

## Effects of Weight Loss and Exercise in Older Adults with Apnea

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**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  $\text{VO}_2$  on a treadmill. **RESULTS:** Fourteen subjects ( $66 \pm 4$  years; 6 M; 8 F; BMI  $35.3 \pm 3.5$ ) completed the study. Baseline values for selected variables are: weight;  $101.4 \pm 14.5$  kg, % total body fat;  $42.4 \pm 7.3$  %, peak  $\text{VO}_2$ ;  $22.3 \pm 2.9$  ml/kg/min; Apnea-Hypopnea Index (AHI);  $23 \pm 15$  events/hour and the lowest  $\text{SpO}_2$  observed during sleep ( $\text{SpO}_2$ low);  $88.9 \pm 2.6$  %. 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  $\text{VO}_2$ ;  $+4.0$  ml/kg/min ( $p < 0.01$ ) and  $\text{SpO}_2$ 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  $\text{SaPO}_2$ 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.

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