

Sugar consumption and early interruption of breastfeeding are risk factors for dental caries in infancy

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Researcher Jenny Abanto examines the teeth of a child included in the MINA study in Cruzeiro do Sul, Acre state, Brazil. Credit: Bárbara Prado

A study involving 800 children shows inclusion of sugar in their diet and

early interruption of breastfeeding to be the main factors that contribute to the appearance of dental caries by age 2. An article reporting the results is published in the journal *Community Dentistry and Oral Epidemiology*.

The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life, followed by [solid food](#) together with continued on-demand breastfeeding up to 2 years of age or beyond. It also advises against giving infants added sugar before age 2.

The study was part of a Thematic Project entitled "MINA study: Maternal and [child health](#) in Acre: birth cohort in the Western Brazilian Amazon," which tracks children born in 2015-16 in Cruzeiro do Sul, Acre state, Brazil.

"Some previous studies pointed to an association between extended breastfeeding [for 12 months or more] and the occurrence of dental caries, but without properly accounting for the role of early added sugar consumption by these children. Our research found the increased risk of caries in the context of extended breastfeeding to correlate with sugar consumption," said Marly Augusto Cardoso, principal investigator for the project. Cardoso is a professor at the University of São Paulo's School of Public Health (FSP-USP).

"The results corroborate prior research findings on the role of free sugar in the development of dental caries. Breast milk lactose alone doesn't cause the problem. Practically all the children surveyed by our study were exposed to free sugar at an early age," said Jenny Abanto, first author of the article. The study was conducted during her postdoctoral fellowship at FSP-USP's Department of Epidemiology. Currently, she is a professor at São Leopoldo Mandic Dental School in São Paulo.

Dental caries were found in 22.8% of the 800 children tracked. In

isolation, this proportion means children breastfed for more than 24 months ran a higher risk than those breastfed for 12 months or less. However, the incidence of dental caries declined in line with falling sugar consumption in the former.

"We observed that breastfeeding for 24 months reduced consumption of ultra-processed foods or foods with added sugar, acting as a factor of protection against dental caries," Cardoso said.

Information about food consumption was obtained from interviews in which mothers or caregivers described what the babies had eaten in the previous 24 hours. The amount of sugar added to various kinds of food and drink, such as tea, juice, milk and pap, for example, was also recorded.

Only 2.8% never consumed sugar before their second birthday, and 66.7% consumed food with added sugar more than five times a day. Only 7.6% consumed no added sugar at all in the first year of their lives.

The frequency of dental caries varied with household income, educational attainment and the mother's or caregiver's skin color. It was highest for children of Black women in low-income families and with less schooling.

Milk teeth

High sugar consumption results in the formation of a cariogenic dental biofilm, known as bacterial plaque. Breast milk is modified by plaque and contributes to demineralization of tooth enamel, but sugar consumption triggers this process. The frequency with which plaque is exposed to breast milk is probably the main factor in the heightened risk of dental caries observed in breastfed children over 12 months of age.

"Even if the teeth affected are deciduous or [milk teeth](#), [dietary habits](#) such as consuming large amounts of sugar in infancy tend to become permanent and pose the risk of dental caries developing later in life. Other studies have also shown that having dental caries in infancy usually means having them in adolescence, too," said Abanto, who is also a professor at the International University of Catalonia (UIC Barcelona) in Spain.

Dietary habits are rooted in infancy, she added, and the foods to which babies become accustomed influence their lifelong preferences. This is one more reason to avoid [sugar consumption](#) in the first 24 months of a baby's life.

Even 100% [fruit juice](#) is currently discouraged in the first 12 months by the WHO, Brazil's Health Ministry and the Brazilian Society of Pediatricians. It may not contain added sugar, but the natural sugar in fruit is separated from the fiber when it is crushed, and this free sugar has similar effects to sucrose from sugarcane, for example. The WHO's guidelines do not discourage consumption of whole fresh fruit and vegetables by infants, however.

"The WHO recommends exclusive breastfeeding for the first six months and advocates continued on-demand breastfeeding until age 2, introducing fruit and other solid foods from the age of six months. It also advises against [added sugar](#) until age 2," Cardoso said.

More information: Jenny Abanto et al, Prolonged breastfeeding, sugar consumption and dental caries at 2 years of age: A birth cohort study, *Community Dentistry and Oral Epidemiology* (2022). [DOI: 10.1111/cdoe.12813](#)

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