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Concurrent Session 11

The relationship of nutrient intake to blood pressure in femalesCA Nowson¹, J Conn, M Lucas, JD Wark²¹ School of Exercise and Nutrition Sciences, Deakin University, Burwood, Victoria, Australia² The Department of Medicine, University of Melbourne, Melbourne, Victoria, Australia

Background - Data from epidemiological studies have indicated that a number of dietary factors have been found to be associated with blood pressure and body composition, eg protein, fibre and electrolytes.

Objective - To assess the relationship between nutrient intake and blood pressure in women with a body mass index (g/m²)(BMI) between 18 – 40; young women (YW) aged 18 - 40.5 years and older women (OW) between 41 – 65years.

Design - Cross-sectional sample of female twins and sisters participating in a longitudinal study assessing the predictors of risk factors for osteoporosis and cardiovascular disease. Subjects completed a 4-day food record (household measures), questionnaires on lifestyle practices, blood pressure measurement and underwent a Dual Energy Absorptiometry measurement to assess body composition.

Outcomes - The table indicates the mean (SD) for a selection of descriptive measures of the study populations. There was a positive association of age and BMI and systolic pressure (SBP) for OW and for BMI for YW (OW: R²=0.2, Age β =1.0 (0.1), BMI β =0.7 (0.2), YW: BMI R²=0.09, β =0.8 (0.1), adjusting for age, BMI in OW, protein intake was negatively associated with SBP (β =-0.11(0.04) P =0.017, as was dietary calcium (β =-0.005(0.003) P = 0.044, fibre (β =-0.3(0.1) P = 0.009, and magnesium (β =-0.04 (0.1) P = 0.001. Therefore a one SD increment in magnesium, fibre, protein and calcium was associated with a decrease in SBP of 3.2, 2.1, 2.0 and 1.5mmHg respectively.

Mean (SD)	Age (yrs)	BMI (g/m ²)	Energy (MJ)	% Energy fat	Protein (g)	Calcium (mg)	Magnesium (mg)	Fibre (g)
YW (n=312)	31.6(7.0)	24.5(4.2)	7.8(2.1)	32.4(6.8)	77.3(22.1)	806.6(320.2)	263.2(80.7)	47.4(7.9)
OW (n=271)	48.0(5.9)	26.3(4.6)	7.6(1.8)	32.5(6.2)	79.2(18.6)	790.0(303.0)	274.5(79.3)	45.6(7.0)

Conclusion - In younger women it is difficult to detect any effect of dietary intake on blood pressure, although BMI did contribute to a higher SBP. In older women, in addition to age and BMI, and after adjustment for these factors dietary magnesium, fibre, protein and calcium and were all inversely associated with blood pressure. This confirms the result of previous studies, primarily conducted in men, that a diet containing significant amounts of magnesium, calcium and protein is also associated with lower levels of blood pressure in older women.