

Differences in micronutrient estimates between FFQ1 and all measures showed no consistent relationships.

CONCLUSION: A FFQ without portion sizes is useful to measure energy and macronutrient intake in Guatemalan schoolchildren.

P52-08

REPRODUCIBILITY AND RELATIVE VALIDITY OF A FOOD FREQUENCY QUESTIONNAIRE FOR NUTRIENTS IN THE TEHRAN LIPID AND GLUCOSE STUDY

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OBJECTIVE: To describe the validity and reproducibility of the Food Frequency Questionnaire (FFQ) used for assessing nutrient intakes as part of the Tehran Lipid and Glucose Study (TLGS).

MATERIALS & METHODS: A total of 132 subjects (61 males and 71 females) were included in the study. Dietary data were collected by means of 24-h dietary recalls (DR) repeated for 12 months. Subjects completed two 168-item semiquantitative FFQs. Blood and urine samples were taken every season for measurement of plasma retinol, β -carotene, α -tocopherol and cholesterol as well as urinary nitrogen and potassium.

RESULTS: The mean age and BMI of participants were 35.5 ± 16.8 years and 25.5 ± 5.2 , kg/m² respectively. Age adjusted and deattenuated energy intake correlation coefficients between DR and FFQ2 ranged from 0.14 (vitamin A) to 0.71 (phosphorus) in men (mean $r=0.53$) and from 0.11 (β -carotene) to 0.60 (fiber) in women (mean $r=0.39$). Energy adjusted reproducibility coefficients varied from 0.41 (monounsaturated fat) to 0.79 (protein) in men (mean $r=0.59$) and from 0.41 (vitamin A) to 0.74 (saturated fat) in women (mean $r=0.60$). FFQ2 and 24-h DR produced exact agreement rates from 39.6% (vitamin C) and 68.3% (phosphorus) in men and from 39.6% (potassium) to 54.1% (fiber) in women. Correlation coefficients between urinary level of nitrogen, potassium and the FFQ-based protein and potassium intake were 0.36 and 0.35, respectively.

CONCLUSION: The FFQ developed for TLGS has good relative validity and reproducibility for several nutrient intakes in Tehranian adults and appears to be an acceptable tool for assessing nutrient intakes in this population.

P52-09

EFFECT OF SOLANUM INCANUM ON POSTPRANDIAL BLOOD GLUCOSE CONCENTRATION OF NORMOGLYCEMIC NIGERIANS

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The aim of this study was to evaluate the effect of a Nigerian vegetable, Solanum incanum on postprandial blood glucose levels of normoglycemic Nigerians. It sought to find a remedy in diabetes dietary management, something that is practicable and will ensure compliance over a long period. The effect of the vegetable was compared with those of other indigenous vegetables also identified to be taken by diabetic patients, Vernonia amygdalina and Gongronema latifolium. A-50g glucose was used for standard glucose tolerance test of each subject. The values were used to compare other test results. The blood glucose concentration of the subjects were determined (post absorptively) using Accu-check active glucometer. The vegetables (50g each) were processed by the squeeze-wash-drink and chew-raw. They were administered to the different

groups of subjects who also served as their own controls (n 8, Solanum; n 8, Vernonia; n 8, Gongronema) on separate days in randomized order. Blood glucose levels were checked at fasting (0 min) and postprandially at 30 mins intervals for 2 hours. Compared with other vegetables, Solanum elicited significant reductions ($P < 0.05$) in blood glucose levels at most postprandial time points and for area-under-curve (AUC) values. AUC reductions; Solanum, 18%; Vernonia, 15%; Gongronema, 13%.

