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Modulation of adipokines in an overweight/obese population by a pomegranate extract

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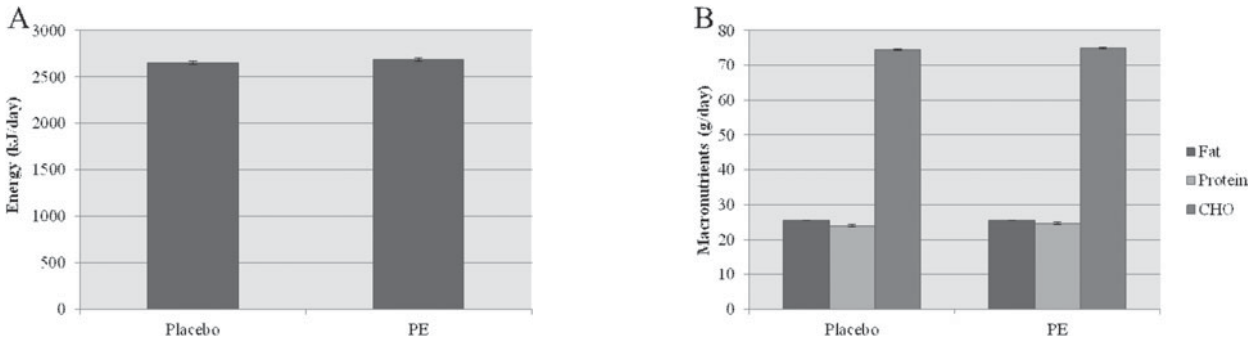
An increase in abdominal adiposity is linked with the development of a low-grade systemic inflammatory response, characterised by altered adipokine secretion and increased plasma oxidative stress. This in turn, is thought to have a role in the increased risk of T2DM and CVD associated with obesity and interventions are therefore sought which are able to modulate plasma adipokine concentrations, re-establishing a healthy balance.

It was hypothesised that consumption of a pomegranate extract (PE) for 28 d by a healthy, overweight/obese (BMI = 29.2 $_{SD}$3.1; Age = 37.1 $_{SD}$10.2) population would alter circulating adipokines and plasma total antioxidant status. A randomised, placebo-controlled, single-blind crossover design was used, with a 14 d washout period. Measurements were taken at baseline and 28 d for each intervention, within 24 hours of the last capsule being taken. No significant changes in energy or macronutrient intake (Fig. A & B), assessed using a 3 d diet diary, BMI, waist circumference or waist:hip ratio were noted for either treatment group. Consumption of PE for 28 d did not significantly increase plasma antioxidant levels as measured by the ferric reducing antioxidant capacity (FRAP)([)[1] or oxygen radical absorbance capacity (ORAC)[2], nor did it affect oxidative stress as measured by plasma thiobarbituric reactive substances assay (TBARS)[3]. TNFα, IL-6, adiponectin and leptin (RnD Systems, UK) did not significantly change for either treatment.



	IL-6 (pg/ml)		TNFα (pg/ml)		Leptin (ng/ml)		Adiponection (µg/ml)		TBARS	
Change from baseline	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Placebo	2.86	12.0	1.53	6.4	− 1.869	12.8	− 0.718	7.9	0.280	0.7
PE	− 4.74	12.1	3.38	7.7	− 0.651	11.0	− 0.371	3.7	0.160	0.5

In conclusion, intake of a PE for 28 d did not result in a cumulative increase in plasma total antioxidant capacity or affect plasma oxidative stress. Nor was there any effect on plasma adipokines. These results suggest that consumption of a PE over a 28 d period has no effect on the secretory pattern of adipose tissue in obesity. However it may possibly have some action beyond this time period or at the subcellular level.

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