

Oral communications 1

1

EVALUATION OF MICRONUTRIENT INTAKES OF ELDERLY AUSTRALIANS: THE NATIONAL NUTRITION SURVEY-1995

Bannerman, E.; Magarey, A.; Daniels, L.

Department of Public Health. Nutrition Unit. School of Medicine. Flinders University of SA. Adelaide. Australia.

This paper presents secondary analysis of the latest Australian National Nutrition Survey (NNS)¹ to evaluate the dietary micronutrient intakes of older Australians in relation to national Recommended Dietary Intakes (RDI)². The NNS was a cross-sectional study of dietary intakes & physical measurements of a nationally representative sample (Feb. 95-Mar. 96), including n= 1960 Australians ≥ 65 years old. Dietary intakes were determined by 24 hour recall & nutrient intakes were calculated using «Ausnut». The proportion of adults whose dietary intake of micronutrients was ≤ 2/3rds of the Australian RDIs was determined.

The dietary intakes of niacin, thiamin, iron, riboflavin, & vitamin C were considered not a cause for concern, with 73-97% of male's & female's intakes in excess of the RDI. However, the distribution of dietary intakes of other micronutrients (vitamin A, calcium, zinc & potassium) showed a significant proportion of the population had intakes ≤ 2/3rds of the RDI (Table 1).

	Males (n= 902)			Females (n= 1058)		
	RDI	† RDI	† 2/3 rd RDI	RDI	† RDI	† 2/3 rd RDI
Vitamin A	750	60.3	22.0	750	53.7	27.4
Calcium	800	41.7	25.8	1000	16.4	56.4
Zinc	12	37.5	26.9	12	15.8	51.5
Potassium	3705	31.8	28	3705	13.2	47

These findings will be discussed with respect to the current RDI values & in terms of their implications for nutrition intervention strategies for older Australians.

¹ Australian Bureau of Statistics 1995 National Nutrition Survey (NNS) (%) Confidentialised Unit Record File (CURF) CD-ROM Canberra 1999.

² NHMRC (1991) «Recommended dietary intakes in for use in Australia».

2

MEDICINE USE AND SUPPLEMENTATION PRACTICE AMONG PARTICIPANTS OF SENECA STUDY

Brzozowska, A.*; Enzi, G.**; Amorim Cruz, J. A.***

* Department of Human Nutrition. Warsaw Agricultural University. Poland.

** University of Padua. Padua. Italy. *** National Institute of Health. Lisbon. Portugal.

The aim of this study was to assess six-year changes in medicine use and supplementation practice of elderly Europeans born between 1913-1918 who participated in the SENECA surveys. Data was collected by oral

interview in 12 towns in spring 1993 (1403 participants) and in 10 centres in 1999 (621 participants).

In 1993 more than 83% of subjects used medicine and almost 26% used nutritional supplements. During six year period negligible changes were observed i.e. increase in medicine use (87%) and decrease in supplement use (23,5%). In 1999 more participants than earlier took in long-term order (> 2 years) antihypertensive drugs (33% vs 20%), anticoagulants (17% vs. 6%), nitroglycerine (13% vs. 5%), psychotropic drugs (15% vs 10%) and diuretics (18% vs. 14%).

In 1999 supplements more frequently taken were calcium (12% of all the subjects, 7% of men and 17% of women), vitamin D (10% of all the subjects, 6% of men and 14% of women) and ascorbic acid (10%). During six year period no changes in percentage of vitamin D and vitamin C users were observed while calcium in final survey was taken by more respondents (12% vs. 8%).

Medicine and nutritional supplement use was more frequent by women than by men in both 1993 and 1999.

Detail characteristic of medicine use and supplementation practice of 1993 and 1999 for different SENECA centers by sex will be presented.

This study is part of the EU/SENECA study on Nutrition and Health of the Elderly in Europe.

3

MICRONUTRIENT SUPPLEMENTATION RECOMMENDATIONS FOR THE ELDERLY SUGGESTED BY A PUBLIC COMMITTEE

Dror, Y.*; Stern, F.*; Berner, Y. N.**; Kaufman, N.***; Berry, E.***; Maaravi, Y.***; Altman, H.****; Cohen A.****; Leventhal, A.****; Nitzan-Kaluski, D****.

* Faculty of Agriculture-Rehovot. ** Meir Hospital-Kfar Saba. *** Haddassa Medical Center-Jerusalem. ****Ministry of Health. Israel.

Objectives: To evaluate the needs for micronutrient supplementation for institutionalized elderly and to suggest an appropriate preparatory composition.

