

CO1: TOTAL AND FREE SUGAR ESTIMATED INTAKE AND MAIN DIETARY SOURCES IN THE PORTUGUESE POPULATION: THE NATIONAL FOOD, NUTRITION AND PHYSICAL ACTIVITY SURVEY (IAN-AF 2015-2016)

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INTRODUCTION: Guidelines recommend to limit free sugars (FS) intake. The estimation of the population intake and main dietary sources, using a consistent methodological approach, is useful for a better health planning.

OBJECTIVES: To assess, in the Portuguese Population, total and FS intake, main dietary sources, adherence to recommendations and their associations with socioeconomic and health related data.

METHODOLOGY: A representative sample (3 months-84 years) recruited for the IAN-AF 2015-2016 was studied (n=5811). Usual sugars intake was estimated by two food-diaries (children<10 years) and by two 24-hour recall (for other age groups). Sugars estimation was performed at ingredient level considering raw edible portions. FS were classified using the WHO definition (added mono and disaccharides+sugars naturally present in honey, syrups, fruit juices and fruit juices concentrates). Estimates were appropriately weighted and standardized to age and sex. Associations were estimated through linear regression models.

RESULTS: The mean daily intake of total sugar was 84.3 g, contributing 18.5% to total energy (TE) and FS was 35.8 g (7.5%TE). Age groups of 5-9 and 10-17 years showed the highest contribution of FS (%TE). Adherence to recommendations (FS<10%TE) were lower in children 5-9 years (44.8%) and higher in the elderly (91.3%). The main contributors to FS intake in children were yogurt (18.6%) and sweets (16.5%), whereas in adolescents was soft drinks (24.5%). In adults (45-65 years) and the elderly, sugar added to food/drinks represented the major dietary source of FS (30%), followed by sweets (14.0%). After adjusting for sex, age, education level and energy, FS intake was negatively associated with a higher education level ($\beta=-2.0$; 95%CI: -6.4; -2.0), practice of leisure physical activity ($\beta=-7.0$; 95%CI: -10.0; -6.9) and self-reported chronic disease ($\beta=-1.6$; 95%CI: -3.5; -0.0). Unemployed individuals ($\beta=1.4$; 95%CI: -19.6; -12.7) and worst health perception ($\beta=3.8$; 95%CI: 0.8; 5.6) was positively associated with FS.

CONCLUSIONS: FS intake was higher among children and adolescents. Main dietary sources differ by age group. Worst socioeconomic and health status was associated with higher FS intake.

CO2. ASSOCIATION OF VITAMIN D WITH BLOOD PRESSURE IN YOUNG ADULTS

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INTRODUCTION: Vitamin D influences the renin-angiotensin system, essential in regulating the blood pressure.

OBJECTIVES: To evaluate the association of both serum 25-hydroxyvitamin D [25(OH)D] and vitamin D intake levels with blood pressure in young adults.

METHODOLOGY: Vitamin D intake was assessed by a food frequency questionnaire for 1707 individuals evaluated at 21 years of age, as part of the population-based cohort EPITeen. For a subsample of 543 participants, serum 25(OH)D was determined by chemiluminescence immunoassay. After 10 minutes of rest, three blood pressure measurements were performed, separately by at least 5 minutes, using a digital sphygmomanometer. The average of the two closest measurements was used in this analysis. The association of both serum 25(OH)D and vitamin D intake with blood pressure was estimated by linear regression models [regression coefficients (β), 95% confidence intervals (95%CI)]. Both models were adjusted for sex, body mass index, leisure-time physical activity and education, and, additionally, the serum 25(OH)D model was adjusted for season, and the vitamin D intake model for energy intake.

RESULTS: Mean (standard-deviation) for serum 25(OH)D was 55.12 (27.61) nmol/L and for vitamin D intake was 4.78 (2.38) μ g/day. After adjustment, no significant association was found between serum 25(OH)D and systolic blood pressure (SBP) ($\beta=0.000$; 95%CI: -0.028, 0.027) and diastolic blood pressure (DBP) ($\beta=-0.006$; 95%CI: -0.027, 0.015). Regarding vitamin D intake, a significant positive association was found only for DBP ($\beta=0.173$; 95%CI: 0.014, 0.332 for DBP; $\beta=0.161$; 95%CI: -0.044, 0.366 for SBP).

CONCLUSIONS: No association was found between serum 25(OH)D, the biomarker of the vitamin D status, with values of SBP and DBP, but a positive effect was observed for vitamin D intake. The very low intake of vitamin D and the possibility of unmeasured confounding may explain the inconsistency of the results.

CO3. TACKLING N-3 PUFA DEFICIENCY IN WESTERN DIET: DEEPER INSIGHT INTO CANNED CHUB MACKEREL (*SCOMBER JAPONICUS*) AND SARDINES (*SARDINA PILCHARDUS*) THROUGH BIOACCESSIBILITY

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INTRODUCTION: It is well known that Western diet lacks enough n-3 polyunsaturated fatty acids (PUFA), such as eicosapentaenoic (EPA) and docosahexaenoic (DHA) FAs, for a healthy diet. This has led to fish consumption recommendations by FAO/WHO and other health promotion organizations. Canned fish represents an economically inexpensive way of addressing this problem, but there are doubts concerning the fraction of n-3 PUFA that is rendered available for absorption by the organism, given the harsh thermal treatment applied to canned products. The canning process may lead to protein denaturation, which may affect lipid bioaccessibility.

OBJECTIVES: Accordingly, the lipid composition and bioaccessibility in canned sardine (*Sardina pilchardus*) and chub mackerel (*Scomber japonicus*) were studied.

METHODOLOGY: Bioaccessibility was evaluated through the application of an in vitro model of the human digestion.

RESULTS AND CONCLUSIONS: Canned mackerel contained more monounsaturated FA (MUFA), whereas canned sardine was richer in saturated FA (SFA) and PUFA. The proportion of n-3 PUFA and n-6 PUFA was also different, yielding an n-3/n-6 ratio of 1.42 ± 0.01 and 4.90 ± 0.02 in canned mackerel and canned sardine,