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## LXX REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE INMUNOLOGÍA (SAI) & 3ER CONGRESO FRANCO-ARGENTINO DE INMUNOLOGÍA (FAIC)

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was 29.2 g/d. A positive correlation was found between breath CIR and the consumption of SSB ($r$=0.281; $p$=0.0042); however, no correlation was observed with added sugar intake ($r$=0.104; $p$=0.167). Conclusions: Total sugar, added sugar and SSB intakes were high in the studied individuals. Our preliminary results support the use of breath CIR as a potential biomarker of SSB intake, which should be further studied in a wider population.

**357.** (403) **EVALUATION OF REDOX STATE AND EXTRACELLULAR MATRIX OF SKELETAL MUSCLE OF RATS CHRONICALLY FED A SUCROSE-RICH DIET. EFFECTS OF SALVIA HISPANICA (CHIA SEED)**

Paola Guadalupe Illesca[1], María del Rosario Ferreira[1,2], Adriana Benmelej[3], Noelia Villafañe[3], María Eugenia D'Alessandro[1,2].

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Skeletal muscle (SM) lipid accretion is associated with insulin resistance (IR). We showed in SM (gastrocnemius) of rats fed a sucrose-rich diet (SRD) for 6 months an altered oxidation of fatty acids and increased lipogenic pathway. Replacement of the fat source with chia seed reversed or ameliorated these disorders. In addition, it was reported that ectopic lipid deposition is associated with alterations in tissue redox state and remodeling. We aimed to explore possible SM changes in redox state and extracellular matrix in SRD-fed rats and the effects of a dietary substitution with chia seed. Male Wistar rats were fed a SRD for 3 months, after were divided into two subgroups. One subgroup continued with SRD up to 6 months and the other received SRD where chia seed was incorporated as source of dietary fat for the next 3 months (SRD-C). A reference group consumed a control diet all the time. In SM were analyzed: i) reactive oxygen species (ROS) and ii) thiobarbituric acid reactive substances (TBARS) levels, iii) reduced glutathione (GSH) levels, iv) ferric ion reducing antioxidant power (FRAP), v) catalase activity (CAT), vi) collagen deposition (Picrosirius red staining) and vii) hydroxyproline (HXP) levels. Statistical analysis was performed by one-way ANOVA and Scheffé's test, $p$<0.05 was considered significant. In SRD-fed rats reduced FRAP levels and lower CAT activity without significant changes in ROS, TBARS or GSH levels were observed. Chia seed restored the decreased levels of FRAP and increased TBARS levels. Collagen increased in SM of SRD-group and was restored in SRD-C group whereas HXP levels remained unchanged. The results of this work expand the current understanding of the mechanisms involved in metabolic disorders in the MS of SRD-fed rats and the effects of chia seed as a possible therapeutic nutritional intervention.

**358.** (412) **CHIA SEED IMPROVES GLUT-4 LEVELS, MODULATES LIPOGENIC ENZYMES AND EXTRACELLULAR MATRIX COMPONENTS IN DIFFERENT ADIPOSE TISSUES IN A SUCROSE-RICH DIET RAT MODEL**

Victoria Aiassa[1], María del Rosario Ferreira[1,2], Dante Selenscig[1], María Eugenia D'Alessandro[1,2]

