

The Surprising Science Behind Why Airline Food Tastes So Different

Industry experts help us decode why airplane cabins leave our taste buds grounded and how altitude affects food flavour when flying.

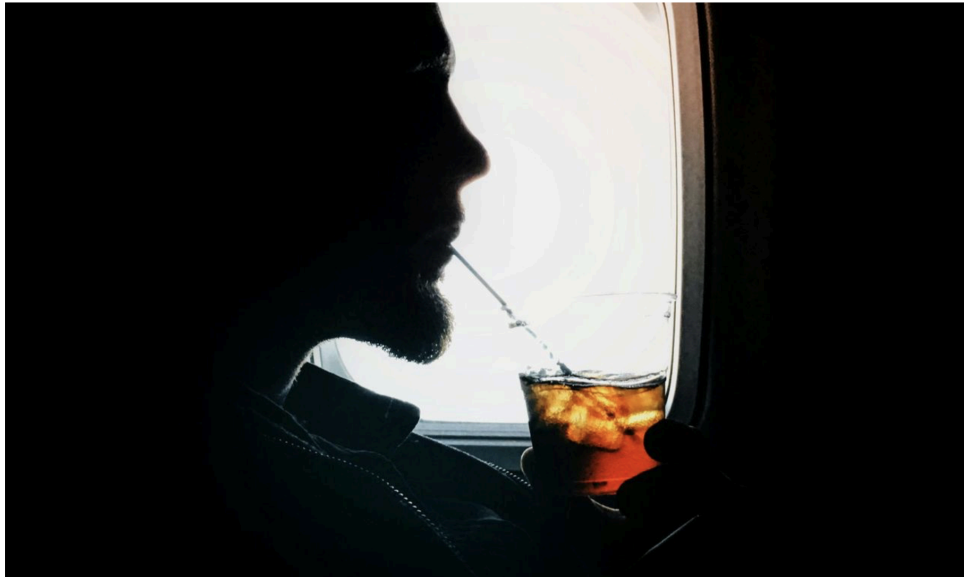


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The readers of *Travel + Leisure Asia* spend plenty of time in the sky, and many are familiar with the fact that certain foods can taste completely different at altitudes. It's part of the reason why airplane meals have a less-than-stellar reputation, or conversely, why ginger ale or that can of tomato juice suddenly becomes your in-flight drink of choice.

As it turns out, the shift in taste isn't entirely the airlines' fault. When you're sealed inside a metal tube cruising miles above the Earth, your senses behave differently — and you're not alone in noticing it. I recently spoke with airline culinary teams and food scientists to dig a little deeper into why food tastes so different in the air.

From specialised check-in areas for business-class passengers to free miles if your bags don't arrive on time, read our roundup of [airline perks we bet you didn't know existed](#).

Who's really to blame for airplane food tasting off?

Call low humidity and cabin pressure the primary offenders

As a plane cruises through the sky, it draws in frigid, arid air from outside to ventilate the cabin. That air is filtered, warmed and slightly humidified before reaching passengers, but it remains far drier than what the body is accustomed to on the ground. Cabin pressure is also lower. According to a [review](#) published by the University of Oxford, humidity at 35,000 feet typically hovers around 12 percent. That is far below what the human body is used to and significantly lower than the average humidity found in many arid regions. "At altitude, the cabin pressure and dry air actually dull your senses, which is why airline meals often seem bland unless they're super seasoned or heavy on umami," said Sarah Bond, a food scientist, nutritionist and recipe developer at [Live Eat Learn](#).

Another 2010 [study](#) commissioned by Lufthansa and conducted by researchers at Germany's Fraunhofer Institute for Building Physics reinforced this point. It found that the combination of low pressure, dry air, noise and vibration can dull sensitivity to salty and sweet flavours by up to 30 percent in airplane food. Sour, bitter and spicy flavours, the researchers noted, remained largely unaffected.

"The best in-flight meals [thus] lean into bold ingredients like mushrooms, tomatoes, soy sauce or parmesan, things packed with glutamates that cut through that flavour fog," Bond added.

