# The relationship between Obesity and Obstructive Sleep Apnoea

## Introduction

New Zealand is facing an obesity epidemic with one in three adults being obese (Ministry of Health, 2015). Obstructive Sleep Apnoea (OSA), a sleep disorder, results in decreased sleep duration and quality with symptoms like, snoring, excessive day-time sleepiness, chocking sensations and difficulty initiating sleep. OSA has been found to have a strong relationship with increases in body weight (Hargens, Kaleth, Edwards, & Butner, 2013).

## The relationship between obesity & OSA

- 70% of those with OSA are clinically obese, the leading cause of OSA (Hargens, et al., 2013).
- Being male increases the chances of developing OSA, due to the tendency of men to gain weight viscerally (Jordan, McSharry, Malhotra, 2014).
- Research shows that obesity does not just impact OSA, in fact OSA impacts obesity as well (Carter, & Watenpaugh, 2008).

## How does obesity cause OSA?

- Central adiposity and increased visceral fat surround the neck and upper airway (Bonsignore, et al., 2012).
- Adiposity impacts the upper airway through changes in structure & function of airway, decreased chest compliance and functional residual capacity, decreased respiratory drive and may increase oxygen demand (Bonsignore, et al., 2012).
- Changes in weight impacts severity of OSA

## How does OSA cause obesity?

- Decreased energy in response to decreased oxygen available through intermittent hypoxia (Bonsignore, et al., 2012).
- Hargens, et al., (2013) found that an increased desire for foods high in energy and calories is evident in those who had little or low quality sleep .
- Changes in hormone production & appetite regulation (Hargens, et al., 2013).
- Less energy, due to lack of sleep and oxygen for physical activity (Hargens, et al., 2013).

## Recommendations

Lose weight through;

- decreasing the calories within a diet
- increasing energy expenditure through exercise or,
- for severely obese individuals, bariatric surgery has proven to be a successful intervention.

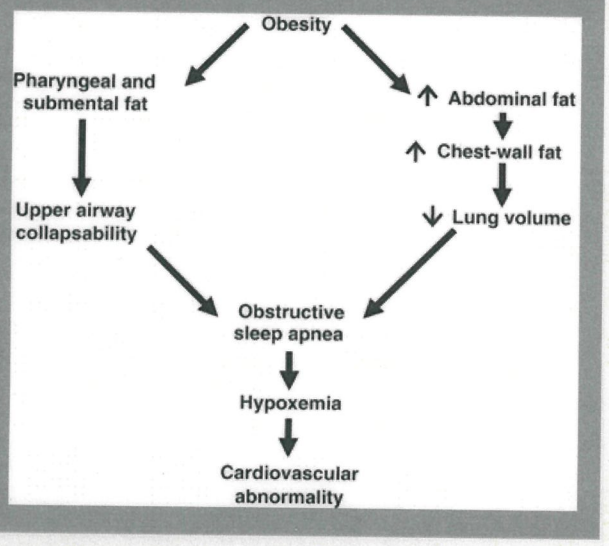
Evidence shows as weight decreases, so do symptoms of OSA (Hargens, et al., 2013).

CPAP can be used in more severe cases and in longer treatment plans (Bonsignore, et al., 2012).

For greater success, each individual should have an individualised plan (Bonsignore, et al., 2012).

## Conclusion

The relationship between obesity and OSA is complex (Romero-Corral, et al., 2010). It is possible that OSA and obesity interact with each other and alter their consequences, making both obesity and OSA more severe and prevalent within an individual (Bonsignore, et al., 2012). Hargens, et al., (2013) came to the conclusion that it was very difficult to clearly know whether obesity contributes to OSA or if OSA contributes to obesity. What they did say was that it is likely that obesity and OSA both contribute to the poor sleeping habits and increasing body adiposity.

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**Rationale**

Public Health, health promotion and education is something I find very rewarding and interesting. When writing the literature review, I chose a topic that would be of relevance to the public and could be presented in a public domain. Having an interest in obesity lead me to research this topic and find what other issues are attached to obesity. This then lead me to the question; "What effect does Obesity have on Obstructive Sleep Apnoea?"

Having this poster in a health care setting allows promotion and education. Teaching individuals that if their obese and are having trouble sleeping (e.g. snoring, disrupted sleep, excessively tired during the day), there could be something they could do about the issue, they don't just have to live with it.

I feel as though a submission would have limited the number of people this information reached and not achieved the original purpose of targeting the general population.

| PECOT Category | Information relating to the question | Explanation |
|---|---|---|
| **Population** | Adults (18+) who were classified as overweight or obese (BMI of 25-30+) (U.S. Department of Health & Human Services, 2015). | There was differing evidence for obese children who had obstructive sleep apnoea |
| **Exposure** | If they have diagnosed obstructive sleep apnoea(OSA) | Focus is to be on patients with obesity & sleep apnoea |
| **Comparison** | Cases on which OSA has impacted obesity | Looking at potential two way relationship |
| **Outcome** | What is the relationship between OSA and obesity | To discover if evidence shows a relationship between the two disorders |
| **Time** | N/A | N/A |

**REFERENCES**


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