

Effectiveness Of Oropharyngeal Exercises For Obstructive Sleep Apnea In Sedentary 45-Year-Old Adult: A Case Report

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Abstract

Background: Obstructive sleep apnea (OSA) is a common condition characterized by repeated episodes of airway obstruction during sleep. Traditional treatments include CPAP and lifestyle modifications. This case report explores the effectiveness of Oropharyngeal exercises in a sedentary 45-year-old adult with OSA.

Case Presentation: A 45-year-old sedentary male with moderate OSA underwent a regimen of Oropharyngeal exercises over a 12-week period.

Intervention: The patient performed daily Oropharyngeal exercises designed to strengthen the upper airway muscles.

Outcome Measures: Improvement was assessed using the Apnea-Hypopnea Index (AHI), Epworth Sleepiness Scale (ESS), and subjective sleep quality.

Results: After 12 weeks, there was a significant reduction in AHI, improvement in ESS scores, and enhanced subjective sleep quality.

Conclusion: Oropharyngeal exercises may be a viable adjunctive treatment for OSA, particularly in sedentary individuals. Further research with larger samples is needed to confirm these findings.

Keywords: Obstructive sleep apnea, Oropharyngeal exercises, sedentary lifestyle, case report

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I. Introduction

Obstructive sleep apnea (OSA) is a condition marked by repeated upper airway collapse during sleep, leading to fragmented sleep and daytime somnolence. Traditional treatments include continuous positive airway pressure (CPAP) therapy and lifestyle changes such as weight loss and exercise.^[1,2] Recently, oropharyngeal exercises have emerged as a potential therapeutic approach, particularly for patients who are unable to tolerate CPAP or are seeking alternative treatments.^[3] This case report evaluates the impact of oropharyngeal exercises on OSA in a sedentary 45-year-old adult.

II. Case Presentation

Patient Information:

- Age:** 45 years
- Gender:** Male
- Occupation:** Office worker
- Medical History:** Diagnosed with moderate OSA, hypertension, and obesity. The patient is sedentary and has not engaged in regular physical exercise.

Presenting Complaint:

- Excessive daytime sleepiness
- Loud snoring

- Frequent nighttime awakenings

Diagnostic Evaluation:

- **Polysomnography Results:** Apnea-Hypopnea Index (AHI) of 22 events per hour, indicating moderate OSA.
- **Epworth Sleepiness Scale (ESS):** Score of 14, indicating significant daytime sleepiness.

Assessment Tools:

- **Apnea-Hypopnea Index (AHI):** Measured through repeat polysomnography after 12 weeks.
- **Epworth Sleepiness Scale (ESS):** Completed by the patient at baseline and at the end of the intervention.
- **Subjective Sleep Quality:** Assessed through patient-reported outcomes and sleep diaries.

III. Procedure:

The patient was clearly explained about the study and written informed consent was obtained from the patient. After completing the informed consent and he was explained about the scale and the scale was administered. Proper instructions such as purpose, safety measures, comfort, precautions and psychological support were given to the patient. All vital signs were checked. While doing the assessment, the patient willingness to continue the procedure with or without rest was given preference. The oropharyngeal exercise was given one time per day for 5 days in a week for 12 weeks.

Oropharyngeal Exercise Regimen: The patient participated in a 12-week program consisting of daily oropharyngeal exercises designed to strengthen the muscles of the upper airway. The regimen included:

- **Tongue Exercises:** Pushing the tongue against the roof of the mouth and holding for 5 seconds.
- **Soft Palate Exercises:** Repeatedly yawning and swallowing to engage the soft palate.



Figure No-1: Tongue, Soft Palate and Mouth Exercises

- **Mouth and Throat Exercises:** Gargling with water and performing specific vocal exercises.

IV. Data Analysis:

The difference of Pre and Post assessment of AHI was 35 and 15, ESS was 20 and 6 and SSQ was 5 and 18 respectively. The values are tabulated below

| Parameters | Pre | Post |
|------------|-----|------|
| AHI | 35 | 15 |
| ESS | 20 | 6 |
| SSQ | 5 | 18 |

Table No-1: Difference of Pre and Post Assessment of AHI, ESS and SSQ

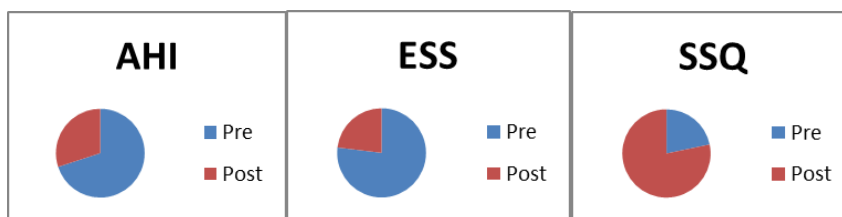


Figure No-2: Difference of Pre and Post Assessment of AHI, ESS and SSQ

V. Results And Discussion

Results

- **AHI:** Reduced from 35 to 15 events per hour, indicating a decrease in the severity of OSA.
- **ESS:** Improved from 20 to 6, reflecting reduced daytime sleepiness.
- **Subjective Sleep Quality:** The patient reported improved sleep quality and fewer nighttime awakenings.

Discussion

This case report demonstrates that oropharyngeal exercises can be an effective adjunctive treatment for OSA in a sedentary individual. The reduction in AHI and improvement in daytime sleepiness suggest that strengthening the muscles of the upper airway may enhance airway patency and reduce OSA symptoms. [4,5] The patient's sedentary lifestyle could be a contributing factor to the effectiveness of these exercises, as increased physical activity may further benefit OSA management. [6]

VI. Conclusion

Oropharyngeal exercises appear to offer a promising option for managing obstructive sleep apnea, particularly for patients who are sedentary and seek alternative treatments. While this case report provides encouraging results, further research with larger sample sizes and controlled studies is necessary to validate these findings and determine the broader applicability of oropharyngeal exercises in OSA treatment.

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