Methods: DRI (Dietary Recommended Intakes) for the total daily intake of micronutrients has been well accepted by the majority of the nutritionists. No recommendations for supplemental preparatories have been so far issued. A public committee was appointed by the Israeli Ministry of Health to recommend an appropriate preparatory for the elderly.

Results: The committee recommended a composition of about half the RDA (as issued by the American Health Authorities) for most of the micronutrients. Some micronutrients were recommended at a level of 1 RDA. No macronutrients, such as Ca, P and Mg were included. Vitamin K and Fe were also excluded. F was recommended at a minimal amount.

Discussion: Macronutrients comprise the main bulk of the preparatory preventing consumption by many subjects. These macronutrients may be supplied by another preparatory. For the majority of the elderly population food supplies above half of the RDA. Therefore, the committee suggested a daily supplementation of a half of the RDA for most of the micronutrients. Fe supplementation should be treated individually, because for some subjects iron might increase the risk of oxidative stress. Vitamin K might inter-

ferre with the activity of anticoagulant drugs consumed by many subjects. Water flourine concentration in some areas in Israel is quite high and supplemental consumption must be cautious.

4

PREDICTORS OF IRON, FOLATE AND VITAMIN C DEFICIENCY IN PEOPLE OVER 75Y

McNeill, G.; Vyvyan, J. P.; O Hanrahan, B. T.; Peace, H. S.; Wyness, L.

Department of Medicine & Therapeutics. University of Aberdeen. Foresterhill. Aberdeen. UK.

Objective: To assess whether anthropometric measurements and responses to simple questions on diet and health are able to identify individuals with marginal deficiency of iron, folate or vitamin C.

Design: Observational study on a random sample of men and women aged 75y or over living in the community.

Methods: 95 men and 77 women were interviewed in their own homes. 1-2 weeks later they were visited by a nurse who took height and weight measurements for calculation of body mass index (BMI) and a fasting blood sample for analysis of ferritin, folate and vitamin C. Marginal deficiency was defined as below 20µg/l for serum ferritin, 160µg/l for red cell folate and 17µmol/l for plasma vitamin C.

Results: Of the subjects studied, 14% had marginal deficiency in iron, 18% in folate and 14% in vitamin C. There was no difference in age, sex, BMI, appetite, weight loss or medication use between those who were deficient and those who were not deficient for any of the three nutrients. For vitamin C, low fruit and vegetable intake was associated with an increased risk of deficiency, while use of multivitamins was associated with a decreased risk of deficiency.

Discussion: The lack of association between BMI, appetite or weight loss and deficiency suggests that traditional measures of nutritional status may fail to identify micronutrient deficiencies. We are currently extending this work to a total sample of 200 men and 200 women on whom data will be available for presentation.

5

SERUM STATUS OF CAROTENOIDS AND TOCOPHEROL IN CATARACT PATIENTS: A CASE-CONTROL STUDY

Olmedilla, B.; Granado, F.; Vaquero, M.*; Blanco, I.; Herrero, C.

Unidad de Vitaminas (Sección de Nutrición). * Servicio de Oftalmología. Clínica Puerta de Hierro. Madrid. Spain.

Cataracts are an important public health problems being responsible for about half the 30-50 millions cases of blindness throughout the world. Epidemiological studies have shown an inverse association between antioxidant and/or carotenoids intake and blood levels and risk of cataract and age-related macular degeneration. Specifically, vitamin E, β -carotene, lycopene and lutein plus zeaxanthin have been shown to be inversely associated with the risk of eye disease.

To assess the serum status of carotenoids, retinol and tocopherols in subjects with clinically diagnosed cataracts, we compared 56 patients (21 men, 35 women, age > 40 y) and 110 controls (49 men, 61 women, age > 40 y). Fasting blood samples were collected throughout the year and analysed by a quality-controlled HPLC method (NIST, USA). Univariate and multivariate analysis were performed using SPSS Statistical package (v. 8.0).

Patients showed significant lower serum levels of lutein ($p < 0.000$) and β -cryptoxanthin ($p < 0.000$) and higher of lycopene ($p = 0.013$) but not for α -tocopherol, α -toc./chol. ratio, zeaxanthin, α - and β -carotene. Some of these differences may be related to different dietary intake of major contributors (i.e. lycopene-tomato products; β -cryptoxanthin-oranges), although in lutein (provided by green vegetables) are not only due to dietary habits because it should be also expected in other co-ingested carotenoids provided by green vegetables (β -carotene). Lower serum levels of xanthophylls and higher of lycopene are present in patients with cataracts and these differences seem to be not only related to dietary factors. Whether these carotenoids play a role in the aetiology and/or evolution of human cataracts deserve further investigation.

