

interfere with obtaining the necessary data from your study.

How is all this information put together?

The sleep study is interpreted and read by specialized technologists and physicians with training in sleep disorders. Your sleep study will be analyzed or "scored" by a technologist to generate a report about your night's sleep. A physician will then review the sleep study report and give his/her interpretation of the results.

When will the results be ready?

The sleep study contains hours of data. Results should be back to your doctor within 3-4 weeks.

My doctor has ordered a nap study / daytime test. What is that and how is it different from the sleep study?

Two different types of daytime tests, to evaluate daytime sleepiness, are conducted in the sleep laboratory. A Multiple Sleep Latency Test (MSLT) or a Maintenance of Wakefulness Test (MWT) may be necessary as part of your overall sleep evaluation. Both tests require you to stay at the sleep laboratory for most of the day following an overnight study. The results of the daytime nap studies are evaluated in relation to your previous night's sleep.

- For the MSLT study you lie down for a series of short naps that last no longer than 35 minutes. The naps are scheduled throughout the day at 2-hour intervals.

- The MWT differs from the MSLT in that you will be sitting up in a comfortable chair in a dimly lit room and will be asked to try to remain awake for 40 minutes. These tests are also scheduled every 2 hours throughout the day.

These daytime tests may make for a long day, so please make sure you bring something to keep you busy between testing times, such as a book. Find out whether lunch will be provided or if you need to bring your own or money for the cafeteria.

IV. TREATMENT IN THE SLEEP CLINIC

If obstructive sleep apnea is observed during your study and you previously reported symptoms suggesting sleep-disordered breathing, the technologist may apply therapy to assist your breathing during sleep. This therapy may also be used during another study at a later date.

What is CPAP?

CPAP (pronounced see-pap) stands for Continuous Positive Airway Pressure. A CPAP machine is a device that delivers this air pressure. The continuous pressure from the CPAP unit acts like a splint to prevent the airway from collapsing, allowing you to breathe normally while you sleep. This therapy consists of a blower, humidifier, tubing, and a mask.

There are different styles of masks that may be used. Typically, a mask that covers the nose is used. There are some smaller masks that fit inside your nose, and there are also masks that cover the nose and mouth. In order for you to use CPAP therapy effectively, you will need to have the proper mask style and pressure level determined. The procedures for mask fitting and initial set-up vary slightly for each sleep centre. Some sleep centers will determine mask style and size and pressure levels during a sleep study. Other centers work with CPAP suppliers who will determine the mask style best suited for you. These suppliers may give you an opportunity to use a CPAP unit for a few nights prior to having your pressure levels adjusted in the sleep laboratory. Some sleep centers will use "auto-CPAP" units as part of their treatment plan.

A CPAP titration is a sleep study that is performed in the sleep laboratory adjusting the CPAP pressure. In addition to using the same sensors as in your initial sleep study, you will be using a CPAP machine. The air pressure is started at its lowest setting. Once you are asleep the pressure is increased gradually in order to treat apneas and/or snoring. During the night, the technologist may ask you to sleep on your back (supine) so that the pressure can be properly adjusted for all of your sleeping positions. A higher pressure is usually required when sleeping on your back.

What happens if I need CPAP?

You need a prescription in order to obtain a CPAP unit. There are registered healthcare companies with qualified personnel from whom you can obtain your CPAP unit, mask and consumables. You will also be given instructions on how to set-up and use your CPAP machine. You should use CPAP every night and whenever you nap. If you travel you should take the CPAP with you. The effect of this therapy on people with sleep apnea can be quite dramatic - patients report feeling much less sleepy and that their energy levels have increased.

For more information about sleep apnea and other types of treatment, see the CSS brochure on Obstructive Sleep Apnea (OSA). You may also find other helpful brochures on several other types of sleep disorders.

V. SUMMARY

We hope that your experience at a sleep center is a positive one. Understanding the sleep process and the evaluation of sleep disorders can help you take an active role in your own health care.

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Sleep Study Questions and Answers: A Guide for Patients



CANADIAN SLEEP SOCIETY

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WHAT IS A SLEEP STUDY?

Why am I being sent for a sleep study?

A sleep study is a specialized test that your doctor ordered to investigate whether you have a sleep disorder. For instance, such a test if you have problems such as difficulty falling asleep or staying asleep, snoring, pauses in your breathing when you sleep, or restless sleep. A sleep study may also be ordered for problems with daytime symptoms such as sleepiness, morning headaches, difficulty concentrating or remembering.

What is an overnight sleep study?

Sleep, breathing and movements are monitored in an overnight sleep study at a Sleep Disorders Laboratory. Some problems that might be revealed through the study include:

- Sleep apnea, which is when people stop breathing for short times
- Breathing problems such as shallow or slow breathing
- Leg movements that disturb or prevent sleep
- Teeth grinding (or bruxism) that can disturb sleep
- Behaviour changes during sleep such as sleep walking or acting out dreams
- Poor sleep quality

How do I prepare for a sleep study?

