Health Supplements Information Service

HSIS REAFFIRMS THE NEED FOR SELENIUM SUPPLEMENTATION

An intake of 50 micrograms a day of selenium in addition to the usual dietary intake is required to maintain optimal selenium blood levels according to a new UK study.[1]

Commenting on the study and the need for selenium in our diets, Dr Carrie Ruxton, independent nutrition advisor to HSIS, notes: "In the UK, intakes of selenium are low. Data from the 2006 UK Total Diet Study showed that the mean intake of selenium was 48-58 micrograms a day, which is below the UK recommended intake of 75 micrograms a day for men and 60 micrograms a day for women.[2] Similar findings emerged from the latest UK National Diet and Nutrition Survey (NDNS)[3] in which intakes of selenium fell below the Reference Nutrient Intake (RNI) in both adults and older children. Adult women overall achieved 72% of the RNI. while adult men achieved 74% of the RNI. Around half of adult women and older girls and a fifth of men and older boys had intakes below the Lower Reference Intake (LRNI). Such low intakes are associated with reduced blood levels of selenium and significantly increased risk of mortality in both Europe and the US.[4][5]

"In this new study, the aim was to evaluate the amount of selenium required to establish optimal blood levels of this essential nutrient. A randomized controlled trial was carried out in which 199 healthy men and women aged 50-64 years, living in the UK were divided into 6 groups and studied for 12 weeks. Four groups were given selenium enriched yeast tablets containing 50, 100 or 200 micrograms of selenium each day, or placebo tablets. The other two groups were given either selenium-enriched onion meals, providing 50 micrograms of selenium daily, or unenriched onion meals providing 4 micrograms selenium daily.

"Blood levels of selenium increased in all the groups which consumed additional selenium from supplements or diet. There was a significant difference in blood levels of selenium between the supplement group and those taking the placebo tablet. However, there was no significant difference in blood levels between those consuming the enriched meals and those consuming the unenriched meals.

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[1] Hurst R, Armah CN, Dainty JR et al. Establishing optimal selenium status: results of a randomized, double-blind, placebo-controlled trial. Am J Clin Nutr 2010;91:923-31.

[2] Food Standards Agency. Survey on measurement of the concentrations of metals and other elements from the 2006 UK total diet study. Food Survey Information Sheet 01/09. London: UK. FSA 2009:16-17, 37-45

[3] Bates B, Lennox A, Swan G. National Diet and Nutrition Survey. Headline results from year 1 of the Rolling Programme (2008/2009). A survey carried out on behalf of the Food Standards Agency and the Department of Health. Available: http://www.food.gov.uk/science/dietarysurveys/ndnsdocuments/ndns0809year1

[4] Bleys J, Navas-Acien A, Guallar E. Serum selenium levels and all-cause cancer and cardiovascular mortality among US adults. Arch Intern Med 2008;168:404-10

[5] Akbaraly NT, Arnaud J, Hiniger-Favier I et al. Selenium and mortality in the elderly: results from the EVA study. Clin Chem 2005;51:2117-23.

“Moreover the blood levels of those taking the 50 microgram tablet increased by 28.3% while the blood level of those consuming the 50 microgram enriched onion diet increased by just 8.6%. This suggests that the selenium enriched diet was much less effective at increasing blood levels than the selenium supplement.

“The study concluded that to establish optimal selenium status required the addition of a 50 microgram daily selenium supplement to the usual daily dietary intake of approximately 55 micrograms. These findings suggest that adequate selenium intakes are not being achieved in the UK by diet alone and that either a multi-nutrient or selenium supplement taken daily can help to ensure an optimal selenium status.”

RNI: Reference Nutrient Intake. The amount of a vitamin or mineral that is enough to ensure that the needs of nearly all the group are being met.

LRNI: Lower Reference Nutrient Intake. The amount of a vitamin or mineral considered to be sufficient for the few people in a group who have low needs. Most people will need more than the LRNI and if people consistently consume less they may be at risk of deficiency of that nutrient.