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The effects of Plant- based Dietary Recommendation on Parameters of Health

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Research has demonstrated health benefits in disease prevention and treatment when following a vegan diet (Barnard, *et al.,* 2005; Craig and Mangels, 2009). However, few studies have examined the effect of such diets, in conjunction with nutritional education workshops on health parameters including; body composition, cholesterol and blood glucose in overweight individuals while controlling for the confounding effects of exercise. Therefore, the aim of this study was to determine the effect of plant- based diets on the above parameters.

10 female participants (BMI 30.5 ± 3.7; age 39 ± 6; weight 86kg ± 14.4) enrolled in a 6 week nutritional education programme developed by two registered nutritionists. All participants were physically active prior to and during the study. For the first 3 weeks participants completed a reset phase which eliminated all refined sugar, heavily processed foods, artificial sweeteners, alcohol, meat and fish from the diet. From week 4, all foods could be reintroduced into the diet, if the participants wanted. There was no restriction or self-monitoring of energy intake. Participants were provided with an ABC model of eating, which included 3 meals a day (from starchy carbohydrate, protein, vegetable and herb sources), 1 snack and unlimited highly nutrient dense foods. All participants recorded a food diary prior to the 6 week study and also during the 6 week period. All participants attended weekly 1.5h meetings for 6 weeks and were added to a social network support site for 24 hour support from other participants, as well as the researchers. Baseline Body Mass Index (BMI), body composition, waist circumference (WC), blood glucose (BG), total cholesterol (TC), low-density lipoprotein (LDL) and high-density lipoprotein (HDL) were all measured and again at 6 weeks.

Using a paired samples t-test, at the 6 week point body weight (86kg *vs.* 82kg, $p = 0.00$) and BMI decreased (30.5 *vs.* 29.2, $p = 0.00$). Waist circumference (97cm *vs.* 93cm, $p = 0.01$) and body fat % (36% *vs.* 33%, $p = 0.01$) were also reduced. Blood glucose also reduced after the 6 week dietary intervention (5.19 mmol/L *vs.* 50.1, $p = 0.02$) and there was a trend for both total cholesterol (5.4 mmol/L *vs.* 5.3mmol/L, $p = 0.24$) and LDL cholesterol (3.08 mmol/L *vs,* 2.88 mmol/L, $p = 0.16$) to be reduced, whilst an increased HDL was observed (1.68 mmol/L *vs.* 1.72 mmol/L, $p = 0.31$).

Adoption of a plant based diet was associated with significant weight loss and changes in body composition in females of varying weights and age. This is despite an absence of prescribed restrictions on energy intake and food choice. Analysis of the 6 week dietary intervention data revealed a dietary composition of 40% carbohydrates, 40% fats and 20% protein to be successful in achieving these changes in body composition and blood glucose levels. The adoption of a plant-based dietary approach appears to be beneficial for weight loss, blood glucose and cholesterol levels. Longer-term trials are required.

1. Barnard ND, Scialli AR, Turner-McGrievy G *et al.* (2005) *Am J Med* **118**(9), 991.
2. Craig WJ & Mangels AR (2009) *J Am Diet Assoc* **109**, 1266–82.