

EFFECT OF ALMONDS VS COMPLEX CARBOHYDRATE ON LDL PEAK PARTICLE SIZE AND ApoA-I AND ApoE DURING WEIGHT REDUCTION

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Background: The use of higher fat diets for weight loss is a topic of interest with the popularity of the Atkins and South Beach diets across the nation. However, the effects of high fat diets on lipoprotein metabolism among patients at risk for cardiovascular disease are unknown.

Aim and Methods: To evaluate the influence of two distinct hypocaloric macronutrient regimens on lipoprotein metabolism, we performed a 24-week randomized trial in 65 adults (37 women and 28 men; mean \pm SE age 55 \pm 2 years; BMI 38 \pm 1 kg/m²) participating in a medically supervised program. Research participants were randomly assigned to consume a formula-based low calorie diet (LCD) enriched with either 84g/d of almonds [almond-LCD, 39% total fat, 25% monounsaturated fat (MUFA) and 32% carbohydrate (CHO) as percent of dietary energy] or self-selected complex CHO (CHO-LCD; 18% total fat, 5% MUFA and 53% CHO as percent of dietary energy) featuring equivalent calories and protein for 24 weeks.

Results: LDL peak particle diameter, total cholesterol, LDL-cholesterol (LDL-C), LDL-C to HDL-cholesterol (HDL-C) ratio and triacylglycerol (TG) improved significantly in both interventions ($P < 0.02$ to $P < 0.0001$). Apolipoprotein (apo) A-I and apoE decreased over time and were strongly associated with HDL-C and TG ($P < 0.0001$), respectively. HDL-C increased in the CHO-LCD group and decreased in the almond-LCD group ($P < 0.05$) in the context of the almond-LCD group experiencing greater reductions in weight [-18% vs -11% ($P < 0.0001$)], waist circumference [-14% vs -9% ($P < 0.05$)].

Conclusion: Almonds as a source of MUFA may be a novel option within formula-based LCDs and effective in improving lipoprotein metabolism among individuals at risk for developing cardiovascular disease.