

## Preface

### Nuts: nutrition and health outcomes

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In this supplement, we present a cluster of articles on nut consumption, its nutritional attributes and health outcomes. Extensive research has been carried out in this field during the last decade following the seminal publications by one of us relating nut consumption to lower risk of heart disease and improvement of serum lipid levels (Fraser *et al.* 1992; Sabaté *et al.* 1993), and this volume attempts to summarise the current knowledge on the subject.

Nuts have constituted a part of mankind's diet since pre-agricultural times (Eaton & Konner, 1985). While the amount of nuts in the human diet in the distant past is unknown, consumption data from industrialised nations indicates a downward trend for most of the 20th century, although nut consumption in countries following a more Mediterranean diet is twice that of the American diet (Sabaté, 1993; Dreher *et al.* 1996). Vegetarians and other health-conscious populations, such as Seventh Day Adventist, tend to consume nuts more often than their counterparts (Sabaté, 1999). Whether for custom, economy, apprehension or simple lack of knowledge, large segments of the world population do not consume nuts on a regular basis, and for those who do, nuts contribute a small proportion of their total caloric intake. Nuts are consumed either as snacks or part of a meal. Nuts are eaten whole (fresh or roasted), in spreads (peanut butter, almond paste) or hidden (e.g. commercial products, mixed dishes, sauces, baked goods, and oils).

Nuts are nutrient dense foods. They contain high amounts of protein and fat, mostly unsaturated fatty acids. Nuts are also dense in a variety of other nutrients and provide dietary fibre, vitamins (e.g. folic acid, niacin, vitamin E, vitamin B6), minerals (e.g. copper, magnesium, potassium, zinc) and many bio-active constituents such as antioxidants, phytosterols and other phytochemicals (Dreher *et al.* 1996; USDA, 2006). Botanically, tree nuts are dry fruits with one seed in which the ovary wall becomes hard at maturity. The most popular edible tree nuts include almonds, Brazil nuts, cashews, hazelnuts, macadamias, pecans, pine nuts, pistachios and walnuts. Ground nuts, commonly known as peanuts, are actually legumes but are identified by consumers as part of the nuts food group. Peanuts share a similar nutrient profile with tree nuts. Although chestnuts are botanically tree nuts, they differ from other nuts because they are starchy and have a different micronutrient profile.

In the last 10 years, extensive research has been carried out on the potential health effects of nuts. Scores of human feeding trials have investigated the effect of nut consumption on blood lipids and other biological indexes of heart diseases

(Kris-Etherton *et al.* 1999; Mukuddem-Petersen *et al.* 2005). Epidemiological studies have associated the frequency of nut intake with reduced risk of some chronic diseases, such as coronary heart diseases (Hu & Stampfer, 1999; Sabaté *et al.* 2001), diabetes (Jiang *et al.* 2002) and cancers of the prostate (Mills *et al.* 1989; Jain *et al.* 1999) and colorectum (Jenab *et al.* 2004; Yeh *et al.* 2006). Nuts are complex food matrices containing diverse nutrients and other chemical constituents that may favourably influence human physiology, a reason why these benefits may reasonably be attributed to the whole rather than the parts.

Nuts are now considered an important component of a healthy diet. Nuts are fatty foods and presumably for this reason, until recently, were ignored or treated with a great deal of caution on most dietary recommendations (American Heart Association, 1991). Due to the increasingly demonstrated health benefits, nuts are currently considered fundamental to several dietary guidelines worldwide (Haddad *et al.* 1999; Johnson & Kennedy, 2000; Krauss *et al.* 2000; Canada, 2005; USDA, 2006; Salas-Salvadó *et al.* 2001). Nuts have been proposed as a component of optimal diets for the prevention of coronary heart disease by leading experts in the field (Hu & Willett, 2002) and, in the summer of 2004, the Food and Drug Administration of the United States issued a health claim for nuts and nut-containing products because of the link of nut consumption with reduced risk of heart disease (USFDA, 2003).

We appreciate the contributions made by the authors of the articles presented in this supplement to the *British Journal of Nutrition* and thank the Nucis Foundation for sponsoring the publication of this volume. We hope that the information shared in this supplement will stimulate interest and new ideas for future research. Also, the contents of this volume may be useful in devising health policy strategies based on the intake of this food group.

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