

Research shows noisy environments influence taste perception

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Boeing 737-700 jet airliner. Credit: Wikipedia/Arcturu

Airline passengers who eat meals vary in their ability to taste sweet, sour, bitter and salty flavors. In studying how airplane noise affects the palate, Cornell food scientists have found sweetness suppressed and a tasty, tender tomato surprise: umami.

A Japanese scientific term, umami describes the sweet, savory [taste](#) of amino acids such as glutamate in foods like tomato juice, and according to the new study, in noisy situations – like the 85 decibels aboard a jetliner – umami-rich foods become your [taste bud](#)'s best buds.

"Our study confirmed that in an environment of loud noise, our sense of taste is compromised. Interestingly, this was specific to sweet and umami tastes, with sweet taste inhibited and [umami taste](#) significantly enhanced," said Robin Dando, assistant professor of food science. "The multisensory properties of the environment where we consume our food can alter our perception of the foods we eat."

With Dando, Kimberly Yan, MPS '14, co-authored

the study, "A Crossmodal Role for Audition in Taste Perception," published online in March in the *Journal of Experimental Psychology: Human Perception and Performance*. The research will appear in a forthcoming print edition of the journal.

The study may guide reconfiguration of airline food menus to match these loud environments – in other words, make airline food taste better. Auditory conditions in air travel actually may enhance this sought-after taste, the researchers found. In contrast, in [sweet taste](#) ratings, exposure to the [loud noise](#) condition resulted in a pronounced suppression of taste intensity – the sweet sense was dulled.

Airlines acknowledge the phenomenon. German airline Lufthansa had noticed that passengers were consuming as much tomato juice as beer. The airline commissioned a private study released last fall that showed cabin pressure enhanced [tomato juice](#) taste.

Taste perception depends not only on the integration of several sensory inputs associated with the food or drink itself, but also on the sensory attributes of the environment in which the food is consumed, the scientists say.

Said Dando: "The multisensory nature of what we consider 'flavor' is undoubtedly underpinned by complex central and peripheral interactions. Our results characterize a novel sensory interaction, with intriguing implications for the effect of the environment in which we consume food."

More information: "A Crossmodal Role for Audition in Taste Perception." *J Exp Psychol Hum Percept Perform*. 2015 Mar 16. www.ncbi.nlm.nih.gov/pubmed/25775175

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