Oral communications 2

6

WEIGHT CHANGE AND MORTALITY IN THE ELDERLY. A POPULATION STUDY OF 70-YEAR-OLDS

Kumar Dey, D.*; Rothenberg, E.* **; Sundh V.*; Bosaeus, I.**; Steen, B.*

Departments of Geriatric Medicine* and Clinical Nutrition**. Göteborg University, Sweden.

Objectives: To examine the relationship between weight change from age 70 to 75 and subsequent 5- and 10-year mortality.

Design: Longitudinal cohort study with a representative sample of 973 individuals (449 males and 524 females) aged 70.

Methods: Weight change was expressed as percent (%) change (in kg) between age 70 and 75 years and was divided into five weight change groups: loss $\geq 10\%$, loss 5-9.9%, loss 0-4.9%, gain 0.1-4.9% and gain $\geq 5\%$. The relative risk (RR) and 95% confidence interval (CI) for 5-year (75-80) and 10-year (75-85) mortality were estimated with «weight loss 0-4.9%» or «stable» weight change group as reference.

Results: Individuals who lost $\geq 10\%$ percent of their initial body weight between age 70 and 75 had a significantly increased risk for subsequent 5-year mortality (males, RR= 2.54, 95% CI: 1.78, 3.61 and females, RR= 2.25, 95% CI: 1.14, 4.45). The risk was also significantly higher in both sexes who lost 5-9.9% of their initial weight during age 70 to 75. For the 10-year mortality risk, such a trend was only significant for males of two weight change groups (lost $\geq 10\%$ and 5-9.9%, respectively). The RR for 10-year mortality after 75 was found to be lowest among males (RR= 0.88, 95% CI: 0.52, 1.05) and females (RR= 0.76, 95% CI: 0.46, 1.23) who had gained $\geq 5\%$ of their body weight between age 70 and 75.

Discussion: In elderly individuals weight loss is a risk factor for subsequent mortality in both sexes and a moderate weight gain seems to be protective for survival in this higher age group. Thus in clinical practice weight loss should be considered as an alarm signal and moderate weight gain rather a health indicator in the elderly.

7

AUSTRALIAN LONGITUDINAL STUDY OF AGEING: II PROSPECTIVE EVALUATION OF ANTHROPOMETRIC INDICES IN TERMS OF MORBIDITY IN COMMUNITY-LIVING OLDER ADULTS

Miller, M.* **, Bannerman, E.**; Crotty, M.**; Daniels, L.**; Giles, L.**; Whitehead, C.*; Cobiack, L.***; Andrews, G.**

* Repatriation General Hospital. ** Flinders University of South Australia. *** CSIRO Division of Human Nutrition. Adelaide. Australia.

Nutritional status may influence an individual's ability to function independently which is positively associated with improved health outcomes & quality of life. This study evaluates the predictive value of selected nutritional indices in terms of physical function & mobility in community-living older adults.

Weight, height, skinfolds (triceps, abdominal, supra-spinal, sub-scapular, medial calf, front thigh, metacarpal) & girth (arm, waist, hip, calf) measurements were performed on a community-living sample of older Australia-

lians (Australian Longitudinal Study of Ageing – ALSA; 772 men & 624 women; age ≥ 70 years). Waist: Hip, % weight loss, corrected-arm-muscle area (CAMA) & BMI were calculated. These measures were categorised according to commonly adopted definitions of nutritional status. Logistic regression analysis was used to determine the predictive value of these anthropometric indices of physical function & mobility at 2-year follow-up, adjusting for potential confounders (age, gender, marital status, smoking, alcohol status, self-rated health, ADL & co-morbidity).

A BMI of $< 20 \text{ kg/m}^2$ or $< 22 \text{ kg/m}^2$ was associated with greater physical function (RR= 0.29 CI= 0.13-0.64 & RR= 0.59 CI= 0.37-0.94); weight loss of $> 10\%$ was predictive of increased physical dysfunction (RR= 2.51, CI= 1.23-5.12). BMI $> 29.9 \text{ kg/m}^2$ or $> 30 \text{ kg/m}^2$ was predictive of reduced physical function (RR= 1.60, CI= 1.00-2.56 & RR= 1.79, CI= 1.12-2.86) & reduced mobility (RR= 2.10, CI= 1.35-3.27 & RR= 2.13, CI= 1.36-3.32) as was waist girth of $\geq 102 \text{ cm}$ (m) & $\geq 88 \text{ cm}$ (f) (RR= 1.81, CI= 1.26-2.59).

