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Introduction: Despite numerous advantages over traditional methods, Web-based study designs continue to elicit concerns about generalizability.

Objectives: To compare dietary intake in a large e-cohort of volunteers with respective data from a nationally-representative sample.

Method / Design: We studied 49,443 adults (aged 18-74 y) recruited during the first year (2009-2010) of the NutriNet-Santé e-cohort where volunteers aged 18+ years, residing in mainland France and having Internet access were eligible for enrollment. Self-reported dietary intake (food groups, micro- and macro-nutrients, and total energy from three 24-h dietary records) was weighted according to the national Census. It was then compared with data from the nationally-representative study "Etude Nationale Nutrition Santé" (ENNS, 2006-2007, N=2,754 adults aged 18-74 y) in which dietitians carried out dietary interviews. Energy underreporters were excluded from analysis in both surveys. Given the large sample size, we employed a >5% cutoff for establishing practically meaningful differences.

Results: The findings revealed similar intake as regards total energy, simple and complex carbohydrates, total lipids, and protein. However, across sex, intake of fruit and vegetables, dietary fiber, vitamins B6, B9, C, D, E, iron, and magnesium was higher while intake of alcohol, and non-alcoholic beverages was lower in the e-cohort than in ENNS. In addition, mean differences in intake of calcium and vitamin A reached significance only among men, whereas mean differences in intake of vitamin B12, zinc and potassium were significant only among women.

Conclusions: The results of the present study revealed similarities and differences in food group and nutrient intake between a large e-cohort of volunteers and a nationally-representative French sample. Apart from research, dietary data from large e-cohorts could also potentially serve trend monitoring purposes as regards dietary practices in the target population, especially in population subgroups underrepresented in population-based surveys.

Keywords: (maximum 5): dietary intake, diet assessment, prospective cohort, generalizability, Internet

149/690. Development and validation of general FFQ for use in clinical practice.

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Introduction: To optimise the clinical care of patient populations, (para-)medics are looking for new tools to facilitate and increase

the quality of care. A patient-tailored feedback regarding their diet is one aspect of optimising care.

Objectives: Development, validation and reproducibility of a Food Frequency Questionnaire (FFQ) to assess selected nutrient and food intake.

Method / Design: Cross-sectional validation of an online FFQ, which contains 24 food groups. Reference data for validation were 3-day estimated food records. Analyses were done for all participants at the nutrient and food group level. The food groups are based on the Flemish (Dutch speaking part of Belgium) Food-Based Dietary Guidelines. The validation study was conducted in a sample of 40-70 years old adults recruited through cultural and sport organisations.

Results: In total 54 women (52.3y±5.9 and BMI: 24.7kg/m²±4.2) and 32 men (55.4y±7.3 and BMI: 26.4kg/m²±2.5) participated. The measured intakes of water/tea/coffee, sugared milk products, brown bread, breakfast cereals, fish, meat replacers, potatoes, pasta and margarine were not significantly different between the two methods. The Spearman correlation for all foods was on average 0.41 (ranging from 0.09 for sugared milk products to 0.81 for alcoholic beverages). The reproducibility was acceptable as there was only a significant difference for eggs. The overall correlation coefficient was 0.69. There were no significant differences for the relative nutrient intake between the two methods except for total fat, carbohydrates, water and sodium. The overall correlation coefficient was 0.3. The reproducibility test shows no differences for all nutrients between the two measurements of the FFQ.

Conclusions: The current online FFQ shows an acceptable reproducibility for both nutrients and food items, whereas validation only showed reliable intakes for a restricted number of food items and nutrients. This online FFQ can be a valuable tool to perform dietary assessment in a clinical context.

Keywords: (maximum 5): FFQ, validation, food, nutrients

149/719. Comparison of food consumption and nutrient intake assessed with different dietary assessment methods

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Introduction: Different dietary assessment methods are used to estimate dietary intake. Each method comprehends certain strengths and limitations. In the German National Nutrition Survey (NVS) II three dietary assessment methods - diet history interviews (DHI), 24-h recalls (24HR) and weighed food records (WR) - were applied.

