

Acrylamide dietary intake in a sample of Italian subjects

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INTRODUCTION:

Acrylamide (AA) is a process contaminant classified as probably carcinogenic to humans. Foods prone to AA formation are those containing reducing sugars and asparagine, that undergo high-temperature and low-moisture processing. In 2015 EFSA published a wide-ranging database on AA content in commonly consumed foods [1]. However, since food composition data should be as country-specific as possible, national data should also be considered when estimating AA intake.

The aim was to assess AA intake in healthy subjects from the control group of an Italian case-control study on colorectal cancer risk by integrating AA in the food composition database (based on bda.ieu.it).

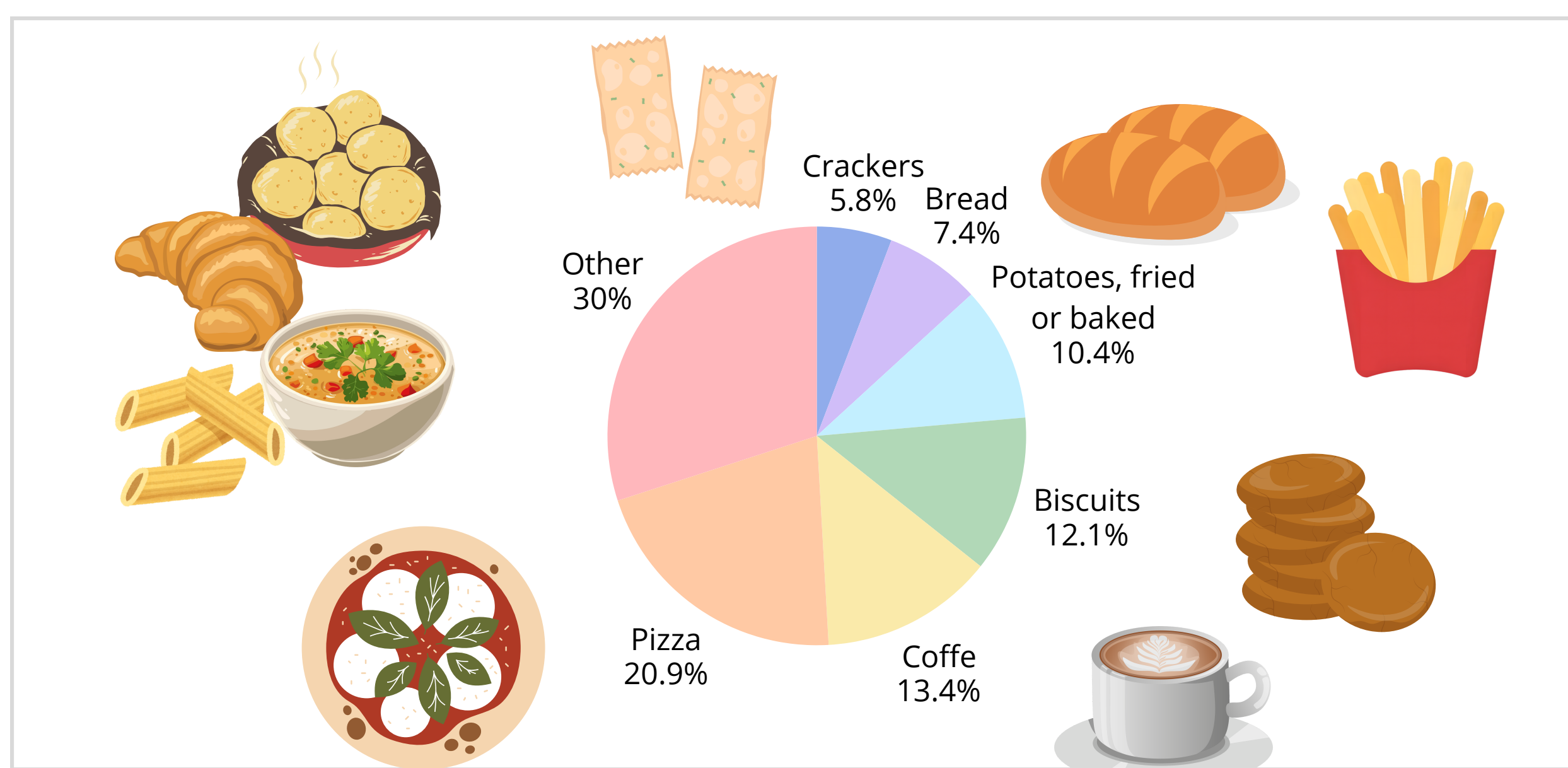


Figure 1 Acrylamide food sources in the Italian controls

RESULTS:

In the food composition database, 28 FFQ foods/ingredients were matched to EFSA; seven to Italian data (Table 1) from methodologically comparable studies [3,4,5]; and four to proportionally adjusted Italian data. Other foods were matched to logical zero or trace values when processing conditions could not be clearly determined. Among healthy controls (38% female; 66.0±11.8 years), AA intake was in mean 36.9 µg/day, and 0.54 µg/kg BW/day (Table 2). Females had slightly higher intakes than males (37.8±11.8 vs. 36.4±10.7 µg/day and 0.64±0.22 vs. 0.48±0.15 µg/kg BW/day). The main contributors of AA intake (Figure 1) were pizza (20.9%), coffee (12.6%), biscuits (12.1%), fried/baked potatoes (10.4%), bread (7.4%), and crackers (5.8%), followed by pasta (4.4%), brioche (3.8%), soup (3.3%), boiled/mashed potatoes (3.1%), and others (16.3%).

CONCLUSIONS:

AA intake was higher than that reported in previous studies in Italian healthy controls (1991–2008) [6,7] and in line with mean data from EFSA surveys [1] (0.4 to 1.9 µg/kg BW/day). The high AA contribution of pizza can be explained by its high frequency of consumption in the current sample, but also by the very high content of AA matched from Italian data. Without considering Italian food composition data, AA intakes would probably have been underestimated. This confirms the importance of comprehensive, fit-for-purpose food composition databases for reliable intake estimates.

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