

polyphenols, antioxidants, folate, and fiber, tend to taste bitter and might be aversive to many individuals. Apart from taste, a number of sociodemographic, health, and lifestyle factors likely determine intake as well as compliance with dietary guidelines.

Objective We examined bitter food consumer and non-consumer profiles in order to help elucidate underlying reasons for the subpar adherence to nutrition recommendations.

Methods We carried out secondary analyses of data from the French SU.VI.MAX antioxidant trial (1994–2002). All participants provided written informed consent and the study was approved by respective ethics committees. The selected subsample ($N = 2,327$) included men and women aged 45–60 years at baseline with a minimum of 12 24-h dietary records provided during the first 2 years of participation. Unweighted and weighted bitter food consumption scores were computed, based on a number of vegetable and non-vegetable items. Sex-specific associations between sociodemographic, health, and lifestyle factors and bitter food consumption were analyzed with multiple linear regression. Covariates used in the final analysis included group assignment (active vs. placebo), total energy intake without alcohol, and non-bitter vegetable consumption.

Results Education, area of residence, physical activity, and alcohol use among men (unweighted score, adjusted model $F = 16.23$, $p < 0.0001$), and alcohol use and presence of diabetes among women (unweighted score, adjusted model $F = 12.70$, $p < 0.0001$) were supported as predictors of bitter food consumption. Modeling the weighted bitter food consumption score, body mass index emerged as a significant predictor in both men and women ($p < 0.002$), whereas educational level was supported only among women ($p < 0.006$).

Conclusions This study adds to the presently scarce literature on individual-level determinants of actual intake of specific types of food. Our findings support the role of sex-specific sociodemographic, health and lifestyle determinants of bitter food intake, to be considered in future nutrition education initiatives. In the context of fruit and vegetable intake below established dietary guidelines, and especially the low levels of cruciferous vegetable intake reported in many countries including France, the identification of population subgroups according to their vegetable and other bitter-tasting food consumption patterns may help in refining dietary recommendations.

P2J13

Risk factors for disagreement in self and proxy reports on physical activity of children and young adolescents

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Background Although easy accessible and relatively cheap movement instruments have been developed and are used in population studies on physical activity among children, self-report very often is the main source of information. Sometimes information on PA coming from self and proxy respondents are pooled together for later analysis. However, the comparability of information received based on self- and proxy-reports remains unclear.

Objectives The main aim of the study was to assess the level of agreement of data gathered from schoolchildren and their mothers concerning physical activity of youths and to identify factors associated with disagreement.

Methods A cohort of 91 children (66 % girls), aged 7–15 years, and their mothers were studied using a questionnaire in a cross-sectional study. Information gathered included average leisure time physical

activity during the summer and winter weeks over a year prior to the interview.

Results Children, compared to their mothers (proxies), reported higher average weekly time spent on general seasonal activity, seasonal team games, time spent on TV/movie viewing, and book reading. The observed level of Lin's concordance correlation coefficient for agreement varied from 0.32 for TV/movie viewing to 0.79 for non-seasonal activity. Sedentary lifestyle (>25.5 h in sedentary activity/week) was identified as a factor associated with disagreement in reports on general seasonal activity (OR = 5.47, 95 % CI: 1.78–16.83) and on seasonal team games (OR = 5.42, 95 % CI: 1.74–16.88). Moreover, increase in categories of BMI percentiles was associated with increased risk of disagreement in these activities (p for trend 0.037, 0.041; respectively).

Conclusions The comparability of information on the level of children's and young adolescents' leisure time physical activity depends on the nature of this activity. Sedentary lifestyle and increased body mass index may be responsible for disagreement in some types of physical activity. The use of parental proxy reporting as supplementary source of information on the level of physical activity of children should be applied, if ever, with caution.

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P2J14

Association between milk intake, leisure-time physical activity and abdominal obesity in girls

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Background Diet and physical activity are recognized as important factors to prevent abdominal obesity (AO), which is strongly associated with chronic disease (type 2 diabetes, cardiovascular diseases, etc.).

Objective The aim of this study was to identify associations of AO and related diet and physical activity behaviors, particularly milk intake and leisure-time physical activity (LPA) in girls.

Methods A cross-sectional, school-based study was conducted with 893 girls, ages 15–18, from the Azorean Archipelago, Portugal. The population was selected by means of proportionate stratified random sampling, taking into account location (island) and number of students, by age and sex, in each school. In all adolescents, anthropometric measurements were recorded (weight, height, waist circumference-WC). AO was defined by a WC at or above the 90th percentile. Adolescent food intake was measured using a semi-quantitative food frequency questionnaire, and milk intake was categorized as 'low-milk-intake' (<2 servings/day) or 'high-milk-intake' (≥ 2 servings/day). LPA was assessed via a self-report questionnaire, and participants were divided into active and low-activity groups. The association between milk intake, LPA and AO was evaluated by logistic regression analysis adjusting for confounders (age, smoking, parental education and total energy intake).

Results The prevalence of AO was 31.3 %. 50.4 % of girls were physically active. Concerning the proportion of AO, no significant differences was found between low-activity group and active group (31.5 vs. 31.2 %, $P = 0.909$, respectively). Girls with high levels of milk intake had lower proportions of AO than who reported a low-milk intake (26.8 vs. 34.7 %, $P = 0.013$). After adjusting for confounders, high-milk intake (OR = 0.54, CI 95 %: 0.33–0.83,

$P < 0.05$) was negative predictor of AO whereas no significant associations were found with LPA.

