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Risks vs Benefits of nuts' consumption in Portugal: the balance between preventable myocardial infarction and the burden of the liver cancer associated to aflatoxin exposure

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The occurrence of mycotoxins in nuts, including the most potent carcinogenic aflatoxins (AFTs), has been reported by several authors worldwide. Notwithstanding, nut consumption plays an important role in the Mediterranean diet due to their nutrient contents and the consequent potential to produce beneficial health effects, as the prevention of cardiovascular diseases (CVD). Any measure that could contribute to improve this indicator should be accurately evaluated. According to the National Food, Nutrition and Physical Activity Survey (IAN-AF 2015-16), the current adults' mean nut consumption in Portugal is 2.7 g/day. Some recent epidemiological studies (e.g. PREDIMED) suggested that a daily nuts consumption of 30 g could reduce the incidence of CVD.

The present study aimed to quantify the health impact in terms of Disability-adjusted life years (DALY) of increasing nut consumption to 30 g/day by adult Portuguese population, when compared to the current intake. Regarding nut consumption, two scenarios were established: current consumption (CS) – 2.7 g/day; alternative scenario (AS) – 30 g/day. AFTs occurrence in nuts available in Portuguese market and nut consumption data were used to estimate AFTs intake. Epidemiological and National population data were used to estimate the DALYs, considering two different endpoints: the occurrence of hepatocellular carcinoma due to exposure to AFTs (IPSC/WHO) and the prevention of acute myocardial infarction due to nuts' consumption (PREDIMED).

A mean daily intake of AFTs of 0.035 (CS) and 0.393 (AS) ng/kg bw/day was predicted. This intake is estimated to cause 0.04 (CS) and 0.40 (AS) extra cases of Hepatocellular Carcinoma, corresponding to 0.7 (CS) and 7.5 (AS) annual DALYs. In contrast, the estimated number of preventable cases of myocardial infarction due to the increasing of nut consumption to 30 g/day was 3361 and the DALYs gained was 4188. Integrating risks and benefits, 4181 annual DALYs could be potentially saved. These results suggest an overall beneficial health effect of increased nut consumption in Portugal. Therefore, it seems not advisable to reduce exposure to AFTs by recommending a reduced intake of nuts.

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