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Abstracts

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Enbo Ma et al., J Clin Nutr Diet 2019, Volume: 5
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STABILITY OF DIETARY PATTERN IN FUKUSHIMA RESIDENTS AFTER THE GREAT EAST JAPAN EARTHQUAKE: THE FUKUSHIMA HEALTH MANAGEMENT SURVEY 2011-2013

Enbo Ma, Tetsuya Ohira, Hironori Nakano, Masaharu Maeda, Seiji Yasumura and Kenji Kamiya

Fukushima Medical University, Japan

Background: Dietary patterns more closely resemble actual eating behaviors because multiple food groups, not single food group or nutrient, are considered. The aim of this study was to assess whether dietary patterns changed in Fukushima residents by using pattern scores to track individual diets after the great East Japan Earthquake on Mar' 11, 2011.

Design: We used data from the mental health and lifestyle survey between 2011 and 2013, which assessed the mental health and lifestyle in Fukushima residents after the disaster. Total 156,477 participants aged ≥16 year-of-old with a 19-item food frequency questionnaire were available for this analysis. Year- and sex-specific dietary patterns were determined by the principal component analysis (PCA). Natural dietary pattern scores were calculated at each survey year. Applied scores in 2012 and 2013 were calculated by multiplying the coefficients from the PCA in 2011 by individual's frequencies of consumption standardized to the mean and SD observed in 2011, respectively.

Results: Three identified dietary patterns, labeled 'vegetable', 'juice/milk', and 'meat', were visualized similarly in men and women and among years. Spearmen correlation coefficients were 0.58-0.75 for natural and applied scores of the 'vegetable' and the 'juice/milk' pattern and 0.48-0.56 for the 'meat' pattern. Applied scores of the 'vegetable' and the 'juice/milk' pattern increased both in men and women along the years. Comparing to evacuate areas, participants in non-evacuate areas had higher 'vegetable' pattern scores, lower 'juice/milk' pattern scores, and the same 'meat' pattern scores.

Conclusions: Slight changes of dietary patterns have been observed between 2011 and 2013, with the 'vegetable' and the 'juice/milk' pattern scores increasing and the 'meat' pattern scores maintaining stable. Careful investigation of those who are insufficient intake of the 'vegetable' pattern is needed.

Biography

Enbo Ma is a Public Health Physician. His research focuses on epidemiology and related risk factors of cancer and cardiovascular diseases in Asian populations. He is an Associate Professor in the Fukushima Medical University. Enbo Ma obtained the B.M. at Baotou Medical College in 1990, and the M.Sci at Peking Union Medical College & Chinese Academy of Medical Sciences in 1998, China. He got the Ph.D. at University of Tsukuba in 2007, Japan. His research articles on associations between nutrition and health outcomes have been published in Trop Med Health, J Dev Orig Health Dis, J Epidemiol, Public Health Nutr, PLoS One, Br J Nutr, J Nutr, Nutr Cancer, BMC Cancer, etc. He received the Outstanding Poster Presentation 2013, Japan Epidemiological Association in 2013, the 14th Kawai Memorial Prize, Japan Health and Welfare Statistics Association in 2013, and the Tropical Medicine and Health Best Paper Award, Japanese Society of Tropical Medicine in 2015 and 2016. Enbo Ma obtained the B.M. at Baotou Medical College in 1990, and the M.Sci at Peking Union Medical College & Chinese Academy of Medical Sciences in 1998, China. He got the Ph.D. at University of Tsukuba in 2007, Japan. His research articles on associations between nutrition and health outcomes have been published in Trop Med Health, J Dev Orig Health Dis, J Epidemiol, Public Health Nutr, PLoS One, Br J Nutr, J Nutr, Nutr Cancer, BMC Cancer, etc.

mae@fmu.ac.jp

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REDUCED ANTIOXIDANTS INTAKE IN PREGNANT WOMEN WITH GESTATIONAL DIABETES: IS PREVENTION POSSIBLE?

Eman M Alissa

King Abdulaziz University, Saudi Arabia

Background and Aims: Women who develop gestational diabetes mellitus (GDM (are known to be at increased risk of developing type II diabetes mellitus. Pregnancy complications and their associated future diseases share common pathophysiology of inflammation and endothelial dysfunction, which may play an etiologic role in subsequent cardiovascular diseases. Adiposity and sedentary lifestyle are among prospective causal factors, but information about dietary risk factors for GDM is scarce in literature. Urgency for early detection and prevention of the disease necessitates better knowledge of modifiable risk factors like dietary habits. Therefore, we aimed to investigate the relationship between dietary intake levels of macro- and micronutrients with GDM in pregnant women with and without this condition.

