

Effects of energy restriction with and without almonds on weight and cardiometabolic risk factors

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Despite evidence of an inverse association between nut consumption and body mass index,⁽¹⁾ the role of nuts in weight loss and weight maintenance is limited. In a parallel study design, it was evaluated whether the inclusion of 15% of energy from almonds [almond-enriched diet (AED)] compared to carbohydrate-rich snacks in an otherwise nut-free energy-restricted diet [nut-free control diet (NFD)] would improve weight loss during 3 months of dietary energy restriction (−30%E, phase 1) and limit weight regain during 6 months of weight maintenance (phase 2).⁽²⁾ Outcomes were measured at baseline and the end of each phase. One hundred and forty adults (aged 25–65 years) with overweight or obesity (body mass index [BMI]: 27.5–34.9 kg/m²) were recruited and randomly allocated to the AED ($n = 68$) or the NFD ($n = 72$). There was a significant reduction in weight during phase 1 ($p < 0.001$) of -6.9 ± 0.5 kg in the AED and -7.0 ± 0.5 kg in the NFD, with no difference between groups ($p = 0.858$). There was a small amount of additional weight loss in both groups during phase 2 (-1.2 ± 0.4 kg, $p = 0.009$), but again with no significant difference between the groups ($p = 0.756$). There was a significant reduction in fat mass (-7.3 ± 0.4 kg, $p < 0.001$) and a small but significant reduction in lean mass (-0.9 ± 0.1 kg, $p < 0.001$), resulting in a significant increase in percent lean mass over the duration of the study ($4.8 \pm 0.3\%$, $p < 0.001$). HbA1c increased ($0.1 \pm 0.04\%$, $p = 0.020$) and fasting insulin decreased (-9.3 ± 3.8 pmol/L, $p = 0.049$) in phase 1 only for both groups and there was a reduction in fasting glucose at end of phase 2 (-0.2 ± 0.07 mmol/L, $p = 0.002$). Blood pressure fell over the duration of the study for both groups (-4.9 ± 0.8 mm/Hg systolic and -5.0 ± 0.5 mm/Hg diastolic, $p < 0.001$). Total cholesterol, LDL-C, VLDL-C and triglycerides significantly decreased over time for both groups (-0.3 ± 0.07 mmol/L, -0.2 ± 0.06 mmol/L, -0.1 ± 0.03 mmol/L, -0.3 ± 0.06 mmol/L, respectively, all $p < 0.001$) and HDL-C significantly increased for both groups (0.065 ± 0.02 mmol/L, $p = 0.011$). No group x time interactions were observed for any outcome measures. These findings provide further evidence that an almond-enriched energy-restricted diet can promote weight loss and weight maintenance comparable to a nut-free energy-restricted diet and that both diets support cardiometabolic health.

References

1. Nishi SK, Viguiouk E, Blanco Mejia S, et al. (2021) *Obes Rev* 22 (11), e13330.
2. Carter S, Hill AM, Yandell C, et al. (2020) *BMJ Open* 10, e036542.