Objectives: To determine differences in food consumption and nutrient intake of the three dietary assessment methods.

Method / Design: Data were assessed within a subgroup of 677 participants of the NVS II (2005-2007). Nutrient intake was calculated with the German Nutrient Database (BLS 3.02). Multiple Source Method was applied to estimate population distributions of usual intakes based on two 24HR. Confidence intervals were calculated on basis of bootstrapping samples and Cohen's d was assessed as an effect size estimate.

Results: Greatest differences in food consumption were found between DHI and 24HR, least differences between 24HR and WR. Higher estimates for nutrient intake were observed for DHI compared to 24HR and WR in 15 and 12 out of 20 nutrients. Pairwise comparisons of DHI with the two other methods showed high relative differences for certain nutrients with medium effect sizes, reflecting the higher consumption estimates of vegetables, fruit and milk/-products of the DHI.

Conclusions: Food consumption based on WR is close to 24HR, whereas DHI reveal higher results. Especially socially desirable foods like vegetables or fruit are stated in higher amounts by DHI. Another reason may be the enormous cognitive task of respondents which facilitates subjectivity. It is not known which method is closest to the true consumption. However, comparison of consumption data with data of food balance sheets suggests that the results of DHI regarding vegetables are overestimated.

Keywords: (maximum 5): German National Nutrition Survey II, diet history interviews, 24-h recalls, weighed food records

149/720. Impact assessment of a sports kit on physical activity in children aged 8 to 11

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Introduction: Only 50% of French children respect the WHO recommendation on physical activity. Playing is probably a way to promote physical activity for children, this is why this study proposes to use a tool that proposes sports in a safe and funny way: the sports kit: "Le Sport Ça Me Dit", with an innovative methodology using 3D accelerometers.

Objectives: To confirm that the use of the sports kit increases, at medium-term, the children global physical activity (PA) and willingness to be physically active.

Method / Design: In the EPODE France community-based programme, 5 facilitators were recruited to provide bi-weekly physical activity (PA) sessions to children for 7 weeks, using the kit, which

includes 6 different activities. 213 children aged 8 to 11 were recruited, from which 122 composed the control group and 91 the action group. Each child received a 3D accelerometer wristband. Measurement of the children PA was made once a week for 14 weeks (with sports kit use during 7 weeks) using accelerometers. In parallel, the children completed a questionnaire, before, during and at the end of the study, on their PA habits, screen time and sleeping habits.

Results: The data were treated to compare the difference between the action group and the control group and to measure the evolution of both groups over the study. The data analysis was conducted in a way that allows the observation of an increase of physical activity and sports practice in children, a decrease of screen time and an increase of the sleep duration.

Conclusions: This study shows the impact of a playful tool on the physical activity level and on the motivation to do sports, in children. Besides, it assesses if this impact is sustainable at medium-term.

Keywords: (maximum 5): Physical Activity, Children, Accelerometer, Inactivity

149/731. Global changes in gene expression in CACO-2 cell line treated with extracts from iodine-biofortified carrot

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Introduction: Iodine deficiency can cause a wide spectrum of disorders from endemic goitre to the mental retardation. On the basis of the WHO report about 1.9 billion of people around the World consume a diet deficient in iodine. The highest percentage of people with iodine deficiency is found in Europe. An alternative source of iodine, may be biofortification of vegetables, especially those that are the basis of daily diet.

Objectives: The aim of this study was to determine the effect of carrot biofortified with iodine on global changes in gene expression in Caco-2 cell line.

Method / Design: Caco2 line cells were treated with extract from iodine-biofortified carrot (164,4 µg/dm³) and extract from non-biofortified carrot. The analysis of gene-expression profile was made using SurePrint G3 Human Gene Expression 8x60K v2 Microarray. The statistical analysis was performed using Gene Spring 12.6.1 software (Agilent, USA). The statistical significance of the differences was evaluated with a one way ANOVA and Tukey's HSD Post-hoc test (p < 0.05). A multiple testing correction was performed using Benjamini and Hochberg False Discovery Rate (FDR) < 5%.