Methods: Fifty pregnant women attending the obstetrics outpatient clinics at King Abdulaziz University Hospital, Jeddah, Saudi Arabia were randomly recruited during their screening for GDM between 24 and 28 weeks of gestation. Twenty five women with GDM were matched for age and gestational age with women without GDM in a case-control study design. All participants were subjected to medical history taking, clinical examination and laboratory investigations. Dietary intake was assessed using a food frequency questionnaire.

Results: The majority of the study population were obese according to their maternal body mass index. GDM patients had significantly higher dietary intakes of carbohydrates, total fat, saturated fat, and polyunsaturated fatty acids than women without GDM ($p<0.05$). Conversely, significantly lower levels of intakes of vitamin A, vitamin E and selenium were reported by GDM patients in comparison with their control counterparts ($p<0.05$).

Conclusions: Simple measures like encouraging physical activity, changing dietary patterns, consuming food items rich with antioxidants can contribute significantly in prevention of GDM. While our findings need to be confirmed by longitudinal studies, they highlight the potential of the diet to modify the risk of GDM.

Biography

Eman M Alissa has received her PhD in 2005 from the School of Biomedical and Molecular Sciences, University of Surrey, UK. Her thesis involves micronutrient status in cardiovascular diseases. In 2015, she became the Head of the Elemental Spectroscopy Unit, in King Fahad Medical Research Center, King Abdulaziz University, Saudi Arabia. Currently, she is a Professor at the Clinical Biochemistry Department, Faculty of Medicine, KAU. Her research interests include: micronutrients status in chronic diseases, nutritional biochemistry, diabetes and endocrinology. She has published over 60 articles and attended several conferences where she presented her research work results and has been serving as an Editorial Board Member of repute.

em_alissa@yahoo.com

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THE DIETARY INFLAMMATORY INDEX AND FRAILTY RISK IN OLDER PEOPLE WITH POOR NUTRITIONAL STATUS

Yongsoon Park and Doyeon Kim

Hanyang University, Korea

Both inflammation and poor nutritional status are major risk factors of frailty, and the dietary inflammatory index (DII) has been suggested as being associated with the risk of frailty. The present study aimed to investigate whether DII scores were positively associated with the risk of frailty in older people, particularly those with poor nutritional status. In total, 321 community-dwelling older people aged 70-85 years were recruited and categorized as non-frail, pre-frail, and frail according to the cardiovascular health study index. DII scores were calculated based on 24 h dietary recall, and nutritional status was assessed using the mini nutritional assessment. Multinomial logistic regression analysis showed that DII scores were positively associated with the risk of frailty in older people, particularly those with poor nutritional status. Among the frailty criteria, weight loss, low walking speed, and low grip strength were associated with DII scores. In addition, the optimal DII cut-off score for frailty was ≥0.93 (sensitivity 71%; specificity: 72%; AUC=0.792). The present study showed that a pro-inflammatory diet was associated with increased risk of frailty, particularly in older people with poor nutritional status. Future randomized controlled trials with a low DII diet for the prevention of frailty are needed to confirm our finding.

Biography

Yongsoon Park has completed her PhD from the Department of Food Science and Human Nutrition, Washington State University, and Postdoctoral Studies from Endocrine Research Unit, Mayo Clinic. She is a Professor in the Department of Food and Nutrition at Hanyang University, and the Director of Korean Living Science Research Center. She has published more than 120 papers in reputed journals, and has been serving as an Editorial Board Member of Nutrition Research.

yongsoon@hanyang.ac.kr

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ANTIADIPOGENIC EFFECTS OF STEAMED GINGER IN 3T3-L1 PREADIPOCYTES AND DIET INDUCED OBESE MICE

Youn-Soo Cha, Hee-Jeong Kim, Jung Eun Park and Bohkyung Kim

[1]Pusan National University, Korea
[2]Chonbuk National University, Korea

Ginger, a popular spice and root vegetable worldwide, is known to have effects on adipogenesis. Whether ginger is used as a spice or traditional medicine, it may undergo the steaming process. The steaming process can affect the composition and functional activities of ginger. In the present study, we investigated the effects of steamed ginger (SGE) on the differentiation of 3T3-L1 preadipocytes and obesity induced by high-fat in mice. SGE significantly decreased lipid accumulation with concomitant downregulation of adipogenesis-related genes in 3T3-L1 cells. Male C57BL/6J mice were fed normal diet (ND, 10% fat by weight), high-fat diet (HFD, 60% fat by weight), HFD supplemented with either 40 mg/kg or 80 mg/kg of SGE by weight (SGED4 or SGED8, respectively) for 12 weeks. SGE supplementation significantly attenuated the HFD-induced body, liver and epididymal adipose tissue weight gain. In the SGED4 and SGED8 groups, the increased serum total cholesterol (TC), triglycerides (TG) and glucose levels by HFD were significantly decreased. SGE altered adipogenesis-related genes followed by decreases in the size of adipocytes in the adipose tissue. The high levels of hepatic TC and TG by HFD were significantly decreased by SGE with concomitant alteration of hepatic genes involved in lipid metabolism. In conclusion, steamed ginger may have anti-obesity effects by regulating the adipogenic genes in 3T3-L1 cell and obesity induced by HFD.

