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# Effect of Peppermint Oil among Sleep Apnea Individuals

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***Authors' contributions***

*This work was carried out in collaboration among all authors. Author CJ designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RGD and AJP managed the analyses of the study. Author RGD managed the literature searches. All authors read and approved the final manuscript.*

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## ABSTRACT

Sleep disturbance or disruption is common among patients within the age limit 25-45. They often feel tired during the day time. During wakefulness which also causes sleep problems. Sleep disturbance associated with the sense of well-being, health, emotion regulation, and productivity, memory and cognitive functions. The main aim of this study is to prove the impact of peppermint oil on sleep apnea. The sample size of this study was 25 individuals and they were selected randomly. The peppermint oil is taken in a few amounts and massaged in the forehead while before sleeping. They were instructed to apply 2-3drops of oil on their forehead or spray on the pillow before going to bed. This has to be followed for 30 days. The sleeping hours and sleeping disturbances were recorded before and after using oil inhalation. Before the use of peppermint oil the sleeping hours was an average of 6.4±0.82 and after the use of peppermint oil the sleeping hours increased to an average of 7.1±1.03. Before the use of peppermint oil Sleep disturbances were of average 3.3±1.02 and after the use of peppermint oil the sleeping disturbances have been decreased to an

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average of 2.1±0.92. Data was collected and analysed using statistics. Peppermint oil has an effect on sleep apnea and it helps to overcome. From this study, it can be seen that a positive perception has been obtained towards the population.

*Keywords: Peppermint oil; sleep apnea; sleeping disturbances; aromatherapy; sleeping problem.*

## 1. INTRODUCTION

Sleep disturbance or disruption is common among patients within the age limit 25-45. Older adults with insomnia have been found to show a pattern of increased activation of subcortical brain areas during sleep. They often feel tired during the day time. During wakefulness, most of the sleep apnea individuals feel tired, headache. Sleep disturbance is associated with health, emotion regulation, performance and productivity, memory and cognitive functions [1]. The patients reporting any symptoms should undergo a comprehensive study of sleep apnea [2]. Previous study revealed that obstructive sleep apnea may link with cardiovascular disease, hypertension, diabetes and dyslipidemia [3]. Even electrocardiogram, heart rate analysis, respiratory events to approach the sleep apnea [4]. Sleep apnea is a potentially serious sleep disorder in which breathing repeatedly stops and starts. The main types of sleep apnea include Obstructive sleep apnea, commonly it occurs when throat muscles relax. Sleep apnea is most commonly seen in type 2 diabetes individuals. Risk factors include being male, overweight, and over the age of 40, but sleep apnea can affect anyone at any age, even children. For milder cases of sleep apnea, recommend only lifestyle changes, such as losing weight or quitting smoking. If you have nasal allergies, improve the signs and symptoms or if your apnea is moderate to severe, a number of other treatments are available. Certain treatments can help open up a blocked airway. In other cases, surgery might be necessary [5].

The perioperative CPAP treatments may decrease the risk of perioperative complications in obstructive sleep apnea patients [6]. Community studies with instrumental sleep monitoring and or full PSG assessment and BMC pulmonary medicine have also been used to treat Obstructive sleep apnea [7]. The treatment of depressive symptoms in individuals with OSA and depression compared to standard therapies for depression [8]. Impaired caudal traction the trachea increases collapsibility, neuromuscular mechanisms of perioperative airway collapse, anesthetics and sedatives opioids, neuromuscular blocking agents agents and reversal agents are also discussed [9]. More recently it has been pointed out that there are other physiological factors. Insulin resistance is often associated with obstructive sleep apnea [10]. The history and examination are key to making the diagnosis of OSAHS and sometimes overlooked in the date about which technology is most appropriate.

