

## Smartphone Based Delivery Of Oropharyngeal Exercises For Treatment Of Snoring: A Randomized Controlled Trial

Authors: Umesh Goswami<sup>1,2\*</sup>, Adam Black<sup>3\*</sup>, Brian Krohn<sup>3</sup>, Wendy Meyers<sup>1,2</sup>, Conrad Iber<sup>1,2</sup>

1. *Division of Pulmonary, Allergy, Critical Care and Sleep Medicine, University of Minnesota, Minneapolis, MN/US*

2. *Fairview Sleep Centers, Minneapolis, MN/US*

3. *Medical Devices Center, University of Minnesota, Minneapolis, MN/US*

Correspondence: goswa009@umn.edu

### Cross-over patient results

Only one participant initially in the control group successfully continued the study with 12 weeks in the control arm and then 6 weeks in the intervention arm. A statistically significant reduction the percent snoring, snoring rate, duration above 60db and 65db (online resource1)

Characteristic	Control Period	Experimental Period	Difference	% Difference	P-Value
Snore Percentage (%)	20.586	12.896	-7.69	-37%	0.0039
Snore Rate (per Hour)	353.905	265.931	-87.974	-25%	0.0253
Average Snore Intensity (dBA)	61.771	60.928	-0.843	-1%	0.0475
Snore Duration > 60 dBA (min)	20.053	11.942	-8.111	-40%	0.0048
Snore Duration > 65 dBA (min)	10.562	5.633	-4.928	-47%	0.0137
Snore	3.63	1.685	-1.945	-54%	0.0568

---

Duration > 70 dBA (min)					
Snore	0.638	0.339	-0.299	-47%	0.2418
Duration > 75 dBA (min)					

---

Data presented as mean±SD unless otherwise noted

P-values are for comparison of the 2 groups (absolute values) using unpaired t-test