Biography

Youn-Soo Cha has completed her PhD in nutritional biochemistry on the lipid metabolism from the University of Tennessee. Currently, she is a Professor in the Dept of Food Science and Human Nutrition at Chonbuk National University in South Korea. Her research area includes analysing the health benefit of various foods including Korean traditional fermented foods and their bioactive compounds, through cell line and animal studies and clinical trial. Especially, her current focus is on providing a scientific research to establish Korean paradox, based on an epidemiological observation that Korean people have low incidence of hypertension, CHD etc., even though they mainly consume Korean traditional fermented foods that contains high amount salt. She has published more than 190 papers in reputed journals and is a Member of Korean Academy of Science and Technology. Now, she is the President of the Korean Nutrition Society (2018), the Agro BioFood R&D Institute and the Obesity Research Center of Chonbuk National University.

Cha8@jbnu.ac.kr

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SOY DRINK: A TREND OR A REPLACEMENT?

Ana Lucia Baltazar[1], Amilcar Duarte[1], Alexandra Morais[1], Ana Monteiro[1], Ana Soares[1], Joao PM Lima[1,2,3]

[1]Instituto Politecnico de Coimbra, ESTeSC-Coimbra Health School, Portugal
[2]GreenUPorto, Portugal
[3]LAQV- Requimte, Portugal

BACKGROUND: Soy drink it's a popular alternative to milk, is recommended to allergic to cow's milk protein, lactose intolerant, vegans individuals and to the population that wants an option. The work aims to compare soy drink to milk in nutritional levels and how the consumers of an academic community choose soy drinks.

METHODS: A scientific review was performed, and articles since 2010 were analysed regarding the nutritional information. An online questionnaire was applied in the academic population of a health school in Portugal with the intention to evaluate the percentage of people that consumed soy drinks and their reasons.

RESULTS: The questionnaire results showed that 31.2% of the population consumes soy drink and 42% finds soy drink healthier than milk and that is the main reason to drink soy milk. The nutritional research shows that comparing soy drink with half-fat cow's milk; it has 23% more lipids, 33% more calcium, 63% fewer carbohydrates and approximately the same amount of protein.

CONCLUSION: Although some individuals consider soy drink healthier than milk, nutritionally both options are not similar and nutritional education is needed to clarify this concept and provide better food choices.

Biography

Ana Lucia Baltazar is the Head of Dietetics and Nutrition Department at Coimbra Health School. She is a Senior Lecturer and holds a BSc (Hons) in Dietetics, a Master in Health and Safety at Work and is Specialist in Nutrition and Dietetics. She teaches food toxicology and food technology. She is Post-graduated in auditors in HACCP and in Health and Safety at Work. She is a Member of the Working Groups Microbiological Occurrence in the Food Chain, Food toxinfections and Effective Communication in Food at National Institute of Health Dr Ricardo Jorge, Lisbon, Portugal. She is a PhD Student in Food Sciences at University of Valencia-Spain.

ana.santos@estescoimbra.pt

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FROM SOY TO YOGURT -A NUTRITIONAL REVIEW

Ana Lucia Baltazar[1], Maria Avila[1], Raquel Martins[1], Rita Santiago[1] and Joao PM Lima[1,2,3]

[1]Instituto Politecnico de Coimbra, ESTeSC-Coimbra Health School, Portugal
[2]GreenUPorto, Portugal
[3]LAQV- Requimte, Portugal

INTRODUCTION: In 2009, 26,8% of Portuguese adults consumed dairy yoghurt every day, and in 2016, the average daily consumption was estimated at 62g/day. However, the availability for the use of soy-products has been increasing to the detriment of dairy products.

AIM: Describe the industrial production process of soy yoghurt, comparing its nutritional properties with dairy yoghurt.

MATERIAL & METHODS: Soy yoghurt producing companies provided the technologic process inputs. The dietetic analyses of the soy yoghurts were based on the nutritional values provided by the products labels and also in the Portuguese Food Composition and Nutritional Table.

