

P141

FOLIC ACID SUPPLEMENTATION IS CAPABLE TO CHANGE SIRT1 EXPRESSION IN FEMALE OFFSPRING

B. M. Faleiros de Paula¹, M. A. de Souza Pinhel², C. Ferreira Nicoletti², C. B. Nonino², H. Vannucchi¹

Department of Clinical Medicine¹ and Department of Health Sciences², Ribeirao Preto Medical School, University of Sao Paulo, Ribeirao Preto, Sao Paulo, Brazil.

Nutrition in the prevention and treatment of chronic diseases

Introduction: Recent studies indicate that sirtuin 1 (Sirt1), a protein deacetylase, is a critical regulator of metabolism and has expressive role in innate and adaptive immune response. Sirt1 altered functions are likely involved in autoimmune diseases and its activity and expression are strongly regulated by many factors, including DNA methylation levels and methy-donnors nutrients availability.

Objectives: This study aimed to evaluate Sirt1 gene expression pattern in the offspring of rats according to dietary folic acid level.

Methods: The study involved males and females pups Wistar (n = 40) that were weaned at the same diet their mothers, three treatment groups, control group (2,0 mg/kg of folic acid), deficient group (0,5 mg/kg of folic acid) and the supplemented group (8,0 mg/kg of folic acid) for 13 weeks. At the end of treatment the pups were

ethanized and liver samples were collected from which mRNA was extracted to perform Sirt1 (Rn01428096_m1) gene expression analysis by real-time PCR on the 7500 Fast Thermocycler (Applied Biosystem®) using TaqMan® Array Fast Plates plates (Life Technologies™).

Results: Among the female offspring, Sirt1 gene expression was significantly higher in supplemented group than control (p=0,001) and deficient (p=0,03) group. However, no differences were observed among male offspring

Conclusions: Folic acid supplementation is capable to change Sirt1 gene expression in female pups Wistar. Considering that Sirt1 has been evidenced to sustain normal immune function and delay the onset of autoimmune disease, these results are very important to management of this disease.

Conflict of Interest: All authors declare no conflict of interest.

Keywords: folic acid / sirtuin 1 / autoimmune disease

P142

RELATION BETWEEN EATING BEHAVIOR WITH THE WEIGHT/AGE INDEX IN SCHOOLCHILDREN

K. E. Estrada Contreras, T. K. Ruiz Vázquez, A. A. Espinoza Correa, P. M. Valencia Sosa, E. D. Rodríguez Solano.

UTEG University Center; A.C; Bachelor Degree in Nutrition.

Nutrition in the prevention and treatment of chronic diseases

Introduction: Mexico is currently experiencing an epidemic of obesity and overweight that affects the general population, causing metabolic problems cardiovascular disease (OMS, 2015); this critical public health problem can be prevented and addressed through educational strategies that treat eating behavior including eating habits, food preferences and knowledge in nutrition; just as it affects the domestic food environment, as they are learned at home from childhood, taking on adulthood, have an impact on lifestyle and therefore in short and long term health, developing c non-transmissible chronic diseases (Vega,2015).

Objectives: relate eating behavior to the weight/age index in schoolchildren ages 5 to 11 with 11 months.

Methods: Descriptive-transverse study with a sample of 108 schoolchildren, the nutritional status was evaluated using the ISAK anthropometric technique, through the pediatric weight/age index (W/A) where: Low Weight (LW) P5, Normal (NL) P50, Overweight (SP) P85, Obese (OB) P95, (OMS, 2007); the questionnaire was applied to assess eating consumption, habits and practices where healthy eating behavior (EB) is: Factor 1. Food practices ≥ 2 hits, Factor 2. Food habits ≥ 4 hits and Factor 3. Food consumption ≥ 2 hits, total score ≥ 14 hits (Estrada, 2019).

Results: female 42%, male 58%, average age 8.3450 years, 32.51kg weight, the questionnaire score F1 1.46, F2 9.50, F3 2.33, EB 11.83 according W/A 30.5% NL, 9.3% LW, 22.9% OW, 17.8% OB, 69.5% being in poor nutrition.

Unhealthy EB is reported in 54.2% for F1, 9.3% F3 and general EB 12.7%; when the nutritional status is related to the unhealthy EB, a combined prevalence of OW and OB of 25% for F1 (p<0.05), 25% F3 and EB 10% is reported. Conclusion: by having knowledge about the consumption, habits and eating practices of schoolchildren, it will allow to design effective nutritional intervention strategies that favor their growth and development avoiding the appearance of non-transmissible chronic degenerative diseases.

Conflict of Interest: the authors declare no conflicts of interest

Keywords: nutritional status/ weight age index/ eating behavior/ schoolchildren

P143

QUALITY OF BREADS MADE WITH WHEAT AND BEAN FLOURS, FORTIFIED WITH CALCIUM AND REDUCED IN SODIUM. CONSUMER ACCEPTABILITY

M. N. Bassett^{1,2}, A. M. Rossi¹, M. C. Rossi^{1,2}, M. E. Acuña¹, S. Burke¹, N. Samman^{1,2}.

¹Instituto Superior de Investigaciones Biológicas (INSIBIO)-CONICET. UNT. Tucumán. Argentina; ²Centro Interdisciplinario de Investigaciones en Tecnologías y Desarrollo Social para el NOA (CIITED) – CONICET. UNJu. Jujuy. Argentina.

