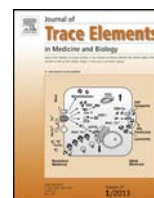




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Saint-Petersburg, Russia, 26–29 June, 2017

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P-006

Impaired sperm quality was associated with decreased testicular transcription of nucleus form of glutathione reductase 4 in rats fed deficient and excessive dietary seleniumJi-Chang Zhou¹, Xin Gen Lei^{2,*}, Xiaoli Liu¹¹ Molecular Biology Laboratory, Shenzhen Center for Chronic Disease Control, Shenzhen, China² Department of Animal Science, Cornell University, Ithaca, NY, USAE-mail address: XL20@cornell.edu (X.G. Lei).

To test the transcriptional responses of the two *Gpx4* variants in testis to the dietary Se concentrations and their associations with the sperm motility and morphology, four groups of weanling SD rats ($n = 12$) were fed Se deficient basal diet (BD) for 5 wks and then supplemented with 0.0, 0.25, 3.0, and 5.0 mg Se/kg for another 4 wks before sacrifice. It was found that BD and/or BD plus 5.0 mg Se/kg significantly increased the plasma 8-OHdG concentration and decreased some of the sperm parameters and the testicular mRNA abundance of nucleus (minor) form ($P < 0.05$) but not the cytosolic/mitochondrial (major) form ($P > 0.05$) of *Gpx4*. Transcriptions of the two *Gpx4* variants in liver did not differ ($P > 0.05$). Conclusively, the testicular nucleus *Gpx4* might be a sensitive marker representing the appropriate Se nutritional status for males.

<http://dx.doi.org/10.1016/j.jtemb.2017.03.162>

P-007

Dietary determinants of serum selenium species in Italian populationsTommaso Filippini^{1,*}, Bernhard Michalke², Chiara Salvia¹, Carlotta Malagoli¹, Marcella Malavolti¹, Peter Grill², Luciano Vescovi³, Sabina Sieri⁴, Vittorio Krogh⁴, Marco Vinceti¹¹ University of Modena and Reggio Emilia, Modena, Italy² Helmholtz Zentrum München, Neuherberg, Germany³ IREN, Italy⁴ Istituto Nazionale dei Tumori, Milan, ItalyE-mail address: tommaso.filippini@unimore.it (T. Filippini).

We investigated the correlation between dietary habits with serum levels of selenium (Se) species collected from an Italian community. Consumption of food items was assessed using a food frequency questionnaire. Cereal intake showed a positive relation with total and organic Se, but null/negative with inorganic Se. Fish and seafood positively correlated with inorganic Se and negatively with organic Se. Correlations were generally negative/null in vegetables (only Se-Cys was positively correlated), while in fruits they were positive with organic species, mainly Se-Cys. Legumes showed inverse relation with overall organic Se, but positive with Se-Cys, Se-TrXr and inorganic Se. Correlation of potatoes intake was negative with Se forms, except a positive one with Se-Cys and selenate. Our results show highly specific associations between intake of selected foods and circulating Se species levels.

<http://dx.doi.org/10.1016/j.jtemb.2017.03.163>

P-008

Selenium Treatment and Chagasic Cardiopathy (STCC) clinical trial: First results on selenium levels at baselineT.C. Araújo-Jorge^{1,*}, M.T. Holanda², F.S. Pereira-Silva¹, L.R. Garzoni¹, L.O. Pimentel¹, B.M.S. Gonzaga¹, A.M. Hasslocher-Moreno², S.S. Xavier², G.M. Sperandio da Silva², R.M. Saraiva², C.S.A. Cardoso², A.S. de Sousa², M.F.F. Mediano², P.E.A.A. do Brasil²¹ LITEB, Oswaldo Cruz Institute, Brazil² Lapclin-Chagas, National Institute of Infectious Diseases, Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro BrazilE-mail address: taniaaj@ioc.fiocruz.br (T.C. Araújo-Jorge).

STCC is the first superiority, double-blind, placebo-controlled, randomized clinical trial of a micronutrient therapy for Chagas disease (Trials 6;15:388, 2014). Volunteers receive 100 µg of sodium selenite once daily for 365 consecutive days. The trial is still in the recruiting phase and the primary outcomes will not sort out before 2020. Plasma selenium baseline levels of a first group of patients measured by ICP-MS gave preliminary results as follows (in mg/L): median level = 70.25; minimum level = 51, maximum level = 131; first quartile (25%) = 59.25; third quartile (75%) = 82.75. If Se treatment reduces the progression of Chagas cardiopathy, the inclusion of this micronutrient in the daily diet could improve the therapeutic regimen for this neglected tropical disease at low cost.

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P-009

The effect of zinc supplementation on the zinc and selenium status in exerciseAndrey A. Skalny^{1,2,*}, Mikhail Yu. Karganov³, Anatoly V. Skalny⁴, Maria A. Fomina¹, Alexander A. Nikonorov^{3,5}¹ Ryazan State Medical University Named After Academician IP Pavlov, Ryazan, Russia² RUDN University, Moscow, Russia³ Laboratory of Physicochemical and Ecological Pathophysiology, Institute of General Pathology and Pathophysiology, Moscow, Russia⁴ Trace Element Institute for UNESCO, Lyon, France⁵ Orenburg State Medical University, Orenburg, RussiaE-mail address: skalny.pfur@yandex.ru (A.A. Skalny).

Objective: Investigation of the effect of Zn supplementation on Zn and Se status in exercised rats.

Methods: 24 male Wistar were divided into 4 groups: control, exercised, Zn-supplemented, exercised Zn-supplemented. Zn was supplemented as Zn asparaginate. Tissue Zn and Se were estimated using ICP-MS.

Results: Exercise significantly decreased muscle, kidney and hair Zn; liver, heart, skeletal muscle and kidney Se levels. Exercise results in elevation of liver Zn; serum and hair Se content. Zn supplementation elevated liver, kidney, heart and hair Zn content in exercised rats. Zn supplementation increased Se stores in animals with high physical activity.

Conclusions: Effect of Zn supplementation in exercised organ-ism may be associated not only with modulation of Zn status but regulation of Se status.

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