Some but not all definitions of under & over-nutrition independently predict the risk of physical dysfunction & mobility in community-living older adults. Establishment of relevant anthropometric indices & cut-off values for nutritional assessment of this population is required.

8

PREDICTORS OF CHANGES IN LEAN BODY MASS IN VERY OLD FREE-LIVING MEN AND WOMEN: THE FRAMINGHAM HEART STUDY

Payette, H.* **, Roubenoff, R.**; Jacques, P.**; Harris, T.***; Wilson, P.

* Research Centre. Sherbrooke Geriatrics University Institute. Québec (CND). ** USDA Jean Mayer Human Nutrition Research Centre on Aging at Tufts University. Boston. MA (USA). *** National Institute of Aging, Bethesda (USA).

Objective: To assess the prognostic role of cytokines and IGF-1 in 2-year changes in lean body mass (ΔLBM) while controlling for potential confounders and factors associated with changes in body composition.

Study Subjects: 232 males and 326 females [$x = 78 \pm 4$ (72-92) yrs] from the FHS cohort able to attend the study center for the 22nd and 23rd biennial examinations and having complete body composition data in both cycles as well as IL-6 and IGF-1 data at baseline (22nd).

Methods: LBM was estimated from bioimpedance data using a validated population-specific equation. Total cellular IL-6 synthesis and serum IGF-1 were measured by radioimmunoassay. Baseline health, functional and nutritional variables associated bivariately with ΔLBM were simultaneously entered into gender-specific, age-adjusted multivariate linear regression models to predict ΔLBM . Adjustment was also made for baseline LBM index [$\text{LBM}/\text{height} (\text{m})^2$].

Results: Participants were not obese or malnourished (\bar{x} BMI= $27.0 \pm 4.6 \text{ kg/m}^2$). Mean ΔLBM was $-0.86 \pm 2.24 \text{ kg}$ in men and $-0.73 \pm 1.78 \text{ kg}$ in women. In men, LBM loss was associated (adj. $R^2 = .09$, $p < .0001$) with higher baseline LBM index ($p = .02$), better perceived health status ($p = .006$) and lower baseline IGF-1 serum levels ($p = .002$). In women, ΔLBM were negatively associated (adj. $R^2 = .22$, $p < .0001$) with LBM index ($p < .001$), IL-6 ($p = .02$) and the occurrence of health event during the follow-up period ($p = .03$) and positively related to IGF-1 ($p < .0001$).

Conclusion: Cytokine and hormonal status are significant independent predictors of Δ LBM in the community-living elderly.

9

NUTRITIONAL STATUS OF 80-YEAR-OLD MEN AND WOMEN AND ITS RELATION TO MUSCLE STRENGTH

Pedersen, A. N.*; Ovesen, L.*; Schroll, M.**; Era, P.**; Rasmussen, K.***; Nielsen, F.***

* Department of Nutrition. Danish Veterinary and Food Administration. ** Unit for Dietary Studies at the Center for Preventive Medicine. Glostrup University Hospital. *** Skejby Hospital. **** Odense University Hospital.

Objective: To examine nutritional status and its relationship to muscle strength as a reflection of functional capacity in home dwelling 80-year-old Danes.

Design: A cross-sectional study of 121 men and 113 women who participated in the longitudinal 1914-population study 1964-1994 in Glostrup, Denmark.

Methods: Food intake was measured as a modified dietary history (the SENECA method), blood samples were non-fasting. Muscle strength was measured a maximal isometric strength of handgrip, arm flexion, knee extension, trunk flexion and extension.

Results: Blood levels of β -carotene correlated significantly with the intake of β -carotene, fruit and vegetables. Blood levels of homocysteine correlated significantly negatively with the intake of cereals and fish and positively with fats, while there was a tendency to negative correlations to fruit and vegetables. All muscle strength values correlated significantly with blood levels of β -carotene, while homocysteine showed a tendency towards a negative association with muscle strength values. A diet score showed a tendency towards better muscle function with a higher score.

Conclusion: Blood levels of β -carotene and homocysteine seem to reflect a healthy diet. There is a tendency towards higher muscle strength values with biomarkers of a healthy diet and a diet score.

10

RESTING ENERGY EXPENDITURE (EE), ACTIVITY EE AND TOTAL EE AT AGE 91-96

Rothenberg, E. M.; Bosaeus, I. G.; Westertep, K. R.; Steen, B. C.