Introduction: The World Health Organization recommends the consumption of pulses and considers them good allies to achieve food security and reduce malnutrition worldwide. Breads offers the possibility of incorporating ingredients to improve the diet without changing eating habits.

Objectives: was to investigate texture, colour and organoleptic characteristics of bread nutritionally improved by partial replacement of wheat flour by bean flour, fortified with calcium at the expense of reduced sodium and evaluating acceptability of consumers.

Methods: Breads were made with mixtures of wheat and beans (black and white) flours, with and without the addition of Ca salts, replacing half of the NaCl. Volume, texture and colour were measured in the loaves. They were subjected to an acceptability test with 9-point scale categorized and to determine the organoleptic characteristics, the methodology "Check all that apply" (CATA) was used. The number of untrained participants who carried out the study was 80.

Results: Texture parameters indicated the addition of beans and calcium salts increase the hardness of the crust. Increased calcium salts promoted the light colour in the crumb and crust. Acceptability showed that all the participants liked the samples and obtained an average score of 7.91; 7.89; 7.00 and 6.25 for breads with white beans and common salt, white beans plus Ca salts, black beans with common salt and black beans plus Ca salts, respectively. The 14.8% who consumed breads without added calcium found them more salty while the 4.9% of those who consumed breads with reduced sodium perceived a more bitter taste but without modifying their preference. Besides, 53.8% of consumers would consume these breads. Although all the breads were accepted, the breads with white beans with and without added calcium obtained higher percentages of attributes such as pleasant flavour, nutritious, healthy and novel among others.

Conclusions: Breads produced are inexpensive, of higher quality with a higher content of calcium and reduced sodium and could be incorporated into the daily menu without changing eating habits.

Conflict of Interest: All authors declare no conflict of interest.

Keywords: breads, legumes, added calcium, reduced sodium, acceptability

Introduction: High-fat (HF) intake, including milk fat (MF), it has been associated with oxidative stress (OS) and elevated non-communicable chronic diseases (NCCD) risk. However, MF can be modified through an increase of poliunsaturated fatty acids in the dairy cow's diet, leading to a modified milk fat (MMF). It is well known that OS biomarkers in liver are essential for the diagnosis and control of NCCD.

Objective: analyze OS biomarkers in rats fed with MF and MMF diets at HF levels.

Methods: Male Wistar Rats were fed for 60 days with S30 (Soybean oil 30%), MF30 (Soybean oil 3% + MF 27%) or MMF30 (Soybean oil 3% + MMF 27%) diets. The following liver determination were performed: Lipoperoxidation (LPO) by TBARS, Reduced Glutathione/Oxidized Glutathione (GSH/GSSG) ratio using capillary electrophoresis, reactive oxygen species (ROS) by fluorescence, mRNA levels of Catalase (CAT), Superoxide Dismutase (SOD) and Nuclear Related Factor-2 (Nrf2) by RT-PCR and enzyme activities of CAT, Glutathione Reductase (GR) and SOD using spectrophotometric methods. In addition, the serum antioxidant capacity (SAC) by measuring levels of uric acid (UA) and the reduction of 1, 1-diphenyl-2-picrylhydrazyl (DPPH) was estimated.

Results: MF30 rats reached similar values to the S30 group in almost all parameters except Nrf2 mRNA levels (decreased 78%) and SAC (increased 30%). Compared with S30 group, MMF30 rats increased the enzyme activity and mRNA levels for SOD (55 and 88% respectively), while decreased LPO (25%), ROS (30%), GSH/GSSG ratio (55%), and the enzyme activities of CAT and GR (25% and 8% respectively) and mRNA levels for CAT (44%), GR (66%) and Nrf2 (81%). On the other hand, UA concentration in serum increased 50% without changes in the estimated SAC by reduction of DPPH.

Conclusions: Liver of rats fed MMF diet improved the SAC and decreased ROS levels induced by HF diets. This effect could be achieved through the modification in the status of OS biomarkers. The intake of MMF characterized by an increase of bioactive fatty acids (rumenic and its precursor vaccenic acid), could contribute to reduce the NCCD risk.

Conflict of interest: there is no conflict of interest.

Keywords: Liver / Oxidative Stress / Modified Milk Fat / Biomarkers.

P144

EFFECT OF A MODIFIED MILK FAT ON OXIDATIVE STRESS AND ANTIOXIDANT CAPACITY IN RATS FED HIGH-FAT DIETS

N. Quiroz¹, M. C. Contini¹, L. Vera Candiotti^{1,2}, C. Gertsner¹, C. Bernal^{1,2}, M. González¹.

¹Cátedra de Bromatología y Nutrición. Facultad de Bioquímica y Cs. Biológicas. Universidad Nacional del Litoral. Santa Fe. Argentina. ²Consejo Nacional de Investigaciones Científicas y Técnicas. Argentina.

P145

DIETARY GLYCEMIC INDEX, DIETARY GLYCEMIC LOAD AND FASTING GLUCOSE LEVELS IN ADOLESCENTS FROM TZOTZIL-TZELTAL AND SELVA REGIONS OF CHIAPAS, MÉXICO

I. Castro-Quezada¹, H. Ochoa-Díaz-López¹, P. E. Núñez-Ortega¹, E. Flores-Guillén^{1,2}, C. A. Irecta-Nájera³, R. García-Miranda¹, R. Solís-Hernández¹.

¹Health Department, El Colegio de la Frontera Sur, San Cristóbal de las Casas, Chiapas, México; ²Faculty of