Prospective associations between vitamin D status, vitamin D-related gene polymorphisms and risk of tobacco-related cancers

Mélanie Deschasaux, Jean-Claude Souberbielle, Paule Latino-Martel, Angela Sutton, Nathalie Charnaux, Pilar Galan, Serge Hercberg, Emmanuelle Kesse-Guyot, Khaled Ezzedine, Mathilde Touvier

Introduction: The majority of the Dutch mothers do not comply with the WHO-recommendation to give exclusive breastfeeding for at least six months. Policy of the Dutch government related to breastfeeding aims to supply up-to-date and accurate information on the health effects of breastfeeding.

Objectives: This study summarizes the current evidence on the health effects of breastfeeding on mother and child.

Method / Design: A comprehensive literature search on the health effects of breastfeeding was performed in Medline in June 2014. Some years ago we reported already on this topic. Therefore, the search was limited to articles published after the previous report in 2006 and focussed on 'western' study populations. First, relevant systematic literature reviews and meta-analyses were selected. In addition, for each outcome primary articles published after the search date of the included systematic literature review or meta-analysis were included. Based on these selected articles published since the former report, together with the former report, strength of the body of evidence for each outcome was evaluated following WHO-criteria as convincing, probable, insufficient, conflicting or no evidence.

Results: There is convincing evidence that breastfed infants run a lower risk of contracting certain infectious diseases, (gastrointestinal and respiratory tract infections and otitis media). Breastfeeding may also reduce the risk of developing obesity, asthma and wheezing in children and diabetes, rheumatoid arthritis and hypertension in their mothers (probable evidence). For a number of other diseases, the strength of the evidence for a beneficial effect is probable (children: childhood cancers, inflammatory bowel disease, Crohn's disease, ulcerative colitis, diabetes mellitus and sudden infant death syndrome; mothers: ovarian cancer, postpartum weight retention and hip fractures).

Conclusions: Breastfeeding has a beneficial effect on the health of both the child and the mother compared to formula feeding.

Keywords: (maximum 5): breastfeeding, infant health, maternal health, systematic literature review, western countries

149/492. Nutritional advice alters dietary intake and waist circumference of overweight individuals in a short-term period.

Author(s): (1) Marina Leite; (2) Raquel Mendes-Netto; (2) Marzo Edir Grigoletto; (1) Bárbara Lúcia Chagas; (1) Ana Carolina Santos Barbosa Machado; (1) Pauliana Santos; (3) Luana Edla Lima.

Affiliation: *(1) Nutritionist. Master Student in Physical Education. Federal University of Sergipe. Brazil.; (2) Professor at Department of physical education and Post Graduation program in Physical Education Program Federal University of Sergipe. Brazil; (3) Nutrition Student. Department of Nutrition. Federal University of Sergipe. Brazil.*

Introduction: The dietary intake is an important factor that can influence weight gain and promote the accumulation of fat, especially in the abdominal area

Objectives: To evaluate the effect of qualitative nutritional advice on anthropometric and dietetic changes in overweight individuals.

Method / Design: Anthropometric (weight and WC) and dietary (24-hour diet recall) data of 101 overweight members of the university community were collected before and after 15 days. The individuals had qualitative nutritional guidance, with a primary focus on reducing the intake of fried foods, sweets, alcohol and on increasing the quantity of meals, intake of fruits and vegetables and whole foods. To quantify the intake of energy and macronutrients, the data were tabulated in the NDSR software. For qualitative assessment of food intake the food-based classification of eating episodes model was used. For comparison of variables the paired t test and McNemar for continuous and categorical variables were applied, respectively.

Results: In the post-guidance period, an improvement in the quality of food was observed, characterized by a significant reduction in the 257g quantity of ingested food, total energy 470 Kcal, together with an increase of 2.6% in protein contribution and maintaining the caloric contribution of other macronutrients. Furthermore, there was a reduction in food intake frequency of the group E (added sugar) in the snack and group D (pastries) at lunch, followed by an increase in food intake frequency group C (vegetables) in the same meal. These changes resulted in a reduction of 1.5 cm in WC, which can contribute to reducing the risk for developing metabolic disorders.