RESULTS: The technologic process data shows that soybeans are peeled, and then passed through a combination of water exposure (hot and cold). The soy liquid is separated from the pulp (okara), and afterwards, microbiological cultures are added to make yoghurt consistency. The nutritional data analysed (means) shows that in each 100g of soy yoghurt, there are 43kcal, 2.3g of lipids (0.4g saturated) 0.5g HC (0g sugars), 4g protein, 0.8g Fiber and 0.18g sodium. The same amount of natural yoghurt contains 54kcal, 1.8g lipid (1g saturated), 5g HC (5g sugars), 4.2g protein, 0g fibre, 62mg sodium and 118mg of calcium. However there isn't values for vitamins.

CONCLUSION: Soy yoghurt presents the same benefits as traditional yoghurt, and yet is free of lactose, casein and cholesterol and has low saturated fat content, even though it's not a good source of calcium. Though there is no specific nutritional values for vitamins, there is evidence that the technologic process may lead to some vitamins losses, but further studies are required.

Biography

Ana Lucia Baltazar is the Head of Dietetics and Nutrition Department at Coimbra Health School. She is a Senior Lecturer and holds a BSc (Hons) in Dietetics, a Master in Health and Safety at Work and is Specialist in Nutrition and Dietetics. She teaches food toxicology and food technology. She is Post-graduated in auditors in HACCP and in Health and Safety at Work. She is a Member of the Working Groups Microbiological Occurrence in the Food Chain, Food toxinfections and Effective Communication in Food at National Institute of Health Dr Ricardo Jorge, Lisbon, Portugal. She is a PhD Student in Food Sciences at University of Valencia-Spain.

ana.santos@estescoimbra.pt

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MICROBIAL AND NUTRITIONAL ANALYSIS OF PACKED ICE CREAM SOLD IN LAHORE

Aiman Shafique
The Lahore College for Women University, Pakistan

Ice cream is a dairy product that is produced by freezing the mixture containing sugar, cream, stabilizers, emulsifiers and aroma materials, and it is the most famous frozen food in the world. This research was conducted to investigate the microbiological and nutritional quality of the famous ice cream brands sold in Lahore. Qualitative microbiological analysis of different ice cream samples of various famous local brands was carried out for the identification of microbes by the standard biochemical tests. Proximate analysis has been done in order to evaluate the nutritional quality of the ice cream. Results obtained from the quantitative analysis of biochemical tests showed that the specimens carried a number of microbes and six isolates were identified from them. Cultural and biochemical evaluations disclosed the existence of *Klebsiella sp., Staphylococcus sp., Shigella sp., Bacillus sp., Escherichia coli* and *Salmonella sp*, although no ice cream sample has the total viable count within the acceptable range standardized by the International Standards for Food. But, the highest microbial quantity was detected in Doce vanilla ice cream, and least microbial count was obtained from Gourmet vanilla ice cream. Proximate analysis of all the ice cream samples revealed that none of the ice cream sample has the nutritional quality in compliance with the standard values. The results indicated that packed ice creams sold in Lahore are contaminated with pathogens and would be a potential hazard for public health. Therefore, strict action has to be taken by the government to imply quality standards in these famous ice cream manufacturing companies.

aimanshafique57@gmail.com

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IMPACT OF DIETARY ACCULTURATION ON THE FOOD HABITS, WEIGHT, BLOOD PRESSURE AND FASTING BLOOD GLUCOSE LEVELS OF INTERNATIONAL COLLEGE STUDENTS

Amal Almohanna, Frank Conforti, William Eigel and William Barbeau

Virginia Tech, USA

Objective: This study was conducted to determine the impact of dietary acculturation on the health status of newly arrived international students at Virginia Tech in Fall 2010. Participants: Thirty-five international students, 18-36 years of age, completed the study.

Methods: Data were collected at 3 different time periods (V1, V2, and V3) approximately 6 weeks apart. A food frequency–and dietary pattern–related questionnaire was administered, and numerically coded responses were analysed. Twenty-four-hour dietary recall data were also collected at V1, V2, and V3. Body weight, fasting blood glucose level, and blood pressure of study participants were also determined at each time period.

Results: Total sample population (TSP) had a significant increase in mean weight of 2.79 lb from visit 1 (V1) to visit 3 (V3) (p=0.0082). Ten participants gained an average of 9.0 lb (participants who gained weight; n=10). There was also an increase in the frequency of consumption of high-calorie American food items from V1 to V3. However, there were no significant changes in mean systolic blood pressure and mean fasting blood glucose was significantly lower at V3 than at V1.

Conclusions: There was a gradual shift in the dietary patterns of international students towards the American diet. Dietary acculturation led to weight gain among some of the students, which may potentially have a negative impact on their health status if continued for longer time periods.

amals@vt.edu

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FIELD VALIDATION EXERCISE TO EVALUATE COMMUNITY BASED NAWA JATAN INTERVENTION FOR CHILD NUTRITION AT CHHATTISGARH, INDIA

Ashish Sinha
Pt JNM Medical College, India

Malnutrition is a one of the major social and public health concern in India. Data shows that every 3rd child is underweight in India. There is a similar situation in Chhattisgarh with 37% children underweight. Women and child development (WCD) department does annual weighing campaign i.e. Wajan Tyohar, through community participation conducted through growth monitoring and provides community based supplementary nutrition at village level through front-line anganwadi workers. Anthropometric measurement is the main tool to assess the nutrition status of children. An initiative was taken to validate the data reported by front-line workers in Chhattisgarh during the Nawa Jatan ("new care") weighing campaign. A statistically representative sample of children was selected across the state and anthropometric measurement was done by postgraduate students of Community Medicine department. In Aug' 2016 Dept of WCD did a universal weighing campaign for children and 30.13% of them were reported as being underweight. The validation exercise reports 37.76% as being underweight. The underweight children were followed up for next six months with special focus on their supplementary nutrition by front-line workers. After six months of this intervention 41.6% improved their nutrition status and reached normal (out of 30.13% reported underweight in August). As per validation report 39.6% children reached normal (out of 37.76% reported underweight in August). As per WCD department, the overall program effectiveness is 41.6% in terms of improving the malnutrition status of underweight children. The validation exercise plays a vital role as supportive supervision and in capacity building of front-line workers. This exercise shows that the problem is bit more than estimated by front-line anganwadi workers. The intervention has improved skills and work outcome of front-line workers.

ashishsinha.md@gmail.com

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DEVELOPEMENT AND EVALUATION OF NANO-ENCAPSULATED BAEL (*AEGLE MARMELOS*) DERIVED CHEWABLE TABLETS

Hina Khan[1], Vrinda Chadha[1] and Mohd Faraz Khan[2]

[1]Gautam Buddha University,India
[2]IIT(ISM) Dhanbad, India

Plants with therapeutic properties have historically been utilized as a starting point for the development of novel drugs, and modern pharmaceuticals have also been formulated from them. India is the botanical hub of the world and one of the largest producers of medicinal herbs. Bael (*Aegle marmelos*) is one of the most useful medicinal plants of India. Its medicinal properties have been cited in the ancient medical treatise in Sanskrit, Charaka Samhita (1500 BC). All the parts of this tree ie. root, stem, bark, leaves and fruits at all stages of maturity have shown to exhibit therapeutic properties. The fruit has laxative properties and arrests secretion or bleeding. It possesses anti-viral, anti-inflammatory and antihelmintic properties and has appreciable activity against intestinal pathogenic organisms. A number of phytochemicals have been isolated from different parts of plant like aegelin marmelosin, coumarin, ß-sitosterol and alkaloids. Nanoencapsulation is currently the second largest area of nanotechnology application in the food sectors and a growing number of products based on nanocarrier technology are already available in the market owing to enhanced nutritional quality and stability of the functional foods. The current study was conducted to develop nano-encapsulated *Aegle marmelos* derived chewable tablets using dry granulation method. Tablets were evaluated for weight variation test, friability, hardness and time required for complete chewing and were found to be within acceptable limits. Determination of antioxidant activities by 2-diphenyl-1-picryhydrazyl (DPPH) free radical scavenging and ferric reducing antioxidant power (FRAP) assays resulted in 5.89 µgdw/µg DPPH and 105.13 µM trolox equivalent (TE)/gdw, respectively. It was also found to have total phenolic, total flavonoid, total carotenoid, and ascorbic acid contents of 81.34 mg gallic acid equivalent (GAE)/gdw, 13.82 mg catechin equivalent (CE)/gdw, 29.98 µg/gdw, and 30.17 mg/100 g dw, respectively.

khan.hina0017@gmail.com

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THE PREVENTIVE ROLE OF VITAMIN D IN DIABETES COMPLICATIONS: EXPLORING CELLULAR PATHWAYS

Hoda Derakhshanian[1], A Djazayery[2], M H Javanbakht[2], M R Eshraghian[2], A Mirshafiey[2] and M Djalali[2]

[1]Dietary Supplements and Probiotic Research Center-Alborz University of Medical Sciences, Iran
[2]Tehran University of Medical Sciences, Iran

Background: It has been reported that vitamin D deficiency is more prevalent in people with diabetes than healthy population and might be responsible for worsening of diabetes complications. This study was designed to investigate the effect of vitamin D treatment on the expression of five key genes involved in the development of vascular complications in heart, liver and kidney tissues.

