

The Effect of Meals Containing Culinary Doses of Spices on Postprandial Endothelial Function, Lipemia and Glycemia: A Randomized, Crossover, Controlled-Feeding Study

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Objectives: The objective was to examine the effect of meals containing 0.6 g (low-spice meal), 3.7 g (moderate-spice meal), and 7.4 g (high-spice meal) of herbs/spices on postprandial flow mediated dilation (FMD), triglycerides, insulin and glucose in men and postmenopausal women at-risk for cardiovascular disease.

Methods: A 3-period, randomized, crossover, controlled-feeding study was conducted. Participants consumed an average American diet containing 0.5 (low-spice diet), 3.3 (moderate-spice diet), and 6.6 (high-spice diet) g/d/2100 kcal of herbs and spices for 4-weeks. At baseline and the end of each diet period, participants were given a meal challenge (1192 kcal; carbohydrate 145 g; protein 62 g; fat 44 g; saturated fat 20 g). The spice dose in the test meal corresponded to the spice level of the diet consumed for the previous 4 weeks. Blood was sampled at 0, 30, 60,

120, 180, 240 minutes for analysis of triglycerides, glucose, and insulin. FMD was measured at 0, 120 and 240 minutes.

Results: The analytic sample included 43 participants (males 65%; age 48 ± 11 years; BMI 28.9 ± 2.9 kg/m², FMD $6.2 \pm 2.3\%$). No between-meal differences were observed for FMD (meal $P = 0.30$; time $P < 0.001$; meal by time interaction $P > 0.99$). The area under the curve for triglycerides ($P = 0.39$), glucose ($P = 0.49$) and insulin ($P = 0.07$) was not different between the meals.

Conclusions: Following intake of an average American diet with three different doses of spices (0.5, 3.3 and 6.6 g/d/2100 kcal) for 4-weeks, FMD, triglyceride, glucose and insulin responses to meals containing 0.6 g, 3.7 g and 7.4 g of spices were not different. These findings suggest that following 4-weeks of exposure to spice-containing diets, spice exposure from a meal does not dose-dependently affect endothelial function, lipemia and glucose homeostasis in the 4-hours post meal.

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