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theme or topic

ARE THESE CHIPS TOO DELICIOUS?

Scientists know the secrets of making food taste great. **But all this yumminess might be bad for our health.** **BY LAUREN TARSHIS**

NOW

They work in top-secret laboratories. They are forbidden to speak of their experiments. Their discoveries can be worth millions of dollars, and often have the power to change the lives of people around the world—including yours.

Are these highly trained scientists working on a cure for a deadly disease? A terrifying new weapon? Nope. Their creations are right in front of you—in that fruit juice you’re sipping and in those salty chips you’re munching. These men and women are “flavorists,” scientists who devote their lives to making food taste delicious. They are experts at concocting flavors you will love, whether it’s a **lip-smacking** berry for a sports drink or a **mouth-watering** chili-cheese coating for a pretzel.

To work their magic, flavorists use thousands of chemicals, oils, extracts, and other substances. Some chemicals are natural, extracted from plants and animal products. Others are synthetic (produced artificially). Even a seemingly simple flavor, like the strawberry in a milkshake, may contain 50 chemicals.

From Fresh to Tasteless

The modern flavor industry got its start in the 1950s, when American eating habits made a drastic shift. It used to be that if you wanted a cookie, your mom had to bake it for you, or you had to make a trip to your corner bakery. If you wanted fruits or veggies, you had to grow them yourself or buy them fresh from someone who did.

But a new technology would change everything: processing. Food that has been processed has been frozen, canned, or laced with chemicals called preservatives that keep it fresh on store shelves. Processing started in the 1800s, but it wasn’t until the 1940s that Americans began buying processed foods on a grand scale, thanks to expanded highways, booming agriculture, and refrigerated trucks.

Americans loved the convenience. Unfortunately,

processing killed flavor. The goal of the first food flavorists was to make processed foods taste even halfway as good as fresh.

Today, 90 percent of the foods we eat are processed. Flavorists still strive to make these foods taste good. They’re also inventing new flavors. They scour the globe for inspiration, bringing exotic tastes to America (two recