

The third French Total Diet Study

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Total diet studies (TDS) are recognized as one of the best cost-effective methods to assess the chronic dietary exposure of a population and the associated health risk (1). A TDS relies on the analysis of many chemicals in composite food samples representative of the whole diet and prepared as consumed by the population considered. In France, two TDSs have been conducted on the general population: the 1st TDS (2001-2005) on 29 chemicals, the 2nd TDS (2006-2011) on 445 chemicals. Another TDS ("infant TDS", 2010-2016) focused specifically on children under 3 years of age and treated 670 chemicals. In 2018, the French Agency for Food, Environmental and Occupational Health & Safety (Anses) launched a 3rd TDS on the general population, in order to assess trends in the contamination of foods and in the exposure, but also to make a first assessment for chemicals that were not included previously.

More than 300 chemicals are targeted in the 3rd TDS (trace elements, persistent organic pollutants, mycotoxins, pesticide residues, etc.). However, by taking into account new multi-elemental and multi-residue analytical methods, results for up to 600 chemicals could be expected. Food items have been selected from the third French Individual and National Food Consumption (INCA3) survey (2014-2015) (2), so as to be representative of the French diet, on the basis of consumer rates, consumption levels and expected contamination. Then a stratification has been applied, regarding 1) seasonality of consumption and contamination, and 2) production type (conventional versus organic). Each composite sample was made up of 12 subsamples, selected to be representative of the food item consumption. Several data sources were selected and used to describe precisely the products to sample and the preparation methods.

276 food items were selected from the consumption database. Finally, 724 food samples were defined after stratification, and planned to be collected in three selected French departments. Of these, 719 were successfully collected and prepared between May 2021 and August 2022, with a good general compliance with the initial sampling plan. Analyses of the prepared food samples are in progress and first results are expected in 2024.

Keywords: total diet study, food contamination, dietary exposure, risk assessment

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