Conclusions: Results show that quality nutritional guidelines can be effective in improving the standard of food intake of overweight individuals in a short-term period, resulting in improvement of important anthropometric parameters related to the risk of developing metabolic complications.

Keywords: (maximum 5): NUTRITIONAL ADVICE. OBESITY. FOOD INTAKE.

149/496. Prospective associations between vitamin D status, vitamin D-related gene polymorphisms and risk of tobacco-related cancers

Author(s): (1) Mélanie Deschasaux; (2) Jean-Claude Souberbielle; (1) Paule Latino-Martel; (3) Angela Sutton; (4) Nathalie Charnaux; (5) Pilar Galan; (1) Serge Hercberg; (1) Emmanuelle Kesse-Guyot; (6) Khaled Ezzedine; (1) Mathilde Touvier.

Affiliation: *(1) Epidemiologist. Sorbonne Paris Cité Epidemiology and Statistics Research Center. Inserm U1153, Inra U1125. Cnam. Paris 13 University, Nutritional Epidemiology Research Team (EREN). Bobigny. France; (2) Physician. Physiology Department. Necker Hospital. Inserm U845. Paris. France; (3) Biochemist.Biochemistry Department. Jean Verdier Hospital. Inserm U698. Paris 13 University. Bondy. France; (4) Biochemist.Biochemistry Department, Jean Verdier Hospital, Inserm U698, Paris 13 University.Bondy. France; (5) Epidemiologist.Sorbonne Paris Cité Epidemiology and Statistics Research Center, Inserm U1153, Inra U1125, Cnam, Paris 13 University, Nutritional Epidemiology Research Team (EREN). Bobigny.France; (6) Dermatologist.Dermatology Department, Saint André Hospital.Bordeaux.France.*

Introduction: Experimental evidence suggests that vitamin D may be protective against tobacco-related cancers through inhibition

of the formation of tumors induced by tobacco carcinogens. To our knowledge, only one previous epidemiological study investigated the association between vitamin D status and tobacco-related cancer risk and no study focused on vitamin D-related gene polymorphisms.

Objectives: Our objectives were to prospectively study the association between plasma 25-hydroxyvitamin D (25OHD) concentration, vitamin D-related gene polymorphisms and the risk of tobacco-related cancers.

Method / Design: 209 tobacco-related cancers were diagnosed within the SU.VI.MAX cohort (1994-2007), and matched to 418 controls as part of a nested case-control study. Tobacco-related cancers (i.e. cancers for which tobacco is one of the risk factors) included several localizations in the respiratory, digestive, reproductive and urinary systems. Total plasma 25OHD was assessed with Roche Cobas® electrochemoluminescent assay. Polymorphisms were determined with TaqMan assay. Conditional logistic regression models were computed.

Results: A 25OHD concentration≥30ng/ml was associated with a reduced risk of tobacco-related cancers (OR≥30vs.<30ng/ml=0.59 (95%CI 0.35-0.99), P=0.046). This association was observed in former or current smokers (OR≥30vs.<30ng/ml=0.43 (0.23-0.84), P=0.01) but not in never smokers (P=0.8). VDR FokI AA genotype and RXR rs7861779 TT genotype were associated with an increased risk of tobacco-related cancers (OR MT vs. WT=1.87 (1.08-3.23), P-trend=0.02 and OR HT+MT vs. WT=1.60 (1.07-2.38), P=0.02 respectively).

Conclusions: In this prospective study, high vitamin D status (25OHD≥30ng/ml) was associated with a decreased risk of tobacco-related cancers, especially in smokers. These results, supported by mechanistic plausibility, suggest that vitamin D may contribute to tobacco-induced cancer prevention in smokers and deserve further investigation.