Department of Clinical Nutrition. Sahlgrenska University Hospital. Gothenburg. Sweden.

Objectives: There is a limited knowledge concerning energy requirements of the elderly, especially the oldest old (> 80 yr). Energy requirements should be estimated from measurements of energy expenditure.

Design and methods: 21 free-living individuals (8 males, 13 females), 91-96 years of age, living in Göteborg, Sweden, were studied by the doubly labelled water method (DLW) for measuring total energy and by a ventilated hood system for Resting metabolic rate (RMR).

Results: RMR averaged 5.36 (SD 0.71) MJ/d in females (n=12) and 6.09 (SD 0.91) MJ/d in males (n= 8). Difference between measured RMR and predicted basal metabolic rate (BMR) (n= 20) was 0.015 (SD 0.86) MJ/d (NS). Total energy expenditure (TEE) measured by DLW averaged 6.3 (SD 0.81) MJ/d in females and 8.1 (SD 0.73) MJ/d in males. Activity energy expenditure (AEE= TEE-RMR), thus including diet induced thermogenesis, DIT averaged 0.95 (SD 0.95) MJ/d in females (n= 12) and 2.02 (1.13) MJ/d in males. Physical activity level (PAL= TEE/BMR) averaged 1.19 (SD 0.19) in females and 1.36 (SD 0.21) (p= 0.08) in males.

Discussion: If DIT is assumed to be 10 per cent of TEE, energy spent on physical activity will be very low in this very old population.

Oral communications 3

11

HEALTHY EATING IN EUROPEAN ELDERLY: CONCEPTS, BARRIERS AND BENEFITS

De Almeida, M. D. V.; Graa, P.; Alfonso, C.; Kearney, J. M. **;
Gibney, M. J. **

Faculdade de Ciências da Nutrição da Universidade do Porto. Porto.
Portugal.

Objectives: The objectives of this study were to identify in the elderly European population, the attitudes to food, nutrition and health, in order to define adequate strategies of health promotion.

Design: Cross-sectional survey using a face-to-face interview-assisted questionnaire.

Methods: This project belongs to the multicentric Pan-EU Survey on Consumer Attitudes to Food, Nutrition and Health under the leadership of the Institute of European Food Studies - Dublin, with the cooperation of members from all EU countries. 1843 European citizens, aged ≥ 65 , were interviewed. The data's descriptive analysis, was followed by univariate analysis to characterise the study's sample according to the defined objectives. Results will be presented at European level as for each country.

Results: The most important factors influencing elderly's food choice were quality and freshness (52%), trying to eat healthy (9.8%) and price (7.4%). Healthy eating was defined as «more fresh vegetables and fruit» (34.4%), «less fat» (33.4%) and «balance and variety» (22.6%). To stay healthy (35%), to prevent disease (28%) and to promote quality of life (10%) were the major benefits associated to healthy eating. However several barriers to the adoption of healthy eating were identified, namely to give up the preferred foods (20%), the price (15%) and willpower (13%). 19% of the elderly people didn't want to change their eating habits.

Discussion: Results of this study will help to improve eating habits in the elderly, as health professionals will be able to choose the most appropriate strategies for the different groups and settings, and will provide a base for future interventions in European countries for this growing age group.

12

INTERACTION BETWEEN TEXTURE AND TRIGEMINAL STIMULUS: EFFECTS ON ELDERLY CONSUMERS PREFERENCES

Forde, C.; Ester, N.; Cantau, B.; Delahunty, C.; Morrissey, P.

Nutritional Sciences. Department of Food Science and Technology.
University College. Cork.

The chemosensory losses that accompany ageing are widely believed to influence food preferences and consumption in the elderly. The possibility that interactions between the residual senses can compensate for losses was explored using a complex food system. Preferences for trigeminal and texture attributes of a food across two age groups were determined. A panel of twenty-four young people (20-35, mean age 27.7 ± 3.95 years) and twenty-four elderly people (> 65 , mean age 73.6 ± 5.78 years) were recruited. Eight soups were prepared using a standardised recipe, with four variations in texture and two levels of trigeminal stimuli. Samples were administered initially in paired comparisons to determine recognition thresh-

holds for differences between both texture and trigeminal stimulus. Samples were subsequently rated on a nine point hedonic scale to determine preferences. The results showed that it may be possible to compensate for losses in chemosensory function by careful manipulation of levels of interacting stimuli to obtain improved preference.

