on the door.



## How do I get in touch with BSL Sleep Labs?

Here is a list of our phone numbers should you need to contact us for any reason:

**Scheduling Or  
Insurance Questions:**      **512.303.4997**

**BSL Bastrop:**      **512.303.4997**

**BSL Austin:**      **512.303.4997**



## Where can I find more information?

### **National Institutes of Health, National Center on Sleep Disorders Research (NIH/NHLBI/NCSDR)**

Two Rockledge Centre  
6701 Rockledge Drive, MSC 7920  
Suite 10038  
Bethesda, MD 20892-7920

Phone: 301.435.0199  
Fax: 301.480.3451  
E-mail: [ncsdr@nih.gov](mailto:ncsdr@nih.gov)  
Web: <http://www.nhlbi.nih.gov/about/ncsdr/index.htm>

The web site for this center includes current information about the diagnosis and treatment of sleep disorders, facts about sleep disorders, and links to other organizations to help you find more information.

### **National Sleep Foundation**

1522 K Street, NW  
Suite 500  
Washington, DC 20005

Phone: 202.347.3471  
Fax: 202.347.3472  
E-mail: [nsf@sleepfoundation.org](mailto:nsf@sleepfoundation.org)  
Web: <http://www.sleepfoundation.org>

The National Sleep Foundation, an independent nonprofit organization, can provide you with brochures on sleep and tools to help you.

### **American Sleep Apnea Association (ASAA)**

1424 K Street, NW  
Suite 302  
Washington, DC 20005

Phone: 202.293.3650  
Fax: 202.293.3656  
E-mail: [asaa@sleepapnea.org](mailto:asaa@sleepapnea.org)  
Web: <http://www.sleepapnea.org>

This organization provides education and support for people who have sleep apnea.