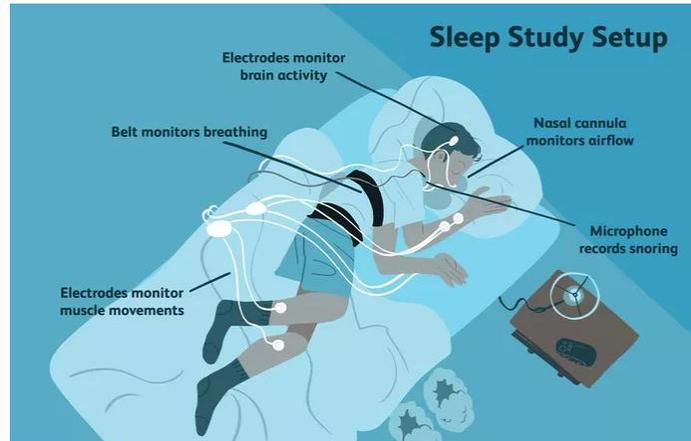


## POLYSOMNOGRAPHY/ SLEEP STUDY.



Polysomnography, a type of sleep study, is a multi-parametric test used in the study of sleep and as a diagnostic tool in sleep medicine. The test result is called a polysomnogram, also abbreviated PSG.

The Sleep Study is usually done in lab / observed conditions to determine the disease exactly causing the daytime sleepiness / breathing difficulty / irritability / movement disorder at night/ leg pains and even epilepsy. There are multiple sleep issues which need to be addressed before a sleep study is under taken so always discuss with your doctor which type of sleep study is needed for you and when the study should be planned.

Sleep studies can be done at home with portable equipment and under supervision but if done un supervised will lead to errors during data collection which may hamper proper diagnosis.

The sleep study done has always to measure the

1. Brain waves : EEG. Electroencephalogram
2. Muscle movement : EMG. Electromyogram
3. Eye movement : EOG. Electrooculogram
4. Breathing movements. Thoracic and abdominal movements
5. Heart rate: ECG
6. Oxygen monitoring: SpO<sub>2</sub> . ( carbon dioxide monitoring is optional )
7. Leg or hand movements.

The electrodes / points connected are superficial and are not painful. These will be removed as soon as the study is over. Sleep studies start with patient coming to the clinic at 9.00pm and started the study at around 10 pm. This needs the patient to stay overnight at the clinic till about 7 am in morning. The patient can usually go home by about 8 am. If any discomfort we will be able to attend to you as our technician stays overnight as the study is conducted.

These data are collected overnight and stages of sleep and correlation of different sleep events made called Sleep Analysis. This is discussed the next day and further treatment is planned. If results are endangering the patient then a titration using CPAP maybe initiated and will be discussed prior to starting the study.

## What is analysed in the Sleep study?

The sleep study (polysomnography) is done to evaluate the sleep stages for evaluating sleep diseases and understanding more about individual problems with respect to variable sleep conditions.

Sleep stages include the Non Rapid Eye Movement stage (NREM) with sub staging for different cycles. Stage 1 /2 and 3. REM means Rapid Eye Movement sleep stage and refers to active brain memory consolidation stages. The specific diseases of these sleep stages will help us understand the different treatment modalities for every patient.

You normally go through multiple sleep cycles a night, cycling between NREM and REM sleep in about 90 minutes. Sleep disorders can disturb this sleep process.

## Who should undertake a sleep study ?

Polysomnography is usually recommended if you have:

- **Sleep apnea or another sleep-related breathing disorder.** In this condition, your breathing repeatedly stops and starts during sleep.
- **Periodic limb movement disorder.** In this sleep disorder, you involuntarily flex and extend your legs while sleeping. This condition is sometimes associated with restless legs syndrome.
- **Narcolepsy.** You experience overwhelming daytime drowsiness and sudden attacks of sleep and associated falls / loss of balance in heightened emotional situations.
- **REM sleep behavior disorder.** This sleep disorder involves acting out dreams as you sleep.
- **Unusual behaviors during sleep.** Your doctor may perform this test if you do unusual activities during sleep, such as walking, moving around a lot or rhythmic movements.
- **Unexplained chronic insomnia.** If you consistently have trouble falling asleep or staying asleep, your doctor may recommend polysomnography.

What are the side effects during the test ?

Many people feel that they may not sleep normally during the test but almost all people sleep well in the sleep room. If any help is needed please contact the technician for help.

Polysomnography is a noninvasive, painless test. The most common side effect is skin irritation caused by the adhesive used to attach test sensors to your skin.

What happens after I am ready to take the test.

After formalities of getting ready for bed, The electrode attachment is begun in the series below.

1. ECG electrodes are attached.
2. Abdominal and chest belts are attached.
3. EMG electrodes connected.
4. EOG electrodes connected around the forehead.
5. EEG electrodes connected around the head.
6. Oxygen flow cannula connected around the nose

7. Pulse oximeter connected in the finger.
8. All channel readings confirmed and sleep can begin.



CHEST AND ABDOMINAL BELTS



LEG ELECTRODES



ELECTRODES AT BACK OF NECK.



CHIN EYES AND HEAD ELECTRODES



NASAL FLOW CANNULAE AND OXIMETRY.



FIT FOR THE CPAP MASK.

## **What do I need to do before the sleep study?**

Things you need to know before you are scheduled for the sleep study include:

1. Try to follow your regular routine as much as possible.
2. Avoid napping in daytime and keep as physically active as possible.
3. Eliminate use of caffeine after lunch.
4. Shower or avoid using hair sprays or gels that can interfere with the sleep recording.
5. Do not apply hair oil on the day before the study.
6. Carry your own pillow and other accessories for sleep including the tooth brush / daily essentials for after you have woken up.
7. Call up to confirm your timing and get all your records for the scheduled appointment.
8. You may come alone or get someone with you as per your choice

Sometimes a device therapy like a CPAP (Continuous Positive Pressure Therapy) may be recommended during the study. In such a case, the sleep technician may ask you to put on a small mask on the nose or full face to allow the results of the treatment to be available during the same night study. This is referred to as the Split Night Study. It is very important to report back any discomfort or problems during the study or the titration study with CPAP therapy.

The final discussion of the findings of the study and the treatments needed will be available the next day. Please discuss with the doctor your next visit and schedule a follow up appointment. CONTACT DETAILS FOR APPOINTMENTS OR QUERIES ARE AVAILABLE AT THE WEBSITE