

WHY
YOU EAT
WHAT
YOU EAT

THE SCIENCE BEHIND
OUR RELATIONSHIP WITH FOOD

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THE FAB FOUR

The very first life forms on this planet had what we might call a sense of taste—the ability to recognize chemicals in their environment so as to know whether a little tidbit would be nutritious, and to stay away from other tidbits that might want to devour it. Taste and smell—the chemical senses—were the first senses to evolve. And taste is everywhere. Moths have taste receptors on their wings. Flies have taste receptors on their knees. Tarantulas taste with their feet. Octopuses taste with their whole body—even their eyelids. We humans have taste receptors all over us as well.

We have taste receptors in our pancreas, liver, and—if you're a man—testicles. We have taste receptors in our lungs that, when we inhale something noxious, send a signal to the brain to make us cough, so as to expel what shouldn't be in there. We have taste receptors in our nose that help fight infections, and taste receptors in our gut that influence our perception of food. The taste receptors in our gut also tell the brain whether we should keep eating an ice cream sundae or a cheeseburger, and when to stop, and it is believed that disturbances in the signal-

TASTY

One day in 1752, for reasons that remain a mystery, the Swiss mathematician Johann Georg Sulzer decided that it would be a good idea to put the tip of his tongue between two plates of different metals whose edges were in contact. The result was electrifying. Sulzer not only discovered how to make an electrolytic battery (the main innovation for which he is credited), he was also probably the first person to experience electro-gustation—electric taste.¹ Beyond the canonical four basic tastes, at least twenty other mouth sensations—including electric, metallic, and soapy—are vying for taste status, “basic” or otherwise. This chapter is about the most important of the “other” taste sensations: four feelings that we routinely experience while eating that play a critical role in our responses to and perception of food, as well as the health and characteristics of our mind and body. They are the special sensations of umami, fat, calcium, and spiciness.

FOLLOW YOUR NOSE

When Stan regained consciousness under the glaring lights of the hospital room after being run over not once, but twice, by a pickup truck with a murderously vengeful ex-employee at the wheel, he didn't know that he had lost his sense of smell for life.¹ In fact, he wouldn't completely figure that out for several weeks. What's more, he never would have believed that this seemingly trivial deficit would utterly derail his life, and that among other things he would gain over 100 pounds in just two years as a result of not being able to smell. The year was 2006; by 2008 his marriage was on the rocks and he weighed nearly 350 pounds. Today Stan is divorced and obese.

I got to know Stan when I was an expert witness in his lawsuit against the pickup driver's insurance company. The crux of this type of personal injury case is that an insurance company is denying meaningful financial remuneration, while the person who can no longer smell has had their life shattered by the loss of this never-before-appreciated sense. Research from

FOOD FIGHT

Some people don't like to eat. Barring a hunger strike, lack of desire to eat is usually for one of two reasons: either you can't stand food, or you can't stand what food does to you. Most people who avoid food fall into the latter camp. But there are those who find food and eating repulsive, and this is especially serious if they are under the age of twelve.

AVOIDANT/RESTRICTIVE FOOD INTAKE DISORDER

Gabriel is not sure how he survived after he turned three. "It was as if my mouth and throat would not let me swallow," he explained. Nearly all food aromas made him gag, and if the aroma did, so did the food. He was also extremely fussy about texture. Runny, wet, and mushy foods were impossible for him. Food needed to have a crunch—he had to hear his bite—in order for him to tolerate it. The few foods he ate also had to look a certain way. The only vegetable he could abide, corn, had to be on the cob. If the niblets were cut off he would push his plate

EYE CANDY

A Chinese proverb says that you eat first with your eyes, then with your nose, and then with your mouth. Before a grilled cheese sandwich is close enough to smell, the sight of the melted cheese dripping down the sides of thick artisanal bread toasted a perfect golden hue literally makes you salivate and triggers the release of various peptides required for digestion. Insulin levels spike as you scan the melty magnificence and your body readies itself to receive. Your eyes begin the process of digestion before food ever touches your lips. And beyond setting the physiological stage for consumption, devouring with our eyes makes us want to devour with our mouth too.

Seeing food makes us want to eat. In a devious test of visual food seduction, when thirty Hershey's Kisses were placed on office workers' desks in clear jars they ate 46 percent more Kisses than they did when the Kisses were in opaque jars. Likewise, when sandwich quarters were wrapped in transparent cellophane people ate substantially more than when they were given the same sandwiches in nontransparent wrap.¹ The sight of food is a constant lure, and when you see a treat right in front

THE SOUND AND THE FEELING

There is a famous Michelin three-star restaurant in Bray, England, called the Fat Duck. The Fat Duck is in a class of restaurants that practice the art of molecular gastronomy. At the frontier of epicurean adventures, molecular gastronomy investigates the chemical and physical transformations of ingredients that occur in cooking, and exploits these physical manipulations along with artistic, technical, and environmental strategies to subvert diners' expectations and startle their senses.

In addition to visual illusions and verbal ruses such as dishes with names like "sea scallop, coffee, cauliflower, orange,"¹ sounds have been employed to augment the sensory experience. The Fat Duck is famous for introducing a dish called Sound of the Sea that is served along with an iPod hidden in a conch shell, with trailing earbuds that one is instructed to insert while eating. The iPod plays the sound of waves lapping on a shore with a seagull squawking overhead, and the dish looks like a sandy beach that kelp and shells have washed over. Apart from the iPod garnish, everything in this elaborate concoction

MIND OVER MUNCHIES

Do you want to know the secret to self-control at an all-you-can-eat-buffet? Sit as far from the buffet as possible. The difference in ease of access need only be minor, but the easier food is to reach the more likely it is to end up in your mouth. Research has shown that people seated closer to the dessert station in a cafeteria are more likely to eat dessert than those who are seated farther away. People eat more ice cream if the lid on an ice cream cooler is left open. They drink more milk when the milk dispenser is closer to where they are sitting, and they pour themselves more water when a water pitcher is on their table. These effects don't occur only when we're in a dining setting; they happen at work, too. Office workers who had Hershey's Kisses on their desks ate approximately six more chocolates per day compared to when the Kisses were 6.5 feet away and they had to get up in order to reach them.¹ There's no doubt about it: the shorter the distance between us and food, the more of it we eat.

The number of food items we see also influences how much we eat, and we eat more when we see more. In a study published in the *Journal of Consumer Research*, it was found that people

ARE YOU FULL YET?

When I was growing up in Montreal one of my best friends was Chinese, and I remember how she would complain about going to Chinese restaurants all the time in addition to always having to eat Chinese food at home. Wishing for some culinary assimilation, my friend and her siblings often begged to go out for Canadian food, and occasionally they would get their way and the family would go for dinner at Le Chalet BBQ, a Montreal chain of chicken eateries one step up from KFC. What I also remember, because it was so startling to me, is how my friend would tell me that her father always grumbled that he “never felt full” after eating those Canadian meals—and that in fact he never felt full unless he ate rice. But what about the classic refrain non-Asians like to spout about an hour after eating Chinese food: “I’m hungry again!” Didn’t they eat enough rice? Why are some foods satiating and other foods not? Any why wouldn’t they be the same for everybody?

In spite of the fact that for most of human history feeling full was the goal driving each day, research into what foods satisfy

COMFORT FOOD

On the night of November 8, 2016, more than 71 million Americans were glued to their television screens.¹ As the worst fears of more than half of the country began to become reality, fast food establishments across the nation saw their cash registers go into overdrive. In lockstep with the Electoral College upset that was to make Donald Trump the forty-fifth president of the United States, online food delivery companies such as GrubHub, DoorDash, Postmates, and Caviar were also seeing orders spike, with high-carb, fatty foods being the most popular. Caviar, which is popular in New York, Seattle, Dallas, and Philadelphia, among other major cities, reported an increase of 115 percent in tacos and related dishes, and DoorDash, which delivers in many metropolitan areas including Atlanta, Nashville, and Minneapolis, saw a 79 percent increase in cupcakes and a 46 percent increase in pizza orders on election night. Alcohol sales also went through the roof, with a 90 percent increase in liquor store orders reported on November 8.²

Olivia Kenwell, a bartender at a popular bar on New York's

BUYING INDULGENCES

Sons of Anarchy star Danny Trejo looks like an ax murderer in leathers as he plays a transmogrified Marcia Brady time-traveling to stand in front of Mom and Dad Brady, who are sitting on their living room sofa circa 1973. Marcia growls that Peter has hit her in the nose with a football and now she can't go to the dance—whacking the coffee table with her ax for emphasis. Mom calmly tells Marcia to have a Snickers bar because she's hostile when she's hungry. Marcia tears off the wrapper like an ogre, but one bite transforms her into the silken-haired Marcia Brady of yore, smiling and completely recovered. Cut to Steve Buscemi standing at the top of the staircase intoning, "Marcia, Marcia, Marcia." We then hear Mom's voice respond, "Jan, this isn't about you," to which Steve replies, "It never is!" as he storms off per Jan's famous meltdown.

This thirty-second ad cost 4.5 million dollars and first aired during Super Bowl 2015. Snickers is the most popular candy bar in the U.S. and its "you're not yourself, when you're hungry" advertising campaign was a huge hit. Mars, the company that

FOOD IS LOVE

It is Christmas at Stan's house ten months after the pickup truck attack and his children are visiting with their respective partners and broods. Stan's marriage is not yet on the rocks and he is looking forward to the feast that his wife, Charlene, has spent days preparing. Charlene has fixed a special surprise for their son Tim—something she hasn't made in decades, maple sweet potato casserole with apricots—and she's hoping Stan will appreciate it too, as the first time she made it for him was in the rustic cabin they barely left during their honeymoon.

When the family has finally gathered at the table, Charlene puts the casserole down in front of Tim. "Is this what I think it is?" he asks, full of excitement. "Yup—go ahead and dig in," Charlene replies proudly. Tim takes a big scoop and then a big bite and closes his eyes. "I can't believe it. It's like I'm five years old back at that Christmas when you bought me those goofy boots—what were they . . .?" Tim stares at the floor for a second and then, inhaling, looks up. "Oh yeah—those crazy moon shoes." Tim starts to laugh. "I nearly killed myself wearing