Methods: Twenty-four male Sprague–Dawley rats were randomly divided into three groups. The first group served as control and the other two groups received an intraperitoneal injection of 45 mg/kg STZ to develop diabetes. Then groups were treated for four weeks either with placebo or vitamin D (two injections of 20,000 IU/kg). At the end of the experiment, blood levels of glucose, insulin, HbA1c and advanced glycation end products (AGEs) were measured. Tissue samples were assessed for the gene expression of AGE cellular receptor (RAGE), glyoxalase (GLO), aldose reductase (AR), O-GlcNAc transferase (OGT) and glutamine: fructose-6-phosphate aminotransferase (GFAT).

Results: Vitamin D treatment resulted in a significant increase in insulin concentration, which could improve hyperglycaemia in diabetic rats. HbA1c concentration had a slight but insignificant decrease following vitamin D intake. In addition, a significant reduction was observed in gene expression of RAGE (the main receptor of AGE pathway) and OGT (the crucial enzyme in the hexosamine pathway) in heart and kidney, as well as GFAT (the rate limiting enzyme of the hexosamine pathway) in all tissues.

Conclusion: Vitamin D might contribute in reducing diabetes complications not only by improving blood glucose and insulin levels, but also via modulating AGE and hexosamine pathways in different organs.

h.derakhshanian@gmail.com

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COMPARATIVE STUDY ON ANTIOXIDANT ACTIVITY OF *BRASSICA RAPA* VAR. *PARACHINENSIS* LEAVES AND SEEDS

Mona Ghanad, Rosimah Nulit, Rusea Go and Christina Yong Seok
University Putra Malaysia, Malaysia

The aim of this study was to assess the antioxidant activities of *B. rapa var. parachinensis* leaves and seeds. The aqueous extraction of leaves and seeds were analysed for total amount of phenolic, flavonoids, ascorbic acid, chlorophylls, carotenoids, 2, 2-diphenyl-1-picryl-hydrazil (DPPH) radical scavenging activity and reducing power capacity. The total amount of biochemical compounds showed different variety between leaves and seeds. The content of vitamin C was incredibly higher in seeds while the quantity of chlorophyll, carotenoids and phenolic contents was higher in leaves. DPPH scavenging activity of seed extraction displayed higher percent of inhabitation in comparison with leaves. The reduce power of seed and leaves at 10 mg extract were 0.46±0.024 and 1.03±0.058, respectively. The data were analysed by one-way ANOVA multiple comparison test followed by Duncan's multiple range test.

m.ghanad.upm@gmail.com

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CORRELATION BETWEEN NUTRITIONAL INDICES AND THE IMPACT OF GENDER AND ETHNICITY AMONG HAEMODIALYSIS PATIENTS

N Gityamwi[1], H Jackson[2], K Hart[1] and B Engel[1]

[1]University of Surrey, UK
[2]Dietetics Department , St George's University Hospitals NHS Foundation Trust, UK

Anthropometric measurements are commonly used as proxy indicators of body composition. In dialysis patients, the validity of these measures may be affected by fluid accumulation, inflammation, gender and racial differences. We investigated the effect of gender and ethnic differences on the relationship between measures of nutritional status and body composition. The study involved 45 patients (32 males), over 18 years old, with haemodialysis vintage of ≥ 3 months. Body mass index (BMI), fat mass (FM), lean mass (LM), overhydration level (OH), Waist circumference (WC), hand grip strength (HGS) and pre-dialysis serum albumin were measured according to clinic standards. Participants were of black ethnicity (18), white (16) and Asian-Indian (11). Female had significantly higher LM and lower HGS than male but no gender deference was observed on remaining parameters. No significant effect of ethnicity on all studied parameters even in gender sub-groups analysis. BMI correlated with FM (r2=0.95, p=<0.001) and WC (r2=0.92, p=<0.001) but not with LM (r2=-0.169, p=0.36). This relationship was retained on gender and ethnic sub-groups based analyses. BMI correlated strongly with albumin levels for Asian-Indian patients only (r2=1, p=<0.001). The initial analysis showed that HGS correlated with LM only (r2=0.62, p=<0.001), but the relationship was only retained among males in gender based analysis. By ethnicity, the association was retained for black and white but disappeared among Asian-Indian patients. WC was correlated with FM (r2=0.91, p=<0.001), the relationship was retained on gender and ethnicity based analysis. Results suggest that BMI level provides a good reflection of body fat but not muscle mass. BMI and WC can be used as indicators of body fat regardless of gender and ethnicity in this patient group. HGS is a limited indicator of muscle mass among females and patients of Asian-Indian ethnicity calling for careful consideration when making such inference.

