

Sleep Studies: In the Sleep Laboratory and in the Home

It can be normal to have trouble sleeping from time to time, but if you are having trouble sleeping most nights, you may have a sleep problem. Sleep problems can affect your quality of life, and some can pose a serious threat to your health if left untreated. If you think you might have a sleep problem, discuss your symptoms with your health care provider.



After reviewing your sleep history, your health care provider may refer you to a specialized sleep center/lab, where trained technicians will perform a sleep study. Sleep studies are tests that monitor your sleep, either overnight or during a series of naps during the day. These tests are painless and used to diagnose sleep problems such as insomnia, sleep apnea, or narcolepsy.

Why do I need a sleep study?

Your health care provider has determined that you are having health problems possibly related to poor sleep. Sleep studies will help your health care provider determine whether you have a sleep problem and, if so, what the best treatment options are for you.

What are some of the most common signs of sleep problems?

- Snoring loudly during sleep
- Stopping breathing during sleep
- Sleeping in a fitful or restless manner
- Feeling very sleepy during the day

If you have one or more of these signs, you may have a sleep problem. Examples of two common sleep problems are: obstructive sleep apnea, a condition in which you stop breathing during sleep due to a narrowed or closed airway, and narcolepsy, a condition in which you experience daytime sleepiness and may fall asleep at unexpected times, such as during work, school, or driving. These and other sleep conditions can cause serious health problems and poor quality of life and need to be properly diagnosed and treated.

What are the different types of sleep studies?

The evaluation of sleep problems can be done at home or in a specialized sleep center that can study your sleep during the day or at night. The sleep specialist will decide which type of study is best to evaluate your sleep problem.

There are different types of studies conducted at night, called "overnight studies," and they can be performed at home or in a sleep lab:

- Home sleep testing: This study records breathing rate and airflow, heart rate and oxygen levels and is performed in the home. A technician will train you in using the equipment and will not be present overnight during the study.
- Full Polysomnography: This study is generally performed in a sleep laboratory (lab). Several body functions are measured during sleep including; breathing, heart rate, body movements, brain activity, and eye movements. A technician is available and observing during the study.
- Continuous Positive Airway Pressure Trial: This test is done to see how well you sleep while using nasal continuous positive airway pressure therapy (CPAP), a treatment for obstructive sleep apnea. As you sleep, CPAP delivers air to you through a mask placed over your mouth and nose or only over your nose. The air that flows into your lungs under slight pressure prevents the airways from narrowing or closing, allowing you to breathe normally and sleep well. A CPAP trial is generally performed in a sleep lab as it requires trained staff to make adjustments in the settings based on how the person is doing.

- **Split Night Study:** This study is a combination of a full polysomnography and CPAP trial described above. In a split night study, you sleep part of the night without the CPAP to see whether you have sleep apnea. If you have sleep apnea, you will sleep with CPAP the rest of the night. This study is also performed in a sleep lab.

Studies conducted during the day include:

- **Multiple sleep latency test (MSLT):** This study is done to see how sleepy you are during the day. The MSLT is used most often to diagnose narcolepsy (inability to stay awake during the day) and see what might be causing your excessive daytime sleepiness.
- **Maintenance of Wakefulness Test (MWT):** This study is done to see how well you can remain awake when you are in a situation that makes it easy to get sleepy.

What can I expect during my sleep study?

If you are doing the study in a sleep lab, a sleep technician will show you to a (usually private) room. The technician will tape or gel small metal discs on your head and body. Needles are NOT used. These discs are called electrodes and will measure your brain activity, eye movement, heart rate and rhythm, breathing rate and rhythm, snoring, and muscle movements in your face, chest, belly, and legs. Your oxygen, carbon dioxide, and amount of air flowing through your mouth and nose will also be measured.

If you are going to have a CPAP study, the technician will help you select a mask most comfortable for you to wear during the study. Usually the mask just covers your nose. After the electrodes are placed, you can relax until the technician is ready to have you go to sleep. Your sleep and breathing will be monitored for the entire study. If you need to get out of bed to go to the bathroom, you can alert the staff and they will help you. Most centers will wake you after the study is completed. The sleep center will provide you with a list of things to bring, depending on whether the study will be held overnight or during the day. They will also give you a list of what to do and not do.

If you are doing the study at home, you may either be given portable equipment by the clinic or a technician may bring it to your home. If you are given the equipment to take home, you will be instructed on how to set it up. This equipment is generally easy to setup and use. You will get instructions on how to turn it in when the study is done.

If I have a study in a sleep lab, what should I bring with me to the sleep study?

- Loose fitting sleepwear if you're having an overnight study, or comfortable loose clothes for a daytime study.
- Something to read or work on while awaiting the start of the test. Most sleep centers have televisions in the rooms.

- Personal toiletry items and a change of clothes for the next day if you are having an overnight study.
- Any medications you need to take.

How Do I Prepare For A Sleep Study?

- Eat your regularly scheduled meals the day of your sleep study.
- No alcohol, caffeinated beverages (coffee, tea, soda), or chocolate (foods or drinks) for at least 24 hours before your study.
- Ask your health care provider if you should stop any medications before having your sleep study.
- The night before your sleep study, go to sleep at your normal bedtime. DO NOT take naps the day of the study.
- Shower and wash your hair prior to the study.
- DO NOT use make-up, lotion, powders, perfume, and cologne or aftershave on your skin, or conditioners, hair spray or gels in your hair. Oils, gels and sprays can interfere with the recording by the electrodes.

What happens after my sleep study?

Your sleep study will be read by a sleep specialist and a final report will be sent to your health care provider after the study. You should schedule a follow-up visit with your health care provider to discuss the results of your study and any treatment that is needed. If the sleep study shows that you need treatment, your health care provider will advise you what you should do. Your health care provider will order the equipment you need, arrange training on how to use the equipment, and schedule any more tests that may be needed.

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Additional Resources:

American Academy of Sleep Medicine

<http://www.sleepeducation.com/disease-management/in-lab-sleep-study/overview>

American Sleep Apnea Association

<http://www.sleepapnea.org/>

American Thoracic Society

<http://www.thoracic.org/patients/patient-resources/>

National Sleep Foundation

<http://www.sleepfoundation.org/article/sleep-topics/sleep-studies>

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