Noise is the stealthy third offender



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A 2011 [study](#) confirmed what frequent flyers have long suspected: loud background sound can reduce the perception of saltiness, sweetness and even overall enjoyment of airplane food. In-flight, this sensory interference is intensified by reduced air pressure and blocked nasal passages, which limit access to aroma, an essential component of flavour.

To better understand how these environmental factors interact, I spoke with Bryan Quoc Le, a food scientist and founder of **Mendocino Food Consulting**. “There’s a phenomenon in sensory science known as cross-modal perception or sensory processing,” he said. “The basic idea is that our senses are interconnected within a processing unit in our brain, where information is converted into a form that other parts of the brain can more easily understand. The senses of taste and sound are closely linked, such that louder noises tend to suppress most taste perceptions. However, it is interesting to note that the perception of umami, or savoury taste, is actually enhanced.”

Also, learn how **Singapore Airlines recently collaborated with Sanjeev Kapoor** to elevate their in-flight dining.

The noise from the turbines, along with changes in pressure and moisture levels in an airplane cabin, can influence our taste and sound experiences. “As umami flavours are heightened in this environment, foods that are high in glutamic acid — the primary compound responsible for umami — can be more enjoyable. This is one reason why many people choose to drink tomato juice on airplanes, as it contains high levels of glutamic acid,” he added.

How are airlines, chefs, and caterers fighting this airplane food battle?



Image credit: Gia Tu Tran/Unsplash

To address the taste distortions that come with flying, many airlines and airport culinary teams are creating meals and drinks specifically designed to withstand the challenges of high altitude. “It’s true that our sense of taste changes during flights, which is why it’s crucial to get the seasoning right,” explained Justin Koen, Air New Zealand’s Head of Culinary. “In a natural environment, humidity levels can range from 50 to 80 percent. This can lead to dehydration and a dry mouth, making it more difficult to taste food. As a result, passengers often add extra salt for flavour, which only contributes to further dehydration.”

Also, read about some of the best off-menu **hacks to make your next long-haul flight easier**.

“At Air New Zealand, we focus on umami and rich flavours for our menu. Ingredients like shellfish, parmesan cheese, and tomatoes all have a strong enough flavour to penetrate the taste buds without loading in salt.”

While such ingredients help reach numbed taste buds, flavour elements of airplane food are equally important. “A little extra spice or acidity [also] helps wake up sleepy palates. Menus are tested in pressurised cabin simulators, and drinks are carefully paired to ensure the aroma and finish still come through. Even the texture and reheating processes are engineered with precision,” shared Mayank Prasad, Founder of **Curated Catering By Design**.

What about the wine menu?

Schubach Aviation, a bi-coastal private jet charter company, has collaborated with Michelin-recognised chef Brian Redzikowski on its in-flight dining experience and turned to Advanced Sommelier Lisa Redwine to curate the perfect pairings for cruising altitude. “When selecting wines for a flight or to pair with an in-flight menu, it’s essential to consider how the unique environmental factors of flying, such as the dry air, lower cabin pressure and altitude, can affect both the perception of aromas and the overall drinking experience,” Redwine said.

In flight, the dry atmosphere dulls olfactory sensitivity, which in turn mutes both aroma and flavour. The reduced air pressure also alters how we perceive acidity and tannins, two structural elements that are crucial to a wine’s balance. As Redwine explained, this can make some wines, particularly full-bodied reds, taste overly harsh.

To counter this, she opts for wines with bright acidity and expressive aromatic profiles, which tend to hold up better in the cabin’s pressurised environment. Red wines are particularly tricky, she noted. “Highly tannic reds, such as Napa Cabernet Sauvignon or Italian Barolo, tend to lose their complexity in the sky, with the tannins becoming overly harsh and the fruit flavours muted,” she said.

Instead, Redwine leans toward lighter-bodied reds with soft tannins and more noticeable acidity.

But if there’s one varietal she considers foolproof at altitude, it’s sparkling wine. “The effervescence and texture of the wine is magnified in the dry environment of the flying experience,” she said. “Sparkling wines also pair effortlessly with a wide range of in-flight menu selections.”