



## **Module 2, Lesson 8 Handout:** **Obesity Related Sleep Disorders**

Your obese clients may have a greater challenge with the Sleep Deep pillar of a Nutritious Life than your healthy weight clients. Obesity can cause sleep disorders including snoring, obstructive sleep apnea (OSA), obesity hypoventilation syndrome (OHS) and restless legs syndrome (RLS). Carrying excess weight puts extra pressure on the respiratory system, making it harder to sleep at night. Below is an outline of these 4 common sleep disorders to help you further understand what your clients may be experiencing and why.

### **Snoring**

As you may be aware, snoring is caused by an obstruction in the airflow as we sleep, which can come from enlarged tonsils, adenoids or a deviated septum. Aging is also a factor in snoring, since the throat muscles and tongue tend to relax more during sleep as we get older, causing a vibration as we inhale. Those who are overweight tend to have poor muscle tone in their throat muscles combined with more tissue around the neck and throat, which is why being overweight contributes to snoring as well.

- 45% of adults are snorers, with men and overweight/obese individuals making up the bulk of those people
- Snoring may be an early sign that your client also has OSA, as the two conditions often go hand in hand and 50% of snorers have OSA
- If you have a client that snores but aren't sure if they have OSA, lookout for these signs so that you can properly address their condition and help them get their zzz's:
  - Excessive daytime sleepiness
  - Restless sleep
  - Difficulty concentrating
  - Morning headaches
  - Snoring that is disturbing others' ability to Sleep Deep

### **Obstructive Sleep Apnea**

OSA occurs when the airway becomes completely constricted and blocked, stopping any airflow. It's frightening for many people to experience this and is described as feeling like you're suffocating and may cause gasping or choking during sleep. It's important for your client to speak to their doctor about this and/or to refer them to a sleep disorder neurologist.





- OSA is the most prevalent sleep disorder, occurring in 2%-4% of adults
- Greater than 70% of those who have OSA are clinically obese
- Increased levels of leptin, the hormone that suppresses appetite, has been positively correlated with OSA
  - This means high levels of leptin were found in people that were diagnosed with OSA
  - In Level 1 you learned how lack of sleep is associated with lower levels of leptin and increased rates of obesity, so it may sound strange to hear that researchers found **higher** levels of leptin in people with a diagnosed sleep disorder. Here's why:
    - Obesity is associated with leptin resistance and therefore higher levels of leptin in the blood. Obesity is also a risk factor in OSA as noted above, that greater than 70% of those with OSA are obese. A higher AHI (Apnea Hypopnea Index), which measures severity of sleep apnea, is correlated with higher levels of leptin. Research shows that both obesity and OSA are independently associated with higher leptin levels and the mechanisms by which leptin contributes to OSA is still being researched. Although more studies need to be done to understand this further, we know that decreased leptin levels are a biomarker and indicator of effective OSA treatment.

## Obesity Hypoventilation Syndrome

The exact cause of OHS is unknown, but we do know that it's associated with a decrease in the brain's ability to control breathing, as well as sleep apnea, shortness of breath, being obese or overweight and feeling overly tired and sluggish during the day. And that's not an exhaustive list. If you believe your client may have OHS based on symptoms they are describing, you should also refer them to a sleep disorder neurologist or have their doctor test for OHS.

- Leptin plays a role in OHS and has been associated with reduced ventilatory drive and daytime hypercapnic response
  - In other words, higher levels of leptin are also found in obese individuals with OHS, which contributes to a reduced output of carbon dioxide (CO<sub>2</sub>) and a buildup of CO<sub>2</sub> in the bloodstream
- Pickwickian syndrome is another name for OHS
- 70%-90% of those with OHS also have OSA
  - One of the ways they differentiate between OSA and OHS is the CO<sub>2</sub> level of the bloodstream. Makes sense, right?



## Restless Legs Syndrome

Restless legs syndrome can be described as an uncomfortable sensation in the legs which creates the urge to move, hence the term “restless” in the name of this sleep disorder. In most cases, RLS can greatly decrease a client’s quality of life, making everyday activities such as sitting at a desk or driving a car almost unbearable. Interestingly, RLS has been associated with iron metabolism dysfunction but not all who have RLS have an iron deficiency, and this is only a small part of the RLS puzzle that scientists are still trying to figure out.

- In one study, men who were obese had a 2.9% higher prevalence of RLS compared with those who were not obese
- In the same study, a group of women who were obese had a 4.2% higher prevalence of RLS compared with those who were not obese
- Physical activity and exercise has been found to have a significant positive impact on quality of life of those with RLS, which may also aid in weight loss for those that are overweight/obese

There are many tests to diagnose these sleep disorders in your clients, such as polysomnography (the fancy word for a sleep study), non-invasive ventilation, nerve stimulation therapy and more. If your client is diagnosed with a sleep disorder, there are many ways to manage them such as cognitive behavioral therapy, using a CPAP machine, medications and supplements, to name a few. Paying attention to symptoms described by your overweight/obese clients can help you refer them to the proper specialist and help them find relief to get those zzz’s and Sleep Deep.

