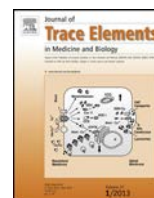




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Saint-Petersburg, Russia, 26–29 June, 2017

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Conclusion: The overall intake of energy and essential micronutrients was inadequate amongst the geriatric population in India, possibly due to poor quality and quantity of the diet consumed.

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P-086

Iron status correlates with free thyroxine in goiter



E.V. Popova^{1,*}, A.A. Tinkov^{1,2,3},
A.S. Yakubovskaya¹

¹ Orenburg State Medical University, Orenburg, Russia

² Yaroslavl State University, Yaroslavl, Russia

³ RUDN University, Moscow, Russia

E-mail address: elizbeth.p@bk.ru (E.V. Popova).

Several trace elements such as iodine, iron, selenium, and zinc are essential for normal thyroid function. Iodine has an important role in the synthesis of thyroid hormones; selenium is a component of the deiodinases that convert T₄ to T₃ and also protects the thyroid from damage by excessive iodide exposure. Zinc is involved in thyroid hormone nucleus receptor structure. In addition low iron, or more specifically, low ferritin, is one of the most underestimated causes of thyroid dysfunction. A total of 45 patients with goiter in mild iodine deficiency region of South Ural were included in the study. Iron status and thyroid function were assessed. 16% of patients had hypothyroidism. While decreased levels of Hb were established in 75% hypothyroid patients, low concentrations of ferritin were revealed only in 17% cases. Significant positive relationship between levels of Hb and fT₄ was detected ($r=0.82$, at $p<0.05$). Negative correlation between erythrocyte count and fT₃ level is unclear. However, no association between amount of ferritin and thyroid status was found.

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P-087

Iron bioavailability in rats fed fermented quinoa diet



Vanesa Castro^{1,2,*}, Mirian Vargas²,
Claudia Lazarte¹, Yvonne Granfeldt¹

¹ Lund University, Lund, Sweden

² San Simón University, Bolivia

E-mail address: vanesa.castro@food.lth.se (V. Castro).

Quinoa, (*Chenopodium quinoa*) a nutrient-rich pseudocereal contains relatively high levels of iron; however, its bioavailability is affected by presence of phytic acid. The study aim was to investigate the iron bioavailability in rats fed non-fermented and fermented quinoa diet. Quinoa flour was fermented with *Lactobacillus plantarum* 299v[®] for 24 h. The animal study was conducted in Wistar rats fed non-fermented and fermented quinoa diet, *ad libitum* during 30 days. Iron was analyzed in liver and femur of rats as marker of iron bioavailability. During fermentation, a reduction of 82% of phytic acid was found. The food intake was similar for both groups, but the feed efficiency ratio and femur weight were lower ($p<0.05$) after fermented diet. There was an effect ($p<0.05$) of the fermented diet on iron concentration in femur (1.16 mg/g) compared with non-fermented diet (0.09 mg/g). There was no significant difference in iron concentration in liver. The iron retention in femur of rats fed fermented diet was significantly higher than

non-fermented diet, due to the positive effect of phytic acid reduction during fermentation.

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P-088

Iron supplementation is better than zinc and iron/zinc for the bioavailability of provitamin A carotenoids from papaya



M.M. Kana Sop^{1,*}, I. Gouado¹, F.J. Schweigert²

¹ University of Douala, PO Box 24157 Douala, Faculty of Science, Cameroon

² University of Potsdam, Institute of Nutritional Science, Germany

E-mail address: kanamod@yahoo.com (M.M.K. Sop).

Objectives: The study aimed at determining the bioavailability of 3 provitamin A carotenoids in young adult men, after a vitamin A deficient diet and zinc, iron or iron/zinc supplementation.

Materials and methods: Twelve healthy participants divided into 3 groups were supplemented with iron, zinc or iron + zinc over 2 weeks under a vitamin A deficient diet. Participants consumed a test meal containing 0.55 kg of fresh peeled papaya. Four blood samples were successively taken for various analyses.

Results: Iron supplementation led to the highest retinol levels in the serum. Zinc and iron/zinc were best to improve serum levels of α -carotene and β -carotene. Iron/zinc was the best supplement for better β -kryptoxanthin absorption.

Conclusion: Supplementation with iron is the best for the bioavailability of provitamins A from local papaya and should be considered for use in populations suffering of vitamin A deficiency and iron deficiency anemia.

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P-089

Selenium, zinc and copper content of foods consumed in an Italian community



Silvia Cilloni^{1,*}, Marcella Malavolti¹,
Carlotta Malagoli¹, Federica Violi¹,
Tommaso Filippini¹, Luciano Vescovi²,
Marco Vinceti¹

¹ University of Modena and Reggio Emilia, Modena, Italy

² IREN, Reggio Emilia and Piacenza, Italy

E-mail address: silvia.cilloni@unimore.it (S. Cilloni).

This study aimed to determine the concentrations of selenium, zinc and copper in foods generally composing the diet of Northern Italy population in order to implement a database of the quantitative content for each of the three trace elements, according to food category intake. Food samples were collected from (small to large) distribution markets in triplicates and trace elements determination was performed with ICP-MS after sample mineralization. We found the highest levels of selenium in meat (202 $\mu\text{g}/\text{kg}$), fish and seafood (489), dry fruits (314) and legumes (220). The level of zinc was higher in cereal products (11.7 mg/kg), meat (28.4), dairy products (18.8), legumes (21.2) and dry fruits (37.8). Finally, the highest concentration of copper was found in dry fruits (14.9 mg/kg), legumes (6.2), sweets (4.1) and meat (3.7). Our findings will allow to estimate dietary trace elements exposure which could be useful for both toxicological and epidemiological studies.

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