P52-10

VALIDITY AND REPRODUCEABILITY OF A CALCIUM FOOD FREQUENCY QUESTIONNAIRE IN 9 TO 13 YEARS OLD STUDENTS IN THE CITY OF TEHRAN

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RATIONAL AND OBJECTIVES: Insufficient calcium intake in childhood and adolescence increases the risk of osteoporosis later in life. A valid and simple tool for assessment of dietary calcium intake in children and adolescents is a priority. This study aimed to assess validity and reliability of a calcium food frequency questionnaire, in 10 to 13 years old students in the city of Tehran.

MATERIALS & METHODS : A total of 184 students (90 girls and 94 boys) aged 9 to 13 years, were recruited from 20 elementary and middle schools in 7 selected districts in the city of Tehran through two stage systematic cluster sampling method. A 56-item food frequency questionnaire containing calcium sources in Iranian diet was designed. Validity of the questionnaire was evaluated through comparing the result of calcium FFQ with the average of five 24-h recalls. Reproducibility of FFQ was assessed through comparing of two times administration of the questionnaire, one month apart.

RESULTS & FINDINGS: Deattenuated correlation between calcium intake estimates derived from the reference method and FFQ was 0.54 and 0.57 for the FFQ1 and FFQ2, respectively. Pearson Correlation between repeated administrations of FFQ was 0.65. FFQ1 and FFQ2 classified 75% and 79.9% of the subjects in the same or adjacent quartiles of calcium intake as compared to the reference method. Only 6% classified in the extreme quartiles. Sensitivity, specificity and positive predictive value for FFQ1 (for the cut-off level of 1300 mg /day) was 72.9%, 50% and 93.1%, and for FFQ2 was 84.9%, 33.3% and 92.2%, respectively.

CONCLUSION: The developed calcium FFQ, demonstrated good reliability and fairly good validity, and can serve as a useful tool for assessing calcium intake and identifying children and adolescents with low calcium intake.

P52-11

DIETARY ASSESSMENT METHODS (DAME) FOR MICRONUTRIENT INTAKE IN ELDERLY PEOPLE: A SYSTEMATIC REVIEW

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RATIONALE & OBJETIVES: The EURRECA Network of Excellence needs clear guidelines for assessing the validity of reported micronutrient intakes amongst vulnerable population groups. A systematic literature search was conducted for studies validating the methodology used for measuring the usual dietary intake in elderly people.

MATERIALS & METHODS: The quality of each validation study selected was assessed using a scoring system developed

by EURRECA. Validation of food frequency questionnaires (FFQs) were categorized according to whether the study used a reference method that reflected short-term intake (< 7 days) long-term intake (≥ 7 days) or used biomarkers. A correlation coefficient for each micronutrient was calculated from the mean of the correlation coefficients from each study weighted by the quality of the study.

RESULTS: In the 31 articles included in the review, 25 different FFQs, four diet histories, one 24-hour recall and a videotape dietary assessment method had been validated. A total of five publications analyzed biomarkers (BM), which were used to validate four FFQs, and one 24-hour recall, presenting very good correlations only for vitamin E.

CONCLUSION: FFQs appear to be most reliable for measuring short-term intakes of riboflavin and thiamine and long-term intakes of phosphorous and magnesium.

P53: Bio-markers: Individual vs Population

P53-01

ASSESSMENT OF SERUM LEPTIN AND THYROID HORMONES LEVELS IN DEPRESSED WOMEN

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RATIONALE & OBJECTIVES: There is conflicting evidence regarding levels of leptin and thyroid hormones in depression. In this cross-sectional study we aimed to both investigate serum levels of leptin and thyroid hormones in a sample of depressed women.

MATERIALS & METHODS: 63 patients aged 14-49 years with different degrees of depression and 69 healthy controls were included in the study. General information data were gathered from each sample using questionnaires and face-to-face interviews. Patients were divided into three groups according to the Beck depression inventory. Endocrine parameters contained serum concentrations of leptin, TSH, T4, T3 and Free T4 index.

