

Ch 5

# A Matter of Taste

## Are you a supertaster? Just stick out your tongue and say "yuck".

MARY BECKMAN

**T**here's good taste, and according to scientists, there's supertaste. Blue food coloring is going to tell me where I lie on the continuum. Armed with a bottle of blue dye No. 1 and a Q-tip, I paint my tongue cobalt, swish some water in my mouth and spit into the bathroom sink. In the mirror I see a smattering of pink bumps—each hiding as many as 15 taste buds apiece—against the lurid blue background. Now I'm supposed to count how many of those bumps, called fungiform papillae, appear inside a circle a quarter-inch in diameter, but I don't need to do that. Obviously, I have fewer than the 30 that would qualify me as having an extraordinary palate. I am not a supertaster. Thank goodness.

Normally, people prize highly acute senses. We brag about twenty-twenty vision or the ability to eavesdrop on whispers from across the room. But taste is not so simple: supertaste may be too much of a good thing, causing those who have it to avoid bitter compounds and find some spicy foods too hot to handle. This unusual corner of perception science has been explored by Linda Bartoshuk of Yale University, who first stumbled upon supertasting about 15 years ago while studying saccharin. While most people found the sugar substitute sweet and palatable, others sensed a bitter aftertaste. She went on to test hundreds of volunteers with a host of chemicals found in food. About one in four, she discovered, qualified as supertasters, a name she coined.

To find what made them special, Bartoshuk zeroed in on the tongue's anatomy. She found that people have different numbers of fungiform papillae, with tongue topography ranging from, say, sparse cactus-pocked deserts to lush lawns. To qualify for supertasterdom, which is a genetically inherited trait, a person has to have wall-to-wall papillae on his or her tongue and also have an ability to readily taste PROP, a bitter synthetic compound also known as 6-n-propylthiouracil, which is used as a thyroid medication.

As it happens, Bartoshuk is a non-taster—she's among another one in four who can't detect PROP at all—and likes it that way. "I prefer the dumb, happy life I lead," she says. "'Super' connotes superiority, but supertaste often means sensory unpleasantness." In the course of her research she has relied on volunteers and colleagues to perceive what she

cannot, such as the difference in creaminess between skim and 2 percent milk. "PROP tastes like quinine," says Laurie Lucchina, a supertaster who made this discovery about ten years ago when she worked with Bartoshuk. Another person in the lab, Valerie Duffy, now at the University of Connecticut, is a medium taster. Bartoshuk routinely tested "the junk food of the month," sent to the lab through a food subscription service, on the two women. "Once she brought in a cookie that she thought was very bland. But to me, it tasted just right," recalls Lucchina.

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### "Mother's milk reflects the culture into which babies are born."

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Perhaps not surprisingly, supersensitive taste influences what people eat. Bartoshuk and other researchers found that supertasters tend to shun or restrict strong-flavored foods and drinks—coffee, frosted cake, greasy barbecued ribs, hoppy hand-crafted ales. Also, supertasters tend to crave neither fats nor sugars, which probably helps explain why researchers have found that supertasters also tend to be slimmer than people without the sensitivity. When it comes to rich desserts, Lucchina says, "I usually eat just a bite or two and then I'm done."

Taste sensitivity may also affect health. According to recent studies, supertasters have better cholesterol profiles than the norm, helping reduce their risk of heart disease. Yet supertasting may also have a downside. Some scientists have speculated that supertasters don't eat enough bitter vegetables, which are believed to protect against various types of cancer. And in a still-preliminary study of 250 men by Bartoshuk and co-workers, nontasters had fewer colon polyps, a risk factor for colon cancer, than did medium tasters or supertasters. To be sure, not everyone is convinced that supertasters put themselves in harm's way by skipping on vegetables. Adam Drewnowski, a nutrition scientist at the University of Washington, says a dollop of butter or maybe a splash of cheese sauce may be all a supertaster needs to find spinach or broccoli palatable. Still, the new data intrigue medical researchers, who don't usually consider taste an inherited factor in disease risk.

## ANNUAL EDITIONS

Of course, there's more to satisfaction than meets the tongue. Flavors are a combination of taste and odors, which float up through the back of our mouths to activate a suite of smell receptors in the nose. (Hold your nose while tasting a jellybean. You can tell it's sweet but not what flavor it is. Then unplug your nose. See?) Each smell tingles a different constellation of neurons in the brain, and with experience we learn what these different patterns mean—it's bacon sizzling in the kitchen, not liver. Nature may dictate whether or not we're supertasters, but it's nurture that shapes most of our food preferences.

And taste training starts earlier than one might think—during breast-feeding or even in the womb, according to biopsychologist Julie Mennella of the Monell Chemical Senses Center in Philadelphia. She asked pregnant women and breast-feeding mothers to drink carrot juice for three weeks. In both cases, when it came time to switch to solid food, babies of these mothers liked carrots better than babies whose mothers never drank the stuff. "These are the first ways they learn what foods are safe," Mennella says. "Mother's milk reflects the culture into which babies are born."

Learning can even trump innate good sense, according to a study Mennella reported this past April. She found that 7-month-old babies normally disliked bitter and sour flavors,

and when given a bottle with a slightly bitter, sour formula, they pushed it away and wrinkled their angelic faces in disgust. But 7-month-olds who had been introduced to the bitter formula months earlier happily drank it again. In another study of babies who'd never been fed carrots, she found that those who'd been exposed to a variety of other vegetables clearly enjoyed carrots more than did babies who'd dined on a more monotonous diet. She suggests that early exposure to a diversity of flavors enables babies to trust new foods later in life. "Clearly experience is a factor in developing food habits," says Mennella. "But we don't know how that interacts with genetics."

Beyond genes and even learning lies a more ineffable aspect of taste: its emotional content. Certain foods can bring back unpleasant experiences; it may take only one rotten hot dog to put you off franks for life. Other tastes unlock happy memories. To an extent that researchers are still trying to understand, learning which foods are safe to eat while in the security of mother's arms may be the source of some of our most enduring desires. This learning process could be, Mennella says, "one of the foundations of how we define what is a comfort food."

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