Keywords: (maximum 5): 25-hydroxyvitamin D, tobacco-related cancers, smoking status, single nucleotide polymorphisms, nested case-control study

149/498. Knowledge and awareness of relevant aspects of folate/folic acid among young men and women in Switzerland

Author(s): (1) Janice Sych; (2) Beatrice Baumer; (3) Nina Steinemann; (4) Martina Wuillemin; (5) Kurt Bärlocher; (4) Christine Brombach.

Affiliation: *(1) Lecturer / Researcher, Institute Food and Beverage Innovation, Zurich University of Applied Sciences. Switzerland.; (2) Lecturer. Nutrition. Istitute of food and Beverage Innovation. Zurich University of Applied Sciences. Switzerland; (3) Nutrition Assistant. Institute of Food and Beverage Innovation. Zurich University of Applied Sciences. Switzerland; (4) Zurich University of Applied Sciences. Zurich, Switzerland.; (5) Prof. Dr. med. Stiftung Folic Offensive Switzerland. Switzerland.*

Introduction: Folate is an essential water-soluble vitamin with a key role in human metabolic pathways involving cell division and growth. Folic acid supplements are recommended 4 weeks before and during early pregnancy to significantly reduce risk of neural tube defects and other congenital defects. Yet many young women are unaware or not following this international recommendation. As in Europe, Switzerland does not have mandatory folic acid fortification, therefore prevention is under individual responsibility. Communicating and ensuring recommendation compliance are thus major challenges.

Objectives: To assess level of awareness and knowledge of young Swiss women and men on relevant aspects concerning folate/folic acid, i.e. dietary behavior, knowledge of food sources for folate and B12, optimal preparation methods, information sources, etc.

Method / Design: An on-line questionnaire was developed and answered by 428 women and 148 men, at Zurich University of Applied Sciences. Interviews with experts were conducted; communication media were assessed.

Results: 48% of study participants (n=576) answered correctly that folic acid is a life-essential vitamin. Compared with men, women were significantly more informed about the details of the folic acid recommendation (p<0.001). Dietary behavior of participants appeared favorable concerning folate: consumption of vegetables ≥ 4 times per week was 67% and 40% (raw); and 67% and 62% (cooked), for women and men, respectively. Concerning B12-foods, 80% participants correctly identified milk and meat as sources, but 25-43% incorrectly selected asparagus, wheat germ or spinach. Awareness of main folic-acid fortified products, i.e. fruit juices and breakfast cereals, was very high (100%).

Conclusions: This study identified several strengths and weaknesses in knowledge and awareness of young men and women in Switzerland on relevant aspects of folate-folic acid. A follow-up study is ongoing to assess and propose educational material on this topic in the Swiss school system.

Keywords: (maximum 5): folate, folic acid, neural tube defects, B-vitamins

149/499. Vitamin D and associations with gait speed in community dwelling old adults

Author(s): (1) Olof Geirsdottir; (2) Alfons Ramel; (3) Milan Chang; (4) Kristin Briem; (5) Palmi V Jonsson; (6) Inga Thorsdottir.

Affiliation: *(1) Unit for Nutrition Research. National University Hospital & Faculty of Food Science and Nutrition. University of Iceland. Reykjavik. Iceland.; (2) Unit for Nutrition Research. National University Hospital & Faculty of Food Science and Nutrition. University of Iceland. Reykjavik, Iceland.; (3) The Icelandic Gerontological Research Center, Reykjavik, Iceland.; (4) Department of Physiotherapy. University of Iceland. Reykjavik. Iceland; (5) Department of Geriatrics. National University Hospital of Iceland. Reykjavik. Iceland.; (6) Unit for Nutrition Research. National University Hospital of Iceland & Faculty of Food Science and Nutrition. University of Iceland. Reykjavik. Iceland.*

Introduction: Epidemiological studies have suggested a positive association between vitamin D status and physical function. Results from several other epidemiological studies point in the same direc-