Conclusions In our sample, milk intake seems to be protective against to AO in girls. These results suggest that milk intake may be related to body fat distribution. Although in our study, no association was found for LPA, findings from observational and intervention studies suggest that regular physical activity is one of several behavioral factors important for prevention of deposition of abdominal fat. Hence, futures researches with more accurate measures are needed on the combined effects of milk intake and/or milk products and PA on AO.

P2J15

Cardiorespiratory fitness, weight status and objectively measured sedentary behaviour and physical activity in adolescents from different geographic communities

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Background Cardiorespiratory fitness (CRF) is an important health marker that has a central role in the prevention of youth obesity. However, the aetiology of obesity is complex and is linked to some extent with environmental factors that contribute to the adoption of sedentary behaviours. It is common assumed in the literature that residents in rural communities with low population density frequently have limited access to health care, and also have socioeconomic, educational and nutritional inequities that can impact the healthy development of children and youth.

Objectives The present study aimed to analyse the associations among weight status (body mass index, BMI), cardiorespiratory fitness (CRF), and objective measures of sedentary behaviour and physical activity (PA) in a cross-sectional sample of adolescents from rural and urban areas.

Methods The sample included 362 youth 13–16 years of age (165 males, 197 females) from urban and rural regions of the Portuguese midlands. CRF was assessed with the 20-m shuttle-run test. A uni-axial accelerometer was used to obtain five consecutive days of activity behaviours including time being sedentary. Partial correlations and logistic regression analysis (controlling for sex and chronological age) were used to examine relationships among variables.

Results Rural adolescents of both genders had significantly higher levels of CRF than their urban peers. Urban males were more active than their rural peers at the weekend, whereas urban females were significantly less active than rural females on week days and across total assessed days. As expected, BMI was inversely correlated with CRF among both rural ($r = -0.35$, $p < 0.01$) and urban ($r = -0.42$, $p < 0.01$) adolescents. In addition, the logistic regression model revealed that both rural and urban youth with higher levels of CRF had a lower relative risk of being overweight/obese.

Conclusion The observations indicate important associations between weight status and CRF in both rural and urban Portuguese adolescents. Furthermore, place of residence has an important impact on weight status of this sample of adolescents. However, the results also highlighted a need to better understand the details of daily life of adolescents in urban and rural settings in order to define educational and perhaps clinical interventions.

P2J16

Nutrition transition in the Seychelles: 22-year trends

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Background In the Seychelles there is currently no explicit information about nutrition trends. The available data is limited and largely based on food consumption surveys and food balance sheets.

Objectives To assess trends in nutrition patterns in the Seychelles between 1989 and 2011 among subjects aged 25–44 years.

Methods Random samples generated from Seychelles national censuses were used in 1989 ($n = 493$), 2004 ($n = 599$) and 2011 ($n = 471$). Food frequency questionnaire data were available for all surveys and the variables were collapsed into homogenous categories.

Results Consumption of fish (5+/week) decreased from 93 % in 1989 to 74 % in 2011 ($p < 0.001$). During the same period, the following consumptions increased: meat (5+/week), 25–51 %; fruit (1+/week), 48–94 %; salty snacks (1+/week), 22–64 % and sweet snacks (1+/week), 38–67 % ($p < 0.001$ for all). Home-brewed alcoholic drinks (1+/week) decreased from 16 to 1 % ($p < 0.001$), while the consumption of wine (1+/week) increased from 5 to 33 % ($p < 0.001$). Between 2004 and 2011, rice (2/day) decreased from 62 to 57 %, tea (1+/day) decreased from 72 to 68 % and poultry (1+/week) increased from 86 to 96 % (all $p < 0.01$), while no change was found for vegetables (70.3–69.8 %, $p = 0.65$).

Conclusion Seychelles is experiencing nutrition transition characterized by a decreased consumption of staple traditional foods (fish, polished rice and tea) and of inexpensive homebrews and increased consumption of meat, poultry and snacks. There are also trends toward more varied foods likely related to a substantially broader supply in the 22-year interval. Finer analysis should be performed to examine whether secular trends in food patterns may not necessarily be detrimental for health.

P2J17

Breastfeeding practices, appetite regulation and growth in healthy children in preschool

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Background Breastfeeding shapes food intake in children, through previous experience of basic flavors derived from the maternal diet by intrauterine life, by breast milk and also by the experience during the first year of life (Vereijken et al. 2011). In food choices, children only consider their preferences, based on known basic flavors, and these same preferences are now involved in appetite regulation (Faith et al. 2004). Developing the necessary skills to make safe and nutritious choices is undoubtedly a fundamental achievement that supports healthy growth. (Vereijken et al., 2011).

Objective Evaluate the association between breastfeeding practices, the Appetite Regulation and Healthy Growth in children between 3 and 5 years old.

Methodology A total of 327 children aged between 3 and 5 years old, living in the city of Braganza-Portugal and who attend kindergartens, were included in the sample. Two questionnaire were filled by parents of children: (1) A questionnaire regarding the regulation of appetite, *Child Eating Behaviour Questionnaire-CEBQ* (Wardle et al. 2001)