Proceedings of the Wageningen Nutritional Sciences Forum 2009: Too much, too little

Guest Editor:
Dr Sander Kersten
Abstracts

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Objective: To compare the effects of a MUFAs-rich diet with a diet high in saturated fatty acids (SFA) and the additional effect of a Mediterranean diet on insulin sensitivity and serum lipids.

Design: Randomized parallel controlled feeding trial, in 60 non-diabetics (40-65y) with mild abdominal obesity. After a two week run-in diet high in SFA (19 energy%), participants were allocated to a high MUFAs-diet (20 energy%), a Mediterranean diet (MUFA 21 energy%), or the high SFA-diet, for eight weeks.

Results: The MUFAs-rich diet and the Mediterranean diet did not affect fasting insulin concentrations. The high MUFA-diet reduced total and LDL-cholesterol compared with the high SFA-diet, but did not triglyceride concentrations. The Mediterranean diet increased HDL-cholesterol concentrations (+0.09 mmol/L, 95% CI 0.0, 0.18) and reduced the ratio of total cholesterol/HDL-cholesterol (-0.39, 95% CI -0.62, -0.16) compared with the high MUFA-diet.

Conclusions: Replacing a high SFA-diet with a high MUFAs or a Mediterranean diet did not affect insulin sensitivity, but improved serum lipids. The Mediterranean diet was most effective, because it reduced total and LDL-cholesterol, and also increased HDL-cholesterol and reduced the total cholesterol/HDL-cholesterol ratio.

P3: Validity of the assessment of potassium and fish intake by a computerized two-day 24-h recall (EPIC-SOFT) in five European countries – preliminary results from the European Food Consumption Validation (EFCOVAL)

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Aim: To evaluate whether countries can be ranked accurately according to their potassium and fish intake by two non-consecutive 24-h recalls as compared to biomarkers of dietary exposure.

Methods: Between May 2007 and May 2008, data was collected in five countries: Belgium, Czech Republic, France, the Netherlands and Norway. A total of 599 apparently healthy adults, between 45 to 65 years old and representing all educational levels were recruited. Two 24-h recalls were collected using EPIC-soft with at least one month in-between, taking into account weekday variations. Before the dietary interviews, one blood sample was taken. Two 24-h urine were collected during the same days as the 24-h recalls. Mean potassium and fish intake were compared to potassium recovery in urine and fatty acids in phospholipids (EPA + DHA), respectively.

Results: Underestimation of potassium intake was seen in both genders in all countries, except for Czech Republic, where overestimation was 6.3% in males and no bias was identified for females. Underestimation of intake varied from -3.2% to 17.1%. Ranking of potassium intake was reasonably good according to the biomarker; it was r = 0.76 in males and r = 0.86 in females. The ranking of the countries based on their average fish intake was similar to the ranking based on average EPA + DHA concentrations; it was r = 0.97 in males and r = 0.96 in females.

Conclusion: The preliminary results of the EFCOVAL validation study showed that the ability of two 24 h recalls appears to be good for ranking countries for fish intake and fairly good for potassium.

P4: Caregivers' capability of detecting malnutrition in elderly residents

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Objective: Malnutrition is a common problem among institutionalized elderly and frequently overlooked. This exploratory study aims at comparing the ability of qualified caregivers in a nursing home to detect malnutrition in elderly residents.

Subjects and methods: Of 28 elderly (9 male, 19 female) aged 70-98 years (mean age 84.4; SD 6.8) and living in a nursing home, the nutritional status was assessed. Using the Dutch Mini Nutritional Assessment (MNA) two caregivers screened all residents allowing to calculate the interobserver correlation. In addition, 10 caregivers were asked whether they considered their residents to suffer from malnutrition by classifying them into 3 categories: absence of malnutrition, at risk for malnutrition and malnourished.

Results: The interobserver correlation of the MNA performed by two caregivers was high (r = 0.872) supporting the evidence of consistent classification with use of a validated instrument to assess malnutrition. The caregivers considered only 3.2% of the residents to be malnourished, whereas the MNA showed that 14.3% were malnourished (MNA<17 points). Of those elderly having a BMI<20 and MNA<17, only 5% of the observations were classified as malnutrition. From a total of 21 elderly being classified as malnourished or at risk for malnutrition according to the MNA, hardly 15% received liquid supplementation on a daily basis.

Conclusions: Caregivers' recognition of malnutrition in their elderly residents is poor. Since prevalence of malnutrition in the elderly, especially when institutionalized, is high and has adverse effects on health outcomes, nursing homes should always implement screening of malnutrition into their policy.

P5: A very high intake of conjugated linoleic acid, a trans fat from milk and meat, does not affect blood pressure in normotensive humans

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Background: Trans fatty acids in the diet are produced either by industrial hydrogenation or by biohydrogenation in the rumens of cows and sheep. Industrial trans fatty acids increase the risk of coronary heart disease. The effects of trans fatty acids from milk and meat of ruminants are less clear. cis-9,trans-11 conjugated linoleic acid (CLA) is a trans fatty acid unique to ruminants. Our objective was to study the effect of diets high in cis-9,trans-11 CLA on blood pressure compared to oleic acid which was a secondary endpoint of the study.

Methods: Sixty-one healthy men (n=25) and women (n=36) were sequentially fed each of 3 diets for 3 weeks, in random order, for a total of 9 weeks. Diets were identical except for 7% of energy (18.9g in a diet of 10 MJ/day) which was provided either by oleic acid, by industrial trans fatty acids, or by CLA. We measured blood pressure and heart rate on days 19 and 21 (period 1), days 40 and 42 (period 2) and days 61 and 63 (period 3).

Results: At baseline, mean blood pressure was 113.8 ± 14.4 mmHg systolic and 66.3 ± 9.6 mmHg diastolic. Blood pressure changed on average -0.1 mmHg systolic (95% confidence interval -1.49, 1.27, p = 0.87) and +0.5 mmHg diastolic (-0.73, 1.62, p = 0.45) during treatment with CLA relative to oleic acid.

Conclusion: High intakes of cis-9,trans-11 CLA, mainly found in ruminant fat, do not affect blood pressure in normotensive healthy subjects.

P6: No difference in satiation between equally palatable meals with a sweet or savory taste

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Satiation is the process that brings a meal to an end. In terms of preventing over-consumption, it is of great importance to identify European Journal of Clinical Nutrition