B R E A T H E®
PENNSYLVANIA

UNDERSTANDING YOUR SLEEP STUDY RESULTS

Lights Out/Lights On Times – "Lights Out" means the time that the lights are first turned out and you are attempting to sleep. The time that the study ends is termed "Lights On". At this time, you will be awakened, the lights will be turned on and the study will be completed.

TRT (Total Recording Time) – total time of study from "lights out" to "lights on".

TST (Total Sleep Time) – total time asleep after lights out.

Sleep Latency- How long it takes you to fall asleep after "lights out". 15-20 minutes is a normal sleep latency. A shorter sleep latency could mean you are sleep-deprived and/or have a sleep disorder.

WASO (Wake after Sleep Onset) – This is the total amount of time that you spend awake during the night after you first fall asleep. Being awake during the night affects your sleep quality and is often associated with some type of sleep disorder.

Stages of Sleep: During sleep, you cycle between Non-REM (NREM) and REM Sleep (4 total stages). You should be moving through NREM and REM several times throughout the night. Each of these stages is important to your health and Obstructive Sleep Apnea can cause some of these stages to be shortened or absent.

NREM sleep (Non-REM sleep). 3 stages -progressing from light to deep.

Stage N1 (NREM 1) - The first stage of sleep. This is the transition from awake to asleep. During this time, your breathing becomes more regular and your heart rate begins to slow down, but you can be easily awakened. You may experience muscle twitches and jerks. (About 5-8% of total sleep time)
Stage N2 (NREM 2) – Conscious awareness of your surroundings fades away. Your muscles are more relaxed. (About 50% of your total sleep time)
Stage N3 (NREM 3) - "Deep sleep". You are very difficult to awaken during this time and unaware of your surroundings. (About 20% of your total sleep time and will decrease with age)

REM sleep- (Rapid Eye Movement sleep) - Most dreams occur in this phase of sleep. Your heart rate and breathing increase during REM sleep. Your body is paralyzed but your mind is very active. (About 25% of your total sleep time).

Sleep position – During the study, the way you sleep will be recorded as supine (on your back), prone (on your stomach) or side sleeping. This information is used to identify any relationships between apnea episodes and the position you are sleeping in. Often, people have more frequent obstructive apneas while sleeping on their back.

Arousal- This is a 10 second interruption of your brainwaves and moves you into a lighter stage of sleep. It can be so subtle that you don't even know you are waking up or can be to the point where you wake up and roll over.

Apneas- times where your breathing is paused for 10 seconds or longer (up to two minutes) and the oxygen level in your blood drops. Apneas lead to arousals and awakenings and disrupt your sleep.

> Obstructive apnea - Your chest and abdomen are still moving in and out trying to get air in and out, but the airflow is completely blocked by the tongue or tissues of the upper airway.
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> Central apnea - Your chest and abdomen are not moving because your brain doesn't send a signal to your breathing muscles to move. Your airway is open but there is no air moving in or out.

Hypopneas – Your airway is starting to be blocked, but there is still some air getting into your lungs. Your chest and abdomen will still be moving but your body and brain are still struggling for air. Your breaths become very shallow or slow and this causes less oxygen to get into your blood. Hypopneas can also last anywhere from 10 seconds to two minutes.

RERA (respiratory effort related arousal)- This is an event that is also causing your oxygen levels to go down and your brain to have an arousal but do not qualify as an apnea or hypopnea. RERA's can also last anywhere from 10 seconds to 2 minutes.

Oxygen Desaturations – The percentage of oxygen in your blood (Sp02) is monitored during your sleep. Normal oxygen saturations are around 95%. Apneas and hypopneas can cause your oxygen saturation to drop below 90% which is abnormal and negatively affects your health.

AHI (Apnea-Hypopnea Index) – This is recorded as a number. It is a summary of how many times each hour your breathing either stopped (apneas) significantly decreased (hypopneas). The AHI index is commonly used to rate the severity of your obstructive sleep apnea.

> *Mild – AHI 5-14
> *Moderate – 15 to 29
> *Severe- >30

RDI (Respiratory Disturbance Index) - This index is the same as the AHI except that it also includes RERAs. This index can also be used to measure the severity of your OSA. Some insurance companies will look at this number instead of your AHI.