Nowadays aromatherapy is more common in all areas, peppermint oil is one of the oils used in the therapy because of its pleasant fragrance. It can be used as a herbal supplement for the treatment of many diseases which include common cold, headache, vomiting, colic infections and so on. It can be applied topically also for headaches, itching or any pain in the body. The main aim of this study is to prove the impact of peppermint oil upon sleep apnea.

## 2. MATERIALS AND METHODS

The study was carried out among 25 individuals who were under the age group of (25-45) years (15males and 10females) who were suffering from sleep apnea. People associated with hypertension, obesity, diabetes mellitus were excluded from this study. The participants involved in a randomized controlled trial. Study populations were selected randomly. They were given peppermint oil for inhalation with the concentration of 0.2 ml in 2 ml of isotonic saline. They were instructed to apply 2-3 drops of oil on their forehead or spray on the pillow before going to bed. This has to be followed for 30 days. The sleeping hours and sleeping disturbances were recorded before and after using oil inhalation. Data was collected and analysed by using paired t tests.

## 3. RESULTS AND DISCUSSION

The people who were suffering from sleep apnea, after using peppermint oil, found that there is variation in before and after sleep. Before and after using oil, sleeping hours can be asked orally and noted. Sleeping disturbances can be assessed by how many times they wake up at night during sleep. This also can be noted

**Table 1. Mean and standard deviation of peppermint oil before and after usage**

| Peppermint oil | Sleeping hours | Sleep disturbance |
|---|---|---|
| Before | 6.4±0.82 | 3.3±1.02 |
| After | 7.1±1.03 | 2.1±0.92 |

and maintain their record. Then collectively take the mean value of 25 individuals and represent it in Table 1. The sleeping hours were increased after the use of peppermint oil. Participants with sleep apnea having sleeping disturbances after the use of peppermint oil, the sleeping hours and sleeping disturbances are changed. Paired t test was done, sleeping hour and sleeping disturbance were found to be statistically significant before and after using peppermint oil. Before the use of peppermint oil, about 90% of individuals had reduced sleeping hours but after the use of peppermint oil the sleeping hours increased to an average. About 80% of individuals with sleep disturbances were noted, but after using peppermint oil nearly 60 % of them get benefited. Peppermint oil is also used to treat a variety of conditions, including irritable bowel syndrome (IBS), nausea, and other digestive issues, as well as the common cold and headaches [11,12]. A topical application for relief from itching, muscle pain, and headache. A flavoring agent in foods and in products mouthwashes such as peppermint and Eucalyptus, which induce sleep. Essential oils are considered to be relaxants, they are recommended for bedtime diffusion if they have congestion or feel a cold. Inhalation of oil helps them to clear the nasal passage and also reduce snoring too. Research suggests the scent of peppermint stimulates the brain, making you feel more awake. When a person smells peppermint, it sends a message to the brain, which, in turn, releases mood-determining hormones into the body [13]. Peppermint can be used to help with depression and anxiety also, peppermint can have notable effects on the human brain by enhancing cognitive functions. Peppermint essential oil could improve memory, reasoning, concept formation, attention span, and problem solving if inhaled ortho nasally, through the nose [14]. From this study, it is evident that peppermint oil has an effect on sleep apnea. So further research will be carried on by a larger population and peppermint oil may be used to treat people having sleep disturbances [15].

The limitation of the study is done on small scale populations.The study was undertaken on the same [relevant] homogeneous selected population. Minimum sample size which restricts the results from variations. Some results from the responses acquired may be biased.To expand sample size, so that variations can be found in the data collected. So further the research will be carried on larger populations and peppermint oil may be used to treat people having sleep disturbances.

## 4. CONCLUSION

Peppermint oil has an effect on sleep apnea and can bring a great impact on the body and mind. From this study, it can be seen that a positive perception has been obtained towards the population. This study may help individuals to use aromatherapy instead of using more medication.

## CONSENT AND ETHICAL APPROVAL

Before the study starts, a detailed explanation of the study was given and an informed consent letter was obtained from all the participants. This study was approved by the institutional ethical committee.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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