n.gityamwi@surrey.ac.uk

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BIOFORTIFICATION OF OGI MADE FROM SELECTED GRAINS

Olusola Abiola Ladokun, Sarah Oni and Oluwatoyin Odegbile
Lead City University, Nigeria

Food fortification is the process of increasing the nutritional value of plant foods. In this study, fermented products from maize, millet and sorghum were fortified with soy bean and ginger. The samples were assessed for nutritional improvement using standard protocol. There were marked increase in the amount of ash, protein and crude fibre content but a decrease in carbohydrate content in all the fortified cereal samples. The ash, protein, crude fibre and carbohydrate content of the fortified samples were as follows: maize (% dry weight, 9.46±0.93, 42.10±0.57, 4.95±0.14 and 36.01±0.04 respectively; millet (% dry weight, 8.95±5.16, 42.00±0.28, 5.67±0.11 and 16.00±0.46 respectively and sorghum (% dry weight, 28.98±5.16, 42.00±0.28, 5.65±0.11 and 16.00±0.16 respectively. Fortification of cereal with soybean and ginger increases the protein, ash and fibre content in the cereal. Consequently, the carbohydrate and fat were reduced in the fortified samples.

solaJP@gmail.com

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BINGE EATING ADDICTION AMONG WOMEN WHO SUFFER FROM PSYCHOLOGICAL ABUSE IN THEIR RELATIONSHIP: THE MODERATING ROLE OF DEFENSE MECHANISMS

Orly Yona Drori[1] and Shirley Ben Shlomo[2]

[1]Lev Hasharon Mental Health Medical Center, Israel
[2]The Louis and Gabi Weisfeld School of Social Work-Bar Ilan University, Israel

Objectives: The participants will be able to recognize the predictors of Binge Eating addiction among women who suffer from psychological abuse in their relationships and will recognize the role of woman's defense mechanisms in moderating the association between psychological abuse and Binge Eating addiction.

Methods: A convenience sample of 380 Israeli women in relationships were located via the internet, and after consenting to participate in the study, they completed a series of structured questionnaires (The Yale food addiction scale; the defense style questionnaire; psychological maltreatment of women by their male partners; Level of differentiation of self; socio-demographic questionnaire).

Results: The higher the level of differentiation and mature defense mechanisms, the less addictive a woman is. However, the level of addiction among women who experience psychological abuse with in their intimate relations is higher than women who do not experience psychological abuse in their relationship. Among women who experienced psychological abuse in their relations, the defense mechanisms moderate the association between psychological abuse within intimate relations and the extent of the addiction to binge eating.

Conclusions: The study contributes to the therapy of women with binge eating addictions, as it raises awareness of therapeutic-related content that could strengthen women and help them to cope with situations in their lives without the need to Binge. One of the significant variables for therapeutic work is the level of differentiation of the self. In addition, identifying the types of defense mechanisms might help to match treatment to the woman's emotional needs. The current study found also that it is important to identify the environmental systems by which the addict is surrounded, such as whether woman is in an abusive relationship. Finally the study leads to the recognition that Binge Eating, which is usually treated with an emphasis on nutritional behaviour change, is an addiction, and as such, it requires a combination of mental, nutritional and behavioural therapy. In view of this approach it is recommended that treating a woman who is addicted to Binge Eating should involve a multi-disciplinary team comprised of physicians, clinical dieticians and clinical psychotherapists.

orlyonadrori@gmail.com

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THE RELATIONSHIP BETWEEN CAFFEINE INTAKE, SLEEP QUALITY AND NUTRITIONAL STATUS ON BLOOD PRESSURE

Sarah Khoerunisa, Aminarista and Restu Amalia Hermanto
Holistik Institute of Health Science Purwakart, Indonesia

Background: In developing countries, the age category 20-24 years is the highest age category of high blood pressure, 9.4% male and 8.9% female. In Indonesia, the incidence of high blood pressure ≥18 years was 25.8%. Blood pressure in students can be affected by caffeine intake, sleep quality and nutritional status.

Objective: This study aims to determine the relationship between caffeine intake, sleep quality and nutritional status with blood pressure.

