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# Reduction of serum advanced glycation end-products with a low calorie Mediterranean diet.

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## Abstract

Dietary intake of advanced glycation end-products (AGEs) increases circulating and tissue levels of these substances, contributing to a state of increased oxidative stress and inflammation. A low dietary AGE intervention has been shown to reduce body AGE content. Mediterranean diets (MD) are theoretically considered low in AGEs, but the specific effects of a MD on AGEs serum levels has not been tested.

**METHODOLOGY:** Forty-seven overweight and obese premenopausal women underwent a three-month calorie restriction treatment (20 kcal/kg initial weight) with a Mediterranean-type diet that excluded wine intake. The adherence to the MD was assessed before and at the end of treatment using an on-line questionnaire, which scores from 0 to 14 (minimal to maximal adherence). Body composition, insulin resistance, lipoproteins and carboxymethyl-lisine (CML) serum levels were measured at both time periods. Serum CML was assessed through ELISA (enzyme-linked immunosorbent assay). Compliance to calorie restriction was assessed according to weight loss (< or > 5% initial weight).

**RESULTS:** Mean body weight, body fat, waist circumference, total cholesterol, triglycerides and serum CML fell significantly, together with an increase in the Mediterranean score, although none of the patients reached the highest score. Significant changes in CML and insulin resistance were observed in 17 women classified as compliant to caloric restriction, but not in the 27 participants who were considered adherent to the MD (according to improvement of the Mediterranean Score).

**CONCLUSIONS:** CML serum levels can be reduced through calorie restricted-Mediterranean-type diet. We could not reach a high enough MD score, so we cannot conclude whether the MD itself has an additive effect to caloric restriction.