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 1: [Am J Respir Crit Care Med.](#) 2009 May 15;179(10):962-6. Epub 2009 Feb 20.[Links](#)**Comment in:**[Am J Respir Crit Care Med.](#) 2009 May 15;179(10):858-9.**Effects of oropharyngeal exercises on patients with moderate obstructive sleep apnea syndrome.**[Guimarães KC](#), [Drager LF](#), [Genta PR](#), [Marcondes BF](#), [Lorenzi-Filho G](#).

Sleep Laboratory, Pulmonary Division, Heart Institute (InCor), University of São Paulo Medical School, Av Dr Enéas Carvalho de Aguiar, 44, CEP 05403-904, São Paulo, Brazil.

**RATIONALE:** Upper airway muscle function plays a major role in maintenance of the upper airway patency and contributes to the genesis of obstructive sleep apnea syndrome (OSAS). Preliminary results suggested that oropharyngeal exercises derived from speech therapy may be an effective treatment option for patients with moderate OSAS. **OBJECTIVES:** To determine the impact of oropharyngeal exercises in patients with moderate OSAS. **METHODS:** Thirty-one patients with moderate OSAS were randomized to 3 months of daily ( approximately 30 min) sham therapy (n = 15, control) or a set of oropharyngeal exercises (n = 16), consisting of exercises involving the tongue, soft palate, and lateral pharyngeal wall. **MEASUREMENTS AND MAIN RESULTS:** Anthropometric measurements, snoring frequency (range 0-4), intensity (1-3), Epworth daytime sleepiness (0-24) and Pittsburgh sleep quality (0-21) questionnaires, and full polysomnography were performed at baseline and at study conclusion. Body mass index and abdominal circumference of the entire group were 30.3 +/- 3.4 kg/m(2) and 101.4 +/- 9.0 cm, respectively, and did not change significantly over the study period. No significant change occurred in the control group in all variables. In contrast, patients randomized to oropharyngeal exercises had a significant decrease (P < 0.05) in neck circumference (39.6 +/- 3.6 vs. 38.5 +/- 4.0 cm), snoring frequency (4 [4-4] vs. 3 [1.5-3.5]), snoring intensity (3 [3-4] vs. 1 [1-2]), daytime sleepiness (14 +/- 5 vs. 8 +/- 6), sleep quality score (10.2 +/- 3.7 vs. 6.9 +/- 2.5), and OSAS severity (apnea-hypopnea index, 22.4 +/- 4.8 vs. 13.7 +/- 8.5 events/h). Changes in neck circumference correlated inversely with changes in apnea-hypopnea index (r = 0.59; P < 0.001). **CONCLUSIONS:** Oropharyngeal exercises significantly reduce OSAS severity and symptoms and represent a promising treatment for moderate OSAS. Clinical trial registered with [www.clinicaltrials.gov](#) (NCT 00660777).

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