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Body fat accretion is strongly linked to insulin resistance and others associated metabolic disorders. Chia seed appears a promising intervention in showing beneficial effects in adipose tissue dysfunction. An improvement of the altered insulin signaling pathway and lipolysis in different fat pad depots was recently reported by our group. Our research work focused at evaluating the effect of chia seed administration in a diet-induced adiposity rodent model upon GLUT-4 levels, lipogenic enzymes and some changes in extracellular matrix remodeling in different adipose tissues (epididymal- eAT and retroperitoneal- rAT). Male Wistar rats were fed a SRD for 3 months. Half of the animals continued with the SRD until month 6, the other half were fed with a SRD in which the source of fat, corn oil, was replaced by chia seed from month 3 to 6 (SRD+chia). Another group consumed a reference diet for 6 months (RD). It was analyzed in eAT and rAT: glucose transporter-4 (GLUT-4) protein levels in basal and insulin stimulated conditions, lipogenic enzyme activities: fatty acid synthase (FAS) and glucose-6-phosphate dehydrogenase (G6PDH), hydroxyproline levels and MMP-2 metalloproteinase activity. Statistical analysis was performed by one-way ANOVA post Newman Keul's test, $p$<0.05 was considered significant. Compared to the SRD-fed rats, the SRD+chia group showed in both eAT and rAT: a) an improve in the altered GLUT 4 levels, b) a significant decrease (p<0.05) in FAS and G6PDH enzyme activities, c) a decrease (p<0.05) in hydroxyproline content. Besides a significant decrease (p<0.05) in pro-MMP2 activity in rAT was also observed. This study provides new data regarding the beneficial effects of α-linolenic acid-rich chia seed upon several abnormalities developed in different fat pad depots of SRD-fed rats.

**359.** (414) **BONE-VASCULAR- ADIPOSE TISSUE INTERPLAY: MODULATION BY ESTROGENS**

Sabrina Belén Cepeda, Marisa Julia Sandoval, Pablo Cutini, María Ivon Valle, Adrian Campelo, Virginia Massheimer.

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Nitric oxide (NO) promotes bone cells proliferation, differentiation and survival. An adequate vascularization that provides cell progenitors and hormones is required for skeletal homeostasis. The menopausal hypoestrogenism is tightly associated with bone and cardiovascular diseases, and also with changes in adipose tissue (AT) distribution. In this work we studied the role of the estrogens estradiol ($E_2$) and estrone ($E_1$), and phytosestrogen genistein (Gen) on bone-vascular or bone-AT interactions. Two experimental designs were employed: 1) conditioned medium obtained from endothelial cells (EC) exposed to Gen (CM-EC), or conditioned medium obtained from osteoblasts (OB) exposed to Gen (CM-OB); 2) co-cultures OB-AT. A bidirectional regulation between OB and EC was revealed. CM-EC added to OB monolayers stimulated bone cells proliferation (150% a/C, p<0.05). In the presence of NO synthase (NOS) inhibitor, NAME compound, OB growth was blunted suggesting the participation of NOS system. On the other hand, CM-OB added to EC cultured enhanced EC proliferation and migration (44; 150% a/C respectively, p<0.01). Since these two events are involved in angiogenesis, tubes formation from aortic rings seeded on a collagen matrix was quantified. CM-OB induced a 0.5 fold increase (p<0.05) in tubes formation around the rings. To assess bone-AT interactions, cocultures OB-AT were used. After 3 days, $E_2$ $E_1$ and Gen stimulated NO production (64; 34; 37% s/c, respectively). At a longer co-culture time, a reduction in NOS activity accompanied by an increase in oxidative stress, measured as hydrogen peroxide production, was detected (1090 ± 37.1 vs 1220 ± 31.2 nmol $H_2O_2$/mg prot, C vs E2, p<0.01). When AT slices were removed, OB diminished their capability to enhance NO synthesis and, to mineralize extracellular matrix (Alizarin staining) in response to estrogens. In summary, estrogens favour bone vascular interactions, but in the presence of AT osteoblastogenic response is delayed.

**360.** (453) **MATERNAL ADVERSE DIET AND WHITE ADIPOSE TISSUE BROWNING CAPACITY OF ADULT OFFSPRING.**

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Beige adipocytes dissipate energy as heat through uncoupling protein-1 (UCP1) activity. Our aim was to assess whether maternal fructose rich diet (FRD) intake during lactation affects development of browning capacity of retroperitoneal white adipose tissue (WRPAT) from adult male offspring. Adult female rats were mated, at birth pups were counted and they were equal to 8 per mother.