



STATEMENT ON NON-NUTRITIVE SWEETENERSⁱ

The terms 'artificial sweetener' and 'non-nutritive sweetener' refers to a number of compounds that are used as additives to food and drinks as a substitute for sugar.¹ They are many times sweeter than table sugar and smaller amounts are needed to create the same level of sweetness, they may be used to control weight and obesity.^{2,3}

GLOBAL VIEW

In the United States and Europe, six non-nutritive sweeteners are currently approved for use in foods includes stevia, acesulfame-K, aspartame, neotame, saccharin and sucralose, due to their safety profile and if taken in an acceptable daily quantity.⁴ According to the U.S. Food and Drug Administration (FDA) these sweeteners are generally recognized as safe (GRAS) when experts have agreed that it is safe for use by the public in appropriate amounts.⁵

However, there are differing opinions amongst professionals, as well as limited and inconsistent evidence of the long-term metabolic effects of the use of sweeteners during gestation, infancy, and childhood. Further research is needed to inform recommendations for the use of these sweeteners in this sensitive population.⁶

IS THERE AN ASSOCIATION BETWEEN NON-NUTRITIVE SWEETENERS AND CANCER?

There is an ongoing debate over whether artificial sweetener usage poses a health threat.

¹ Mishra A, Ahmed K, Froghi S, Dasgupta P. Systematic review of the relationship between artificial sweetener consumption and cancer in humans: analysis of 599,741 participants. *Int J Clin Pract*, December 2015, 69, 12, 1418–1426.

² Qurrat-ul-Ain, Khan SA. Artificial sweeteners: safe or unsafe? *J Pak Med Assoc*. 2015 Feb; 65(2):225-7.

³ <https://www.cancer.gov/about-cancer/causes-prevention/risk/diet/artificial-sweeteners-fact-sheet#q3>

⁴ Qurrat-ul-Ain, Khan SA. Artificial sweeteners: safe or unsafe? *J Pak Med Assoc*. 2015 Feb; 65(2):225-7.

⁵ <http://www.diabetes.org/food-and-fitness/food/what-can-i-eat/understanding-carbohydrates/artificial-sweeteners/>

⁶ Reid AE, Chauhan BF, Rabbani R, et al. Early Exposure to Nonnutritive Sweeteners and Long-term Metabolic Health: A Systematic Review. *Pediatrics*.2016;137(3)

The association between artificial sweeteners and cancer in humans is a difficult topic to research as there is such a wide range of both sweetening agents and cancers. Caution must be used when attempting to extrapolate animal data to humans, as carcinogenic mechanisms do differ between humans and experimental animals, such as rats.⁷

A systematic review and meta-analysis of 10 aspartame carcinogenic bioassays in rodents found that aspartame consumption has no significant carcinogenic effect.⁸

A 2015 systematic review published in the *Journal of Clinical Practice*, included saccharin, aspartame, cyclamate and acesulfame K, showing there is limited evidence to suggest that heavy consumption of artificial sweeteners may increase the risk of certain cancers. However, overall the data presented was inconclusive as to any relationship between artificial sweeteners and cancer.⁹

Another systematic review published in 2016, concluded that there was no association between aspartame consumption and risk of hematopoietic cancer. No association was found between the consumption of sugar or other sweeteners, particularly aspartame, and the development of cancer in the digestive and reproductive systems and the consumption of artificial sweeteners was not associated with the development of kidney or bladder cancer in humans.¹⁰

CONCLUSION

At this time, due to the inconclusive evidence available and limited human studies, *The Cancer Association of South Africa (CANSA)* continues to follow the research done on non-nutritive sweeteners, overall health during the lifecycle and the possible link to cancer risk in humans.

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¹ Includes artificial and low calorie sweeteners

⁷ Mishra A, Ahmed K, Froghi S, Dasgupta P. Systematic review of the relationship between artificial sweetener consumption and cancer in humans: analysis of 599,741 participants. *Int J Clin Pract*, December 2015, 69, 12, 1418–1426.

⁸ Mallikarjun S, Sieburth RM. Aspartame and risk of cancer: a meta-analytic review. *Arch Environ Occup Health* 2015. 4; 70(3): 133–141.

⁹ Mishra A, Ahmed K, Froghi S, Dasgupta P. Systematic review of the relationship between artificial sweetener consumption and cancer in humans: analysis of 599,741 participants. *Int J Clin Pract*, December 2015, 69, 12, 1418–1426.

¹⁰ Bernardo WM, Simões RS, Buzzini RF, Nunes VM and Glina FPA. Adverse effects of the consumption of artificial sweeteners – systematic review. *Rev Assoc Med Bras* 2016; 62(2):120-122