- On the day of the study, please avoid taking naps.
- Follow your normal diet, but avoid any caffeine after noon on the day of your study.
- Continue with your regular medication unless the doctor tells you otherwise.
- Please note that napping, using alcohol, recreational drugs or caffeine affects the test and can limit its usefulness.
- Shower or bath before going for your study. Do not use hair products including gels, creams and sprays. Many hospitals are scent-free. Also avoid using skin lotion, face makeup, fingernail polish or acrylic nails as these products interfere with procedures. Men who are normally clean-shaven should shave on the evening before going to the sleep laboratory. There is no need to shave your full beard.
- Patients with special needs should inform the Sleep Disorders Laboratory if any special arrangements need to be made prior to the test.
- Be sure to complete any questionnaires that may have been sent to you prior to your sleep study. What items do I need to bring with me?
- Valid Health Care Card and/or a current Hospital Patient Registration Card.
- Be sure to bring all prescription and non-prescription medications that you will need to take before going to bed and in the morning.
- Comfortable bed clothes, preferably pajamas. Robe and slippers if you require them.
- It's often a good idea to bring your own pillow.
- Personal toiletries (toothbrush, etc.).

- If you are diabetic, or get hungry at night, bring a snack and something to drink.
- Light reading material to keep you occupied while possibly waiting your turn for hook-up.

What happens when I get scheduled for a sleep study?

Your sleep study will be scheduled through the Sleep Disorders Laboratory to which your doctor has referred you. Depending on specific sleep laboratory procedures, your appointment may be scheduled by phone or by mail. Upon arrival at the sleep laboratory, the sleep technologist will explain the night's agenda and show you to your room to allow you to prepare for bed.

II. WHAT HAPPENS DURING THE SLEEP STUDY?

In order to monitor your sleep, the technologist will apply various electrodes and sensors to your head, face, chest, and legs. This set-up takes 30 to 60 minutes. These sensors are for monitoring your sleep, breathing patterns, oxygen levels, and movements. There is usually a questionnaire to fill-out in the evening.

A technologist will monitor the machines in an adjoining room and will be available at all times during the night should you require assistance. Getting up to use the bathroom is no problem, but it is best to try to avoid drinking excessive liquids after 6 p.m.

At approximately 6 a.m. your sleep study will be complete. The technologist will wake you up and remove the sensors. There is usually a short questionnaire to answer in the morning. In some cases, a doctor may meet with you the morning after your sleep study to review your preliminary results and perhaps give you some suggestions on how to improve your sleep. Some facilities have showers for your convenience, and after that you will be free to leave.

What are these sensors and what information do they collect?

Each sensor plays an important part in diagnosing any sleep disorder you may have. Skin areas are first cleaned by the sleep technologist before the sensors are applied. This cleaning may involve using a gritty gel which is gently rubbed on the skin. The sensors are then placed on the skin and head using medical tape and sometimes medical glue. They are all non-invasive so there is no pain involved. The adjacent sketch shows some of the sensors and electrodes.

Here is a list of all of the sensors and what they measure:

- Monitoring your sleep patterns through brain waves, eye movements and muscle activity: In order to determine your sleep stages, we apply electrodes on

your head to record your brain waves (electroencephalogram, EEG), electrodes near the eyes to measure eye movements (electrooculogram, EOG), and under the chin to measure muscle tone (electromyogram, EMG).

- Airflow: A sensor or two will be placed on your upper lip to monitor the airflow through your nose and mouth. If there are periods when you stop breathing (apnea), the tracing becomes flat because there is no air passing over the sensor.
- Breathing effort: Breathing effort is measured with two expandable belts that fit around your chest and abdomen. These belts record the movement of those areas to show how hard you are trying to breathe.



- Oxygen level: A probe with a red light is placed on your finger. This is connected to an oximeter, which is used to monitor your blood oxygen level throughout the night.
- Heart rate: Two or three electrodes placed on the chest will monitor your heart rate and rhythm.
- Video monitoring, body position, and snoring: An infrared camera may be present in the bedroom which will allow the technologist to observe and note any body position changes as well as unusual sleep behaviours.
- A snoring sensor (either a microphone or vibration sensor) may be placed near your throat.
- The room may also be monitored to detect sound.

III. COMMON QUESTIONS

How will I be able to sleep with all these wires and equipment attached to me, and also in a strange environment?

This is the most frequently asked question from patients prior to their sleep study. The electrodes may initially feel a bit strange, but you will become quickly accustomed to them. They are simply taped or pasted to the skin so there is little discomfort. The wires are gathered behind your head in a "ponytail" to prevent them from getting in the way so that you can roll-over and change position. The sleep specialist that interprets your study understands that your sleep in the laboratory may not completely match your sleep at home; this difference usually does not