RESULTS & FINDINGS: The serum concentration of leptin was slightly, but significantly, lower in depressed patients when compared with controls ($p < 0.05$). Furthermore, depressed women had higher serum T4 levels and lower serum T3 levels compared to controls ($p < 0.001$). No significant difference was observed between two groups in serum TSH levels and Free T4 Index (FTI). Serum leptin levels was significantly lower in patients with severe depression when compared with mild and moderate depression ($p < 0.001$). In addition, patients with more severe depression had higher mean T4 compared with mild and moderate depressed patients ($p < 0.01$).

CONCLUSION: According to these findings, women with depression have decreased levels of serum leptin and deregulation of circulating levels of thyroid hormones. Thus, the identification of the underlying molecular mechanisms in depression, that seems to include numerous changes in the thyroid hormones and leptin, may serve as an important lead for developing potentially new treatment modalities in this group of patients at risk for other psychiatric diseases.

P53-02

ASSOCIATION BETWEEN OBESITY AND SERUM FOLATES IN PREMENOPAUSAL AFRICAN AMERICAN WOMEN

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BACKGROUND: Lower folate status is a risk factor for cardiovascular disease and certain cancers. Since premenopausal African American women have high rates of obesity, breast and colorectal cancers, understanding the link between obesity and folate metabolic status offers a mechanistic insight into the obesity-cancer connection.

OBJECTIVE: We assessed the associations between serum total folate, 5-methyltetrahydrofolic acid (5MeTHF), pteroylmonoglutamic acid (PGA), 5-formyltetrahydrofolic acid (5FoTHF), tetrahydrofolic acid (THF), plasma vitamin B12, and total homocysteine concentrations and obesity in premenopausal AA women ($n=113$).

DESIGN: This was a cross sectional study conducted at the baseline segment of a dietary intervention study in which fasting samples were used for folate, vitamin B12, and homocysteine measurements.

RESULTS: In multivariable analysis, serum total folate concentrations were 14.5% lower in the overweight (BMI 25-29.9) and obese (BMI 30-39.9) women, and 25% lower in the extremely obese (BMI >40) compared to normal weight (BMI <24.9) women (p -trend=0.08). For 5MeTHF, the major form of folate in circulation, overweight women had 15.2% lower, obese women 15.7% lower, and extreme obese women 26.9% lower concentrations than normal weight women (p -trend=0.06). Also, the overweight and obese women were more likely to be in the lower 50th percentile of serum total folate (p -trend=0.03) and 5MeTHF (p -trend=0.08) concentrations compared to the normal weight women. There were no significant associations between BMI and the minor folate species, plasma B12, and homocysteine.

CONCLUSIONS: With obesity at epidemic levels, these data, if confirmed by prospective or randomized controlled studies, have important public health implications.

P53-03

CAPABILITY OF AMINO ACID FOR DIABETIC BIOMARKER

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RATIONALE & OBJECTIVES: Diabetes mellitus (DM) is a major public issue due to its high prevalence and long-term complications. In previous study, effects of DM on the concentration of amino acids (AA) in plasma were indicated. To investigate the usefulness of AA for diabetic biomarker, we followed change of AA concentration in plasma with diabetic model mouse. [Material & Method] We used AKITA mouse, which carry a missense mutation for the insulin 2 gene. We divided them into two groups, Ins2^{+/-} mice ($N=13$) and Ins2^{+/+} mice ($N=12$), by RFLP. We took blood samples from them once a week from 3 and 20 weeks of age. We compared the concentrations of each AA in two groups at age of week, using Mann-Whitney U test.

RESULTS: In Ins2^{+/-} mice, the concentration of glycine, lysine and glutamine became lower than Ins2^{+/+} mice ($p < 0.05$). While, the concentration of leucine, alanine, valine, isoleucine, proline, citrulline, phenylalanine, tyrosine and threonine became higher than Ins2^{+/+} mice ($p < 0.05$). The changes of AA concentrations were specific in each.

CONCLUSION: It is indicated that plasma AA would be useful for predicting development and assessing control of DM.