

# Carbonation alters the mind's perception of sweetness

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Carbonation, an essential component of popular soft drinks, alters the brain's perception of sweetness and makes it difficult for the brain to determine the difference between sugar and artificial sweeteners, according to a new article in *Gastroenterology*, the official journal of the American Gastroenterological Association.

"This study proves that the right combination of carbonation and [artificial sweeteners](#) can leave the sweet taste of [diet drinks](#) indistinguishable from normal drinks," said study author, Rosario Cuomo, associate professor, gastroenterology, department of clinical medicine and surgery, "Federico II" University, Naples, Italy. "Tricking the brain about the type of sweet could be advantageous to weight loss—it facilitates the consumption of low-calorie drinks because their taste is perceived as pleasant as the sugary, calorie-laden drink."

The study identifies, however, that there is a downside to this effect; the combination of carbonation and sugar may stimulate increased sugar and food consumption since the brain perceives less sugar intake and energy balance is impaired. This interpretation might better explain the prevalence of eating disorders, [metabolic diseases](#) and obesity among diet-[soda drinkers](#).

Investigators used [functional magnetic resonance imaging](#) to monitor changes in regional brain activity in response to naturally or artificially sweetened carbonated beverages. The findings were a result of the integration of information on gastric fullness and on nutrient depletion

conveyed to the brain.

Future studies combining analysis of carbonation effect on sweetness detection in taste buds and responses elicited by the carbonated sweetened beverages in the gastrointestinal cavity will be required to further clarify the puzzling link between reduced calorie intake with diet drinks and increased incidence of obesity and metabolic diseases.

For more insight into this study, read the *Gastroenterology* editorial, "[In Search of a Role for Carbonation: Is This a Good or Bad Taste?](#)" by Catia Sternini.

Provided by American Gastroenterological Association

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