



SCIENCE • FOOD • SOCIETY

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SUPPLEMENT

Conclusions: This recommendation of a maximal daily intake of 100 g for total sugar does by no means challenge the beneficial effects of fruit and vegetable consumption that has to be promoted. Indeed, the optimisation tool deployed by ANSES to update food consumption guidelines for the French population shows that when this limit is observed simultaneously with other constraints (41 dietary reference values and toxicological reference values for around a hundred contaminants), fruits provide around 40 g of sugars and vegetables 6 g of sugars. This result is consistent with the WHO recommendation to limit free sugar intake to less than 10% of the total energy intake. As it is estimated that 20 to 30% of French adults (in the INCA 2 survey) currently have daily sugar intakes (excluding lactose and galactose) above 100 g/day, effective public health actions will be needed to reduce free sugar consumption, especially SSBs. These actions should target a wide range of spheres, from consumer education and information to regulatory measures aimed at decreasing the levels of free sugars in strategic food products.

181. Dietary intake of calcium, phosphorus and magnesium in a northern Italian community

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Minerals are essential micronutrients for growth, development and maintenance of healthy tissues, the long-term insufficient intake of minerals may lead to bone demineralisation and often requires the use of food supplements. The ratios of certain minerals intake like calcium and phosphorus are also proved to affect the bioavailability of calcium and even lead to adverse health consequence. This study was designed to explore the dietary sources of calcium (Ca), phosphorus (P), and magnesium (Mg) and the ratios between different minerals (Ca/P). We measured the content of these elements in foods that compose a typical Italian diet using inductively coupled plasma-mass spectrometry and we estimated their daily dietary intakes assessed through a semi-quantitative food frequency questionnaire specifically developed within the European Prospective Investigation into Cancer and Nutrition (EPIC) study in a northern Italian community. In 890 analysed food samples the main contributors to calcium are milk and dietary products, dry fruits, legumes and sweet products. Important sources of phosphorus are represented by dry fruits, legumes, milk and dairy products and meat. While dry fruits, legumes, cereals and fish symbolised the most important sources for magnesium. In our Italian population sample, the estimated median (interquartile range) dietary daily intakes are 786.3 (592.2–1062.7) µg/day for calcium;

1,291.7 (1,017.2–1,591.4) mg/day for phosphorus and 323.2 (260.3–396.6) mg/day for magnesium. The calcium–phosphorus (Ca/P) ratio in this study was 0.63 (0.52–0.73). These values are in agreement with those suggested by European and international recommended intake for adult population, with the exception of calcium which is slightly lower than recommended values and suggests that this population does not present nutritional deficiencies requiring any supplementation.

182. Risk assessment of *Gymnema sylvestre* preparations in food supplements

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The plant *Gymnema sylvestre* and its botanical preparations have a long tradition of use for medicinal purposes. *Gymnema* preparations are currently being marketed as an ingredient of certain food supplements, either alone or in combination with other herbs and/or micronutrients, and are typically being used by people displaying one or more symptoms of metabolic syndrome. Food supplement use may occur without medical supervision; it is therefore not unlikely that *Gymnema*-based food supplements may also be consumed instead of or in combination with allopathic drugs.

In the present project, an assessment of potential health risks associated with the use of *Gymnema* botanical preparations was performed. Electronic searches of the literature were conducted in PubMed Medline and EMBASE databases.

The limited information currently provided by animal toxicological studies has so far not suggested serious adverse effects on organ functions. Clinical trials mainly involving type I and type II diabetic patients have suggested the potential for specific *Gymnema* preparations to lower blood sugar levels, but also to promote hypoglycaemia when administered together with insulin or antidiabetic drugs. A number of *in vitro* studies have demonstrated that certain *Gymnema* extracts modulated the activity of particular xenobiotic-metabolising cytochrome P450 enzymes and of certain xenobiotic (ABC) transporters, indicating possible pharmacokinetically based interactions of *Gymnema* with certain drugs. Moreover, *in vivo* studies suggested that certain extracts may potentiate the glucose and lipid lowering effects of specific drugs. Finally, a case report of liver toxicity related to the consumption of *Gymnema* tea has raised concern regarding the possibility of adulteration or contamination of the tea with hepatotoxic substances. Considering the uncertainties regarding the composition of different *Gymnema* preparations, potential herb–drug interactions and concerns about hypoglycaemic effects, the use of *Gymnema*-based