

ASSOCIATION BETWEEN DIETARY CALCIUM IN-TAKE AND BLOOD PRESSURE AMONG PORTUGUESE CHILDREN

S. Abreu¹, P. Moreira^{1,2}, J. Mota¹, R. Santos^{1,3}, C. Moreira¹, PC. Santos^{1,3}, L. Soares-Miranda¹, S. Vale¹

¹Research Centre in Physical Activity, Health and Leisure, Faculty of Sport, University of Porto, Porto, Portugal

²Faculty of Nutrition and Food Science, University of Porto, Porto, Portugal

³ISMAI Institute of Higher Education, Maia, Portugal ⁴Department of Physiotherapy, School of Health Technology of Porto, Polytechnic Institute of Porto, Porto, Portugal

Background and objectives: Higher blood pressure (BP) in childhood is associated with cardiovascular risk. It has been described that dietary calcium intake may affect BP regulation. The objective of this study was to analyze the association between dietary calcium intake and BP in children.

Methods: A cross-sectional study was conducted with 128 Portuguese children (47.7% of boys) aged 6-8. Anthropometric measurements were recorded (weight, height, biceps, triceps, subscapular and suprailiac skinfolds) and physical activity was assessed during 7 consecutive days by accelerometry. Dietary intake was assessed using a 3-day food record completed by parents. Dietary calcium intake was expressed as the calcium-to-protein ratio. BP was measured using an electronic sphygmomanometer (COLIN DP 8800). Two measurements were taken and the mean of these was considered. Data was analyzed separately for girls and boys, and linear regression analysis was used to estimate the association between calcium intake and systolic and diastolic BP (SBP and DBP, respectively) adjusting for age, height, sum of skinfolds, physical activity, energy intake, magnesium, potassium and sodium intake.

Results: For girls and boys, respectively, SBP mean was 95.4 ± 7.6 and 97.5 ± 6.5 mmHg ($P=0.101$), DBP mean was 56.3 ± 6.5 and 57.6 ± 5.9 mmHg ($P=0.220$). No significant difference was seen in the calcium intake and calcium-to-protein ratio of girls compared to boys ($P>0.05$, for all). After adjusting for confounders, calcium-to-protein ratio was significantly in-versely associated with SBP in girls (girls: $r= -0.685$, $P=0.034$ and boys: $r= -0.010$, $P=0.979$). No association was found with DBP in both genders.

Conclusions: In our sample, calcium intake seems to be in-versely related to SBP in girls. Further studies are needed to test the effects of dietary calcium intake on BP in children.