13

FLAVOURS ENHANCEMENT OF FOOD IMPROVES DIETARY INTAKE AND NUTRITIONAL STATUS OF NURSING HOME ELDERLY

Mathey, M. F.; Siebelink, E.; Graaf, C.; Van Staveren, W. A.

Division of Human Nutrition & Epidemiology. Wageningen University.
Wageningen. The Netherlands.

Taste and smell losses occur with aging. These changes are supposed to decrease the enjoyment of food, reduced food consumption and negatively influence the nutritional status of older adults, especially in the frail ones.

The study aimed at determining if the addition of flavor enhancers to the cooked meal of nursing home elderly residents during 16 weeks would lead to an increase in food consumption and thereby provide nutritional benefit to this population.

Sixty-seven nursing home elderly residents participated in a 16 weeks parallel group intervention study during which flavor enhancers were sprinkled over the cooked meal of the «enhanced» group. The control group received the same normally flavored meal. Appetite, daily dietary intake and anthropometry were assessed before and after 16 weeks of intervention. Dietary intake at the cooked meal was measured before, after 8 and 16 weeks of intervention.

Mean body weight significantly increased ($+1.1$ kg, $p < 0.05$) in the enhanced group ($n = 36$) and these changes differed significantly from those observed in the control group (-0.3 kg, $n = 31$). Daily dietary intake significantly decreased in the control group (-485 ± 1245 kJ, $p < 0.05$) and remained stable in the enhanced group (-208 ± 1115 kJ). Dietary intake at the cooked meal significantly increased in the enhanced group (133 ± 367 kJ) and remained stable in the control group (85 ± 392 kJ). Daily feelings of hunger also significantly increased in the enhanced group and remained unchanged in the control group.

Results showed that adding flavor enhancers to the cooked meal is a simple but effective way to improve appetite and dietary intake, which will positively affect nutritional status in nursing home elderly.

14

REDUCED APPETITE; IMPORTANT INFORMATION FOR IDENTIFYING ELDERLY WITH UNDERNUTRITION

Mow, M.; Bohmer, T.

Department of Medicine. Aker University Hospital. Oslo. Norway.

Introduction: Protein-energy undernutrition is common among aged people, but appears seldom in the discharge summarise. This may be due to

a reduced focus on nutrition in an active clinical setting. It is therefore important to have a simple screening to identify undernourished patients.

Aim: We wanted to study the prevalence of reduced appetite in 311 acute admitted elderly patients. The difference in nutritional status, according to appetite, was also analysed.

Results: Reduced appetite is present in 43% of hospitalised patients, compared to 15% in a free-living group. Patients with bad appetite have lower body weight: In men: 56 kg compared to 69 kg ($p < 0.000$); in women: 52 kg compared to 58 kg ($p < 0.002$). The prevalence of reduced appetite (in%) correlated to the clinical judgement of nutritional status: severe undernourished-77%; moderate undernourished-70%; not undernourished-33%; overweight-17% ($p < 0.000$).

Conclusion: Reduced appetite is common in old patients, and is an indicator of reduced nutritional status. Aged patients should always be asked about their previous appetite.

15

PERCEPTION AND PLEASANTNESS OF FOODS OF VARYING LEVELS OF OLFACTORY AND GUSTATORY STIMULI AMONG THE ELDERLY

Tuorila, H.; Maunuksela, E.; Niskanen, T.

Department of Food Technology. University of Helsinki. Finland.

In the elderly, olfaction has been documented to decline more dramatically than gustation. We examined the extent to which the missing or declined olfactory perception could be compensated (in hedonic terms) by an intense odor or a strong taste. Subjects ($n = 59$) were free-living women and men, age range 60-85 years. A control group ($n = 39$, age 21-38) consisted mainly of university students and staff. All subjects participated in six sessions, in which they 1) were investigated for background, including olfactory and gustatory capabilities, 2)-5) rated 18 sweet and savory cream cheese and 6) completed another olfactory test. The cream cheese samples were made using 3x3 factorial designs (8, 16 or 32% sucrose and none, mild or strong vanillin; 0.6, 1.2 or 1.8% NaCl and none, mild or strong basil extract). Prior tasting, subjects rated vanillin or herbal odor intensity and during tasting the overall flavor intensity and pleasantness; four or five samples were rated in a session. Unlike the young controls, the elderly rated the odor intensities similarly regardless of the concentration of vanillin or basil, but they detected large differences in flavor intensities. Hedonic ratings of both age groups were fairly similar although, in the case of vanillin, some tendency was observed among the elderly towards favoring strong vanilla. The olfactory tests showed a decline in smell identification ability between the controls and the elderly, and within the age range of the elderly subjects, but the test scores had little impact on olfactory ratings.