Methods: This research was conducted at STT Wastukancana students using cross sectional research design and 82 subjects were selected by simple random sampling. Caffeine intake was measured using a semi-quantitative FFQ, sleep quality was measured by the PSQI questionnaire, nutritional status was measured by BMI, and blood pressure was measured with a digital sphygnomanometer. The relationship of each independent variable with systolic blood pressure was tested with Pearson product moment. The relationship of each independent variable with diastolic blood pressure was tested by rank spearman. The relationship of independent variables together with systolic blood pressure was tested by multiple linear regression.

Results: Subjects had high systolic blood pressure (61%) and high diastolic blood pressure (74.4%). Caffeine intake, sleep quality and nutritional status each have a relationship with systolic blood pressure and diastolic blood pressure. In the multiple linear regression test, caffeine intake (B=0.12; p=0.004), sleep quality (B=1.36; p=0.001) and nutritional status (B=1.25; p=0.001) were independent contributors of high systolic blood pressure. The poor quality of sleep subjects in this study can be caused by disturbances both before sleeping and during sleep.

Conclusion: High blood pressure can be affected by factors such as caffeine intake, sleep quality and nutritional status.

sarahkhoerunisa@gmail.com

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STABILIZATION OF OIL-IN-WATER EMULSIONS WITH MODIFIED RICE STARCH

Surangna Jain, Manop Suphantharika and Thunnalin Winuprasith
Mahidol University, Thailand

In this study, rice starch was modified by different mechanisms and used as a potential emulsifier for producing stable emulsions. Producing stable emulsions are of huge importance for the food industries and known to have many food applications. Modified rice starch was chosen as a potent emulsifier because modified starches are hydrophobic, and they tend to stabilize the emulsions through steric interactions and hence are less influenced by different environmental stresses such as pH, ionic strength and temperature. The emulsions (soybean oil/modified rice starch dispersions, 10/90, v/v) were prepared by homogenization and the influence of different starch concentrations (1-5% w/w) on their stability and properties were evaluated. It was observed that the mean droplet size of the emulsions decreased with the increasing starch concentrations due to enough adsorption of the starch particles at the oil-water interface of the droplets and this was further confirmed by the microscopic observations. Also, at higher starch concentrations (4-5% w/w), the emulsions were found stable to flocculation and coalescence and had higher stability to creaming. Further, addition of modified rice starch to the emulsions led to reduced rate of lipid oxidation during storage. The results obtained highlight the potential of the modified rice starch as an emulsifier and as a substitute to the protein stabilized emulsions which are sensitive to the different environmental stresses.

surangnajn8@gmail.com

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MALNUTRITION IN CROHN'S DISEASE IN REMISSION: FACT OR MISESTIMATION AND WHICH INDICATOR IS MORE RELIABLE?

Takoua Harrabi[1], I Sebai[1], L Mouelhi[2], H Jamoussi[1], A Gamoudi[1], I Lahmer[1], R Debbeche[2] and C Amrouche[1]

[1]National Institute of Nutrition and food technology, Tunisia
[2]Charles Nicolle Hospital, Tunisia

Malnutrition in Crohn's disease is a dreadful complication occurring in active phase but underestimated in remission. Furthermore, the absence of gold standard definition in assessment of nutritional status represents a major problem in treating this population. The aim of our study is to assess the nutritional status in a group of Crohn's disease patients in remission and to determine the prevalence of sarcopenia as nutritional indicator. We included 40 outpatient aged ≥18 years. The nutritional assessment was based on: subjective global assessment (SGA) and dietary survey; anthropometric evaluation (measurement of height, weight, body mass index (BMI), triceps skinfold (TSF), mid-arm circumference (MAC) and mid-arm muscle circumference (MAMC)). We have also evaluated also the handgrip strength (dynamometer) and used bio-impedance analysis to determine body-composition. The analysis of the dietary survey shows that most patients (83%) had an appropriate calories intake within 55% with hyper caloric diet. Respectively 15%, 35% and 44% ingested less than recommended amount of protein, carbohydrates and fat. Regarding micronutrients, calcium, iron, vitamin C, vitamin B9, zinc and magnesium intake were below the recommended amounts in 85%, 83%, 80%, 90%, 93% and 90% of patients, respectively, according to the RDA. The prevalence of malnutrition varied between 5% and 60% according to the diagnostic criterion used: 5% were undernourished following the TSF; 7.5% according to SGA; 12.5% using the MAMC; 15% according to BMI; 25% in reference to HGS and 60% estimated by appendicular skeletal muscle mass index (ASMI). Fifteen percent were considered sarcopenic taking into consideration the European consensus. Despite the period of remission and the normal either excessive daily calorie intake, the prevalence of malnutrition and sarcopenia were not negligible in our group. The evaluation of nutritional status should be systematic and repeated regularly and should take into account functional methods (HGS and impedancemetry).

takwa0606@yahoo.com