

Moderate Calorie Restriction and Exercise may Improve Heart Health in Obese Older Adults

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Results of a latest study show that combining aerobic exercise with a moderate reduction in total daily calories up to 200 calories daily resulted in greater improvements in aortic stiffness when compared to exercise alone or exercise plus a more restrictive diet in older adults with obesity.

The study published August 2 in the journal *Circulation* analyzed the effects of exercise with or without high caloric restriction on proximal aortic stiffness in 160 older adults, aged 65-79 years, with obesity (BMI 30-45 kg/m²). The participants were randomized into one of three study groups: aerobic exercise only, aerobic exercise with a regular diet, aerobic exercise + moderate caloric restriction (reduction of ~250 calories) or aerobic exercise + more intensive caloric restriction (reduction of ~600 calories) for 20 weeks. Aortic structure and function were assessed by cardiac MRI to measure aortic arch pulse wave velocity and distensibility. Higher pulse wave velocity and lower distensibility are indicative of aortic stiffness.

The results showed that over the 20 weeks of the intervention, weight loss in the aerobic exercise + moderate caloric restriction (-8.0 kg) and aerobic exercise + more intensive caloric restriction (-8.98 kg) groups was significantly greater compared to the exercise alone group (-1.66 kg). This weight loss was found to be associated with significant improvement in aortic stiffness only in the participants in the aerobic exercise + moderate caloric restriction group. A 21% increase in distensibility and an 8% decrease in

pulse wave velocity were observed in this group. No significant change in the aortic stiffness measures were observed in the exercise-only group or the exercise + more intensive caloric restriction group.

The BMI, total fat mass, percent body fat, abdominal fat and waist circumference showed an improvement in both calorie-restricted groups compared to the exercise-only group. Another interesting observation was that the weight loss was similar between the calorie-restricted groups despite nearly two times fewer calories (26.7% reduction in calories vs. a 14.2% reduction in calories) in the more intensive calorie restriction group. But participants in the more intensive calorie restriction group did not show any improvement in aortic stiffness.

These results show that calorie restriction alone does not help and a strict calorie restriction may not be actually required. Adding exercise augments the cardiac beneficial effects of calorie restriction as well as weight loss and distribution of body fat. In addition, it also prevents or delays the onset of diabetes and other obesity-related conditions.

Hence, moderate calorie restriction along with regular exercise will help to obtain maximum beneficial effects on vascular health and reduce associated morbidity and mortality.

(Source: Brinkley TE, et al. Effects of exercise and weight loss on proximal aortic stiffness in older adults with obesity. *Circulation*. 2021;144(9):684-96.)

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