

## SELENIUM STATUS IN WOMEN LIVING IN SÃO PAULO, BRAZIL

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Selenium is an essential nutrient, and has antioxidant properties and other functions, among them, participates in the conversion of thyroid active hormone (thyroxine), and protection against intoxication by heavy metals, including mercury. Selenium status is influenced by its content on soil, the presence of heavy metals and the chemical form with which it is ingested. Selenium deficiency affects glutathione peroxidase activity, an enzyme that reacts with a large variety of organic peroxides, and for this property is widely known as a major protector system for lipid peroxidation. Acknowledging selenium importance in human health, the aim of this research was to assess selenium status in women living in São Paulo, Brazil. This project was approved by the Ethics Committee of the University of São Paulo. Seventy women formed the group of study, they were all in reproductive age, did not suffer from diabetes or thyroid dysfunctions, were no preg-

nant or breast-feeding, did not take multivitamins tablets and lived in São Paulo for more than 20 years in average. A blood sample was collected to assess selenium levels in plasma and erythrocytes by hydride generation-atomic absorption spectrometry, and GPx activity in erythrocytes was measured by commercial kit (RANDOX). Mean selenium concentration in plasma was  $81.7 \pm 18.8 \mu\text{g/L}$ , and in erythrocytes was  $86.3 \pm 34.7 \mu\text{g/L}$ . The mean value found for GPx activity in the erythrocyte was  $37.1 \pm 12.2 \text{ U/gHb}$ . According to these results the values found for selenium and GPx activity were adequate in relationship to the reference values for these parameters, denoting that this population is not at risk of selenium deficiency. However, it is advisable that more studies take place, with larger population, to assess selenium nutritional status.

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## THE INFLUENCE OF DIETARY INTAKE AND ELEMENTAL STATUS ON THE STUDENT'S RESULTS

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**INTRODUCTION:** The optimal nutrition is one of the main conditions of healthy and successful life. Balanced nutrition provides growth and evolution of children, assists to improve the school and workable qualities, help not to resist the negative influence of the environment. The lack of essential macro- and trace elements in foodstuffs and drinking water, and in some cases the excess of these substances promotes the disturbance of vital functions, decrease the adaptive possibilities of the organism and deterioration of the individuals and population of the regions. **AIM:** To determine the possible influence of macro- and trace elements on the students results. **METHODS:** Totally 150 y.o. 105 healthy college students were interviewed, 50 for daily intake of microelements with food, 50 their hair were investigated by ICP-MS in laboratory of Centre for Biotic medicine (Moscow). All students were divided in groups: Gr. 1 and Gr. 2 consisted from 34 boys and 31 girls, with good results; Gr. 3 and Gr. 4 included 17 boys and 33 girls with poor results. **RESULTS:** The investigation of dietary

intake of macro- and trace elements, in the students allowed to see that the boys with poor results used significantly less ( $p < 0.05$ ) calcium (1.2 times), iron (1.3 times) and zinc (1.4 times), and girls — copper (in 1.2 times) in comparison with Gr. 1, 2. The analyses of macro- and microelements in the student's hair allowed to mark differences ( $p < 0.05$ ) and in their elemental status depending on the student's results. The research has shown that the good results are associated with higher Zn, Se, J, Fe and lower Cu hair content in comparison to Gr. 3 and Gr. 4. It was mentioned that high copper content in boy's hair significantly ( $p < 0.05$ ) correlated ( $r = 0.25$ ) with poor results. **CONCLUSIONS:** This research demonstrated that the lack of dietary intake of essential elements (calcium, iron, zinc, iodine) and copper excess have the negative influence on the student's results.

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