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## Reference

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**Title:** Added sugar intake and sources among urban Costa Rican population: results from ELANS study

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## Background and Objectives:

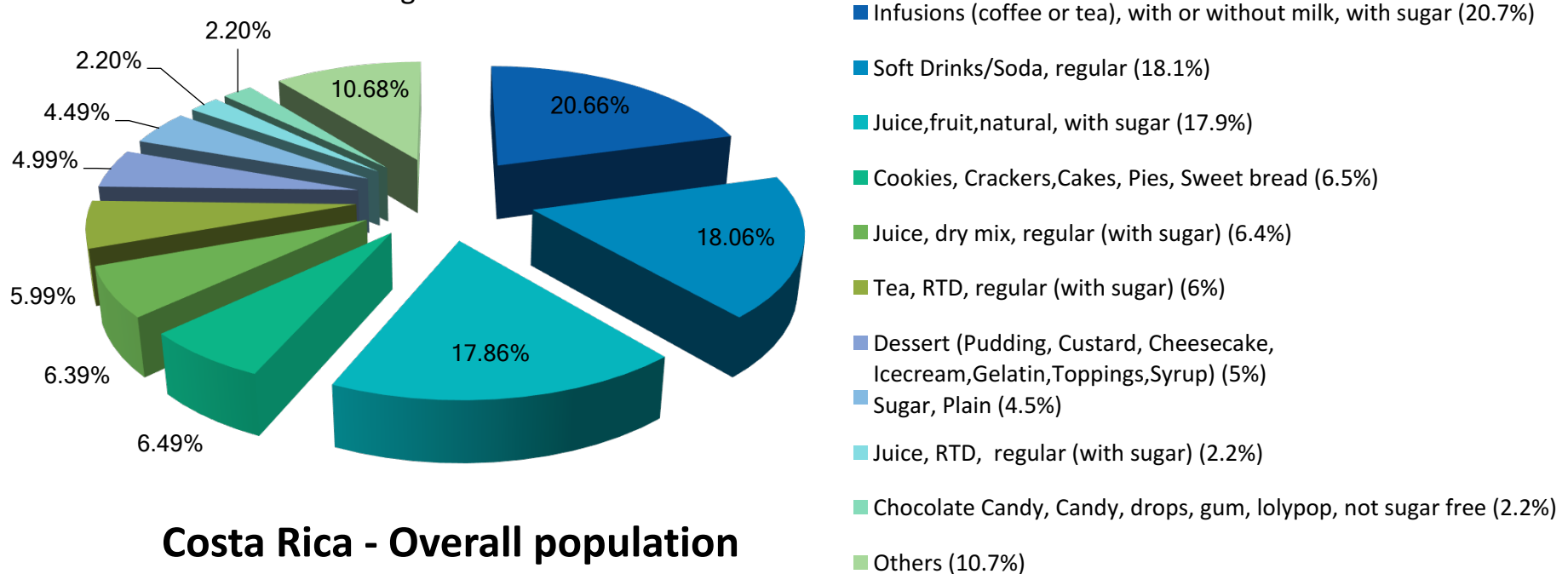
Added sugar (AS) intake has been associated with the increasing prevalence of obesity. The objective of this study was to estimate added sugar intake and main sources of AS among urban Costa Rican population.

## Methods:

Data were obtained from the Latin American Health and Nutrition Study (ELANS), a multicenter study developed in urban areas of 8 Latin American countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Peru and Venezuela. Dietary intake among 798 Costa Rican participants (15- 65 y) was assessed using two 24-hour recall and processed by Nutritional Data System for Research (NDS-R). Usual intake was estimated using Multiple Source Method. Major food items accounting for AS was assessed using weighed-proportions formula developed by Block (1985) in which relative contribution (RC) of a given food item/food group is defined as:  $RC = [(Total\ AS\ grams\ from\ a\ food\ item\ x\ 100) / Total\ AS\ grams\ from\ all\ food\ items]$ . Median intake, expressed as grams per day (g/d), and sources of AS were performed by age group, gender, socioeconomic level and nutritional status.

## Results:

Median AS consumption for overall Costa Rican population was 64.6g/d, accounting for 14.7% of total energy intake. Sugar sweetened beverages accounts for 71.3% of total added sugar intake in urban Costa Rican population. The highest intake was reported by male adolescents (75.8g/d) and male of low socioeconomic level (73.4g/d). Infusions (coffee or tea) are the main source of added sugar among urban Costa Ricans, followed by carbonated soft drinks (20.7% and 18.1% respectively). For adolescents and young adults (20-34 y) carbonated soft drinks are the higher contributor of AS intake, for adults >35 y or older are infusions, followed by sweetened fruit juices. The main AS sources were infusion, natural juice (sweetened) and carbonated soft drinks in people with and without excess weight.



Costa Rica - Overall population

## Conclusions:

Added sugar intake among Costa Rican population is above the World Health Organization recommendation (10%). Infusions represent the main source of AS, followed by carbonated soft drinks and sweetened fruit juices. To decrease sugar intake, it is important to raise awareness about the quantity of sugar added to infusions and to reduce sugar content in manufactured foods.

## Keywords:

Food source, Added sugar, Costa Rica, multicenter study.

## Conflict of Interest:

The ELANS is supported by a scientific grant from the Coca Cola Company and support from the Instituto Pensi / Hospital Infantil Sabara, International Life Science Institute of Argentina, Universidad de Costa Rica, Pontificia Universidad Católica de Chile, Pontificia Universidad Javeriana, Universidad Central de Venezuela (CENDES-UCV)/Fundación Bengoa, Universidad San Francisco de Quito, and Instituto de Investigación Nutricional de Peru. The funders had no role in study design, data collection and analysis, the decision to publish, or the preparation of this manuscript.

## Further Collaborators:

On behalf of ELANS Study Group.

