

## General Information:

### Definitions

- **Apnea** - Complete cessation of breathing for at least 10 seconds
- **Hypopnea** - Decrease in tidal volume associated with a fall in oxygen saturation (4%) or arousal response
- **Arousal** - Shift in EEG for at least 3 seconds (in REM sleep requires also increase in EMG or movement)

### Apnea Hypopnea Index (AHI)

- **Normal:** less than 5 events per hour
- **Mild:** 5-15 events per hour
- **Moderate:** 16-30 events per hour
- **Severe:** over 30 events per hour

### Oxygen Saturation

- Normally, the blood oxygen level should be above 90%. With obstructions, you can have varying degrees of desaturations. The severity of the problem depends on how much of a drop below 90%:
  - ⇒ Mild problem: 85-90%
  - ⇒ Moderate problem: 80-84%
  - ⇒ Severe problem: below 80%

### Abbreviations

- Apnea Index **AI**
- Apnea Hypopnea Index **AHI**
- Respiratory Disturbance Index **RDI (RDI = AHI + RERA)**
- Oxygen Desaturation Index **ODI**
- Respiratory Effort Related Arousal **RERA**

## What to look for on a Sleep Study:

- Total sleep time (TST) and sleep efficiency (TST/total recording time = efficiency)
- Sleep stages (within normal ranges)
  - N1 = 5%
  - N2 = 50-55%
  - N3 (formally known as stage 3 and 4) = 10-20% (less N3 as we get older)
  - REM = 20-25%
- Ventilation summary
  - Obstructive Apneas
  - Central Apneas
  - Obstructive Hypopneas
  - Apnea/Hypopnea Index (AHI)
  - Respiratory Disturbance Index (RDI)
- Positional and REM data
  - Apneas, hypopneas, AHI (and maybe RDI) in
    - Supine
    - Lateral
    - REM
    - Supine REM
- Oxygenation
  - Lowest saturation (nadir)
  - Time below 90%
- Heart rate
- Limb Movements
- Sleep Doctor's "impression" and recommendations

### **Comparing one sleep study to another:**

- Compare apples to apples
  - PSG to a PSG
    - How long since the last PSG?
    - Same lab?
    - Same reading doctor?
  - PSG to HST, or HST to PSG – not apples to apples = tough to make conclusions
  - HST to HST
    - How long since the last HST?
    - Same device?
- Was anything different from the last study (baseline) to this study?
  - Weight gain?
  - Different sleep posture?
  - Different recording/sleep time?
  - Look at more than just the AHI
    - Change in apneas?
    - Hypopneas?
    - O2 saturation?