

## Cartas científicas

## Long term effect of Mediterranean diet on weight loss

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Trends of obesity show a steady increase in most of the Mediterranean countries, where consumption of Mediterranean diet (MD) is naturally high and olive oil is a major contributor of energy in the diets. This paper presents a systematically reviewed of Randomized Control Trials (RCT) studying long-term effect ( $\geq 24$  months) of MD diet on weight loss. PubMed database was searched up to July 2008 to identify RCT on MD with a follow-up equal or higher than 24 months and reporting weight loss. It was used as descriptor and as text format, the term MD with other key word (s): "obesity", "overweight", "weight loss", "weight gain", "body mass index" (BMI), "biological markers", "lipids", "cholesterol". All human studies including RCT and weight or BMI were included. Additional

publications were identified from references provided in original and other review papers. A total of five studies were identified with a follow-up equal or higher than 24 months or higher<sup>1-5</sup> (table I).

The long-term results of RCT show that Low Fat Diet (LFD) and MD could be similarly effective strategies for weight lost, particularly when applied with equal intensity interventions and a calorie deficit is achieved. The studies demonstrating effective weight lost with the MD were prescribing energy-restricted diets<sup>1-3</sup>. Those showing a better effect of MD on weight lost did not compare the experimental group with similar intervention strategies, since control group did not include regular nutritionist counseling and behavioral modification techniques<sup>1,2</sup>.

**Table I**  
Long term (24 + months) of randomized clinical trials of Mediterranean diet on weight loss

Reference	Study Design & population	N	Age Mean (years)	BMI Mean (kg/m <sup>2</sup> )	Intervention	IP (months)	Rate of adherence to diet (%)	WL (kg)	WL differences (p value between groups)
Singh et al., 2002	Parallel, single blind. Angina pectoris, MI or surrogate risk factors for CAD	1,000	48	24	LF (NCEP) Diet rich in whole grains, fruits, vegetables walnuts and almonds	24	> 90 > 90	-1 -4	< 0.0001
Espósito et al., 2003	Parallel. Pre-menopausal > 30 kg/m <sup>2</sup>	120	35	35	LF non-restricted diet + GWI MD, calorie restricted diet + PDI	24	> 90 > 90	-3 -14	< 0.001
Espósito et al., 2004	Parallel. Metabolic Syndrome	180	44	28	LF non-restricted diet + GWI MD, calorie restricted diet + pdi	24	> 90 > 90	-1.2 -4.0	< 0.001
Tuttle et al., 2008	Parallel. After first MI	101	58	30	LF non-restricted diet + PDI MD, non-restricted (1,800 kcal/day) diet + PDI	24	72 73	0 0	NS
Shai et al., 2008	Parallel. > 27 kg/m <sup>2</sup> or DM2 or CHD	322	52	30.9	LF, calorie restricted + PDI MD, calorie restricted + PDI LC, non-restricted diet + PDI	24 78	90 85 -5.5	-3.3 -4.6	LF vs LC* LF vs MD MD vs LC

CAD: Coronary Artery Disease; CHD: Coronary Heart Disease; DM2: Type 2 Diabetes; GWI: General Writing Information; IP: Intervention Period; LC: Low-Carbohydrate; LF: Low-Fat; MD: Mediterranean Diet; MI: Myocardial Infarction; NA: Not Available; NCEP: National Cholesterol Education Program; NS: Not Significant; PDI: Professional Detailed Intervention; WL: Weight Loss; WC: Waist Circumference. Significance of changes from baseline within group: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

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Weight loss observed in the studies reviewed was due to the energy deficits in the diets rather than the type of diet. Since obesity is the result of positive energy balance due to excess calorie intake, low calorie expenditure or both, promoting increasing edible fat, including olive oil could be a risk to susceptible individuals and some populations with very high intake of

olive oil. The evidence points toward a more practical approach at Mediterranean countries where obesity and overweight is increasing. It might be necessary promoting the reduction of all food items, including olive oil when olive consumption is higher than 20-25 g day and when the fat content of the diet is higher than 35%. This measure, in most Mediterranean countries, will still maintain the high monounsaturated saturated ratio that has been proven to be healthy.

These results suggest that a culturally base low calorie diet, reducing all fats and carbohydrates, might be the best approach for the prevention of overweight and obesity.

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