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Changes in the mineral profile of cooked vegetables consumed in Greece

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Background – Due to the increasing recommendations all over the world for a healthier diet, the consumption of vegetables is rising around the world and in Mediterranean countries the traditional uses are still alive.

Objective – The purpose of this study was to assess the content of specific minerals in five Greek vegetables commonly consumed in Greece. This study is part of a research project aiming at the construction of the Greek food composition tables.

Design – Vegetables were taken from local shops and bazaars in amounts proportional to their annual production and consumption in Greece. The samples consisted white cabbage (Brassica oleracea capitata var. alba), celery (Apium graveolens var. rapaceum), dill (Anethum graveolens L.), lettuce (Lactuca sativa var. romana) and dry onion (Allium cepa var. rossa brunswick), vegetables that are widely used in Greek cuisine. All samples were cooked for 15 minutes in quantity of water equal with half their weight. As soon as they were boiled, they were strained and dried at room temperature. The contents of raw and cooked vegetables in six dietary important minerals (calcium, magnesium, iron, zinc, copper and phosphorous), water, ash and energy were analyzed. Moisture and ash were analyzed by the methods described in AOAC, phosphorus with a spectrophotometric method, other minerals by flame atomic absorption spectrometry and energy value was determined by means of an adiabatic bomb calorimeter.

Outcomes – The results have shown that water content of vegetables (raw and boiled) fluctuated from 91% to 96.5%. Reduction in ash varied from 27.7% to 67.7% in the raw samples and from 2.59 to 31.33% in the cooked samples in the dry matter. Losses in minerals were on average: 36.2% for Ca, 33.7% for Mg, 36.4% for Fe, 30.5% for Zn, 34.8% for Cu and 34.4% for P. Boiled root celery had lower concentrations in Ca and Fe and higher concentration in P compared to the sprout celery. Vegetables’ energy content was very low and fluctuated from 25 Kcal/100g in the boiled cabbage up to 57 Kcal/100g in the boiled dry onions.

Conclusions – The above data are useful for the evaluation of nutrient composition of Greek plants that are commonly consumed.

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A Biomarker for changes in dietary fat intake: a pilot study

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Background – Accurate dietary measurement can be affected by systematic error (under-or over-reporting). Dietary fat intake is often the most under-reported nutrient among the overweight and obese, and yet a robust biomarker for absolute or changes in dietary fat intake has received little attention.

Objective - To determine the responses of plasma Apolipoprotein A-IV (apoA-IV) to a dietary fat load, as a pilot to further investigation of the ApoA-IV-dietary fat intake biomarker relationship.

Design - Proof of concept study with a convenience sample of 6 non-obese adults (3 males, 3 females), fed a daily fat load (102.9g fat) for 7 days in addition to a baseline diet followed by a low fat week (baseline minus fat load). Daily dietary intakes were assessed using the multiple pass 24-h recall method. Fasting venous blood samples were analysed for plasma apoA-IV concentrations using an ELIZA immunoassay.

Outcomes - Mean plasma apoA-IV concentrations were elevated by 13.8% during the fat load compared to baseline week. The dietary fat load corresponded to a 23.7% increase in total energy from fat. During the low fat week, mean plasma apoA-IV concentrations decreased by 7.5% after the fat load was removed, corresponding to a 21.2% decrease in total energy from fat.

Conclusions – Fasting plasma apoA-IV concentrations may be a useful biomarker to validate changes to dietary fat intakes. Further investigations are required with a larger cohort to determine sensitivity of the apoA-IV response to smaller changes in dietary fat intake, particularly among an overweight and obese population.