The study was carried out with the financial support from EU Quality of Life programme, project QLK1-CT-1999-00010.

Oral communications 4

16

NUTRITIONAL ASSESSMENT AND INTERVENTION IN US HOMEBOUND ELDERLY PEOPLE

Cavadini, C.; Kretser, A.; Kerr, W.; Voss, T.

Nestlé Research Center, Nestec Ltd. Lausanne. Switzerland.

The study aimed at identifying elderly homebound malnourished or at risk of and tested the efficacy of a comprehensive restorative nutrition intervention program.

Nutritional risk of subjects applying for meal services was determined via de Mini Nutritional Assessment (MNA). Subjects were entered into two groups. The control group (C) received one hot delivered meal, 5 days/week. The experimental group (E) received 21 specially formulated frozen meals plus fortified snacks delivered once per week. Nutritional risk (MNA), weight and BMI were measured at 0, 3 and 6 months.

At enrollment, in groups C and E respectively the mean age \pm SD was 76 ± 8 y (n= 95) and 75 ± 8 y (n= 97) (ns). Group C received approximately one third of daily requirements within the one meal. Group E received 100% of the daily requirements. Initial mean MNA was 18.6 ± 3.0 (C) and 18.9 ± 3.0 (E) (ns). MNA determined nutritional risk decreased with time (0 < 3 < 6 month) ($p < 0.001$) without group difference. Initial mean weight: male, 80 ± 22 kg, female 70 ± 24 kg ($p < 0.05$). Weight increased with time in group E ($p < 0.01$) at 3 and 6 months and decreased in group C (ns). Initial BMI was 26.2 ± 0.9 . The group (E) BMI increased at 3 mo and 6 mo ($p < 0.05$ and $p < 0.01$). No increase in group (C) BMI was observed.

MNA proved to be effective as a risk screening tool. Weight gain is viewed as protective in the elderly. Results suggest the need to reevaluate the present concept of meals-on-wheels programs for those at nutritional risk.

17

DIETARY QUALITY AND HEALTH STATUS IN EUROPEAN AND AMERICAN ELDERLY

Haveman-Nies, A.*; De Groot, C. P. G. M.*; Tucker, K. L.**; van Staveren, W. A.*

* Wageningen University. Division of Human Nutrition & Epidemiology. The Netherlands. ** Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University. Boston. USA.

A predominant approach for evaluating diet quality is the measurement of single dietary components. Given the complexity of human diets and the many interactions and correlations between nutrients, it is considered useful to examine global indices of food and nutrient intake as reflective for the total dietary pattern.

Two methods to make dietary patterns operational are cluster analysis and the calculation of diet scores. Both cluster analysis and diet scores can be used to classify persons into groups differing in nutritional status. In this study the Mediterranean Diet Score and the Healthy Diet Indicator are calculated for elderly, aged 70-77 y, of the Europe-wide SENECA Study and the Framingham Heart Study.

From cluster analysis, five dietary patterns were identified that corresponded to high consumption of sugar products, alcohol, meat & fat milk &

fruit and fish & grain products. Further analysis showed that these groups were associated with the diet scores and other nutritional indicators.

18

HEALTH STATUS, QUALITY OF LIFE AND MORTALITY IN A RANDOMIZED SELECTED ITALIAN ELDERLY SAMPLE

Inelmen, E. M.; Jimenez, G.; Miotto, F.; Mazzucato, M.; Rossi, F.; Peruzza, S.; Sergi, G.; Enzi, G.

Department of Medical and Surgical Sciences. University of Padua. Padova. Italy.

Although it is well known that the elderly are at much greater risk for development of chronic diseases than younger individuals, data on prevalence of common diseases in older Italians, are still few. The present study includes a random sample of 89 elderly (43.8% males; 56.2% females), born between 1913-1918, and constitutes the Italian part of the SENECA Study. The aim is to evaluate health status, quality of life and mortality of our elderly population. The methodology has been already described¹. The great part of the subjects (84.6% of males; 76% of females) was able to move outdoors. The cognitive function of almost all the subjects was good. The opinion of the participants about their current health status was worse in females (18%) than in males (5.1%). The most frequent chronic disease reported were: arthrosis and hypertension (28.2%), cardiovascular and respiratory diseases (20.5%), neoplasia (17.9%), diabetes (15.4%) in males; arthrosis (44%), osteoporosis (30%), hypertension (22%), cardiovascular and respiratory diseases (10%), neoplasia disease (8%) in females. Mortality was 28.9% of the initial sample (190). The most frequent causes of death were neoplasia (47.3% in males, 40% in females), cardiovascular disease (28.2% in males; 40% in females), stroke (7.7% in males), respiratory diseases (5.1% in males; stroke, respiratory diseases, hip fracture (6.6%) in females. In conclusion, although the opinion of our subjects about their health status was good, they suffered from a high prevalence of chronic diseases. Arthrosis was the most frequent chronic disease. Neoplasia was the first cause of death in both genders.

¹ De Groot C. P. G. M. & Van Staveren W. A. (1998). Nutrition and the Elderly: Manual of Operations. Euronut Report 11. Wageningen, The Netherlands.

19

NUTRITIONAL STATUS AND LENGTH OF STAY IN GERIATRIC HOSPITALIZED PATIENTS

Audivert, S.; Burgos, R.; Perez-Portabella, C.; Jimenez, G.; Planas, M.

Nutritional Support Unit. Hospital Vall d'Hebron. Barcelona.

The aims of our study were: 1) to analyse the prevalence of malnutrition in geriatric (≥ 65 y) and non-geriatric (< 65 y) patients admitted to an university hospital, and 2) to study the length of stay (LOS) according to the nutritional status in both groups of patients.

Prospective and randomized study of 329 patients. The admission was scheduled or through the emergency room. Nutritional status on admission was determined using: objective (O) (body mass index, triceps skinfold thickness, and mid-arm circumference) and subjective (S) (Subjective Glo-

bal Assessment). LOS was reported for all the patients studied. Statistics: Student t-test and Chi-Square.

We studied 140 geriatric patients and 189 non-geriatric patients. Using O method, we found a similar prevalence of malnutrition in geriatric and non-geriatric patients (11.4% and 10.6%, respectively). With S method higher prevalence of malnutrition was observed in both groups of patients (44.2% in geriatric and 40.7% in non-geriatric, respectively).

LOS was significantly longer in malnourished vs normonourished non-geriatric patients using both methods of nutritional assessment (O: 8.8 ± 7 vs 5.2 ± 5 d; and S: 6.5 ± 5 vs 4.7 ± 5 d, both $p < .05$). In the geriatric group of patients, while no modifications were observed according to their nutritional status when we use S method (6.6 ± 6 vs 6.3 ± 5 d). LOS was longer in normonourished patients using O method (4.4 ± 2 vs 6.7 ± 5 , $p < .05$).

No differences in prevalence of malnutrition between geriatric and non-geriatric patients, neither according to their admission were observed. Subjective nutritional method allow to detect more number of malnourished patients in both groups. Non-geriatric malnourished patients have LOS longer than normonourished ones.

20

ASSESSMENT OF RISK FACTORS (RF) FOR MALNUTRITION AND OF NUTRITIONAL STATUS IN HEALTHY ELDERLY PEOPLE IN GERMANY

Volkert, D.; Junk, K.; Mensing, S.; Stehle, P.

Department of Nutrition Science. University of Bonn. Bonn.

Little information is available about the nutritional status and the risk of malnutrition in healthy elderly people in Germany. Aim of this cross-sectional study was thus to assess the prevalence of RF for malnutrition as well as the nutritional status in healthy elderly living in an urban area in the Rhineland.

Participants were randomly selected (based on local registration list). Inclusion criteria were: age ≥ 65 years (y), living in a private household, being independent in basic activities of daily living, no severe mental impairment. Presence of different RF for malnutrition was asked in a standardised personal interview. Body weight and height were measured and BMI calculated.

From the 291 participants (115 men, mean age 74.3 ± 7.2 y; 176 women, mean age 76.7 ± 7.3 y) 32% were free of RF, 34% reported 1 out of 10 RF. Four % of the participants had ≥ 4 RF (high risk of malnutrition), prevalence being dependent on age (65-74 y: 1%, 75-84 y: 5%, ≥ 85 y: 11%). Living alone (36%), chewing problems (29%) and life event (22%) were the dominant RF, being homebound (1%), no daily cooked meal (2%) and poor appetite (3%) were reported only occasionally. Six % of all subjects had a BMI < 22 kg/m² (65-74 y: 4%; 75-84 y: 6%, ≥ 85 y: 11%). Only one person had a BMI < 20 kg/m². There was no association between nutritional status and the risk of malnutrition.

In summary, prevalence of malnutrition and the risk of malnutrition were low in this group of healthy elderly. Only in old elderly a high risk of malnutrition was observed. Physical functions as well as living conditions allow sufficient nutritional intake in the younger elderly.