

Daily Almond Consumption Reduces Insulin Resistance and Serum Cholesterol Levels in Overweight Asian Indian Adults with Cardiometabolic Risk – A Randomized Controlled Trial

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Objectives: The present study aimed to evaluate the efficacy of almonds consumption on insulin resistance, glycemia and lipid profile in overweight Asian Indian adults with cardiometabolic risks.

Methods: A parallel-arm open-labelled, randomized controlled trial was conducted on 184 adults with cardiometabolic risks (CMR) (92 in each group). Adults with CMR were identified using the harmonizing criteria which includes presence of minimum of 3 of the following conditions: raised blood pressure, dyslipidemia (raised triglycerides and lowered high-density lipoprotein cholesterol), impaired fasting glucose, and central obesity. The intervention group received

43g (1.5 oz) almonds/day for 12 weeks. The control group was instructed to follow their habitual diet except to exclude nuts in any form. The anthropometric, clinical, biochemical and dietary data of the participants were assessed periodically and their change from baseline were analysed using generalized linear model in SAS 9.4 version.

Results: The study was completed by 165 adults (response rate 82.5%). Their mean age was 40 years and waist circumference 97 ± 9.6 cm at baseline. Significant reductions [mean (95%CI)] in IR ($-0.5(-1.0-0.0)$; $P = 0.04$), serum total cholesterol (-10.6 mg/dl ($-17.8- -3.4$); $P = 0.004$) and low-density lipoprotein cholesterol (-7.5 mg/dl ($-14.2- -0.8$); $P = 0.03$) were observed in the intervention group compared to the control group. Within the intervention group, significant reduction of 1% each for body weight, body mass index, waist circumference, 3% fasting glucose and 2% serum triglyceride were noted compared to baseline. Multiple 24hr dietary recall as a compliance marker revealed significant increase in total fat, MUFA, PUFA calories and dietary fibre with a propionate reduction in carbohydrate calories in the intervention group compared to control group.

Conclusions: Daily intake of 43g almonds reduced IR, total and LDL serum cholesterol in obese Asian Indians with CMR. Almond consumption also improved the overall quality of the diet.

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