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Effect of a weight loss intervention on anthropometric measures and metabolic risk factors in pre- versus postmenopausal women

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Abstract

Background

The present study examines changes in body weight, fat mass, metabolic and hormonal parameters in overweight and obese pre- and postmenopausal women who participated in a weight loss intervention.

Methods

Seventy-two subjects were included in the analysis of this single arm study (premenopausal: 22 women, age 43.7 ± 6.4 years, BMI 31.0 ± 2.4 kg/m²; postmenopausal: 50 women, age 58.2 ± 5.1 years, BMI 32.9 ± 3.7 kg/m²). Weight reduction was achieved by the use of a meal replacement and fat-reduced diet. In addition, from week 6 to 24 participants attended a guided exercise program. Body composition was analyzed with the Bod Pod[®]. Blood pressures were taken at every visit and blood was collected at baseline and closeout of the study to evaluate lipids, insulin, cortisol and leptin levels.

Results

BMI, fat mass, waist circumference, systolic blood pressure, triglycerides, glucose, leptin and cortisol were higher in the postmenopausal women at baseline.

Both groups achieved a substantial and comparable weight loss (pre- vs. postmenopausal: 6.7 ± 4.9 vs 6.7 ± 4.4 kg; n.s.). However, in contrast to premenopausal women, weight loss in postmenopausal women was exclusively due to a reduction of fat mass (-5.3 ± 5.1 vs -6.6 ± 4.1 kg; $p < 0.01$). In premenopausal women 21% of weight loss was attributed to a reduction in lean body mass.

Blood pressure, triglycerides, HDL-cholesterol, and glucose improved significantly only in postmenopausal women whereas total cholesterol and LDL-cholesterol were lowered significantly in both groups.

Conclusion

Both groups showed comparable weight loss and in postmenopausal women weight loss was associated with a pronounced improvement in metabolic risk factors thereby reducing the prevalence of metabolic syndrome.



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