

Effects of Weight Loss and Exercise in Older Adults with Apnea

¹Dobrosielski, DA., ²Desai, D., ²Patil, S., ²Schwartz, A., ²Stewart KJ. ¹Towson University, Towson, MD, ²Johns Hopkins School of Medicine, Baltimore, MD

ddobrosielski@towson.edu, d-desai1@jhmi.edu, spatil3@jhmi.edu, aschwar2@jhmi.edu, Kstewart@jhmi.edu

PURPOSE: Examine the effects of weight loss on obstructive sleep apnea severity and markers of cardiovascular disease burden in older adults. **METHODS:** Subjects >60 years were enrolled in a 3-month weight loss diet plus supervised exercise training program. Overnight polysomnography was performed and vascular function assessed using peripheral artery tonometry and expressed as reactive hyperemia index (RHI) and augmentation index (AI). Body composition was assessed using Dual Energy X-Ray Absorptiometry. Fitness was defined as peak VO_2 on a treadmill. **RESULTS:** Fourteen subjects (66 ± 4 years; 6 M; 8 F; BMI 35.3 ± 3.5) completed the study. Baseline values for selected variables are: weight; 101.4 ± 14.5 kg, % total body fat; 42.4 ± 7.3 %, peak VO_2 ; 22.3 ± 2.9 ml/kg/min; Apnea-Hypopnea Index (AHI); 23 ± 15 events/hour and the lowest SpO_2 observed during sleep (SpO_2 low); 88.9 ± 2.6 %. At 3 months, reductions from baseline were observed for weight; -8.7 kg and % total body fat; -2.5 % (both p 's < 0.01), while improvements were observed for peak VO_2 ; $+4.0$ ml/kg/min ($p < 0.01$) and SpO_2 low; $+1.2$ % ($p = 0.02$). At 3 months, AHI fell by 6 events/hour, ($p = 0.03$). No association was observed between the change in AHI and weight loss. Decreased waist circumference ($r = -.56$, $p = 0.03$) and a reduction in AI ($r = -0.62$, $p = 0.02$) were associated with improved SaPO_2 low during sleep. **CONCLUSION:** The change in central adiposity, not weight loss, predicted the improvement in OSA severity. Moreover, reduced arterial stiffness was associated with improved OSA severity, thereby revealing a potential mechanism by which a weight loss diet and exercise reduce CVD burden in older adults with OSA.

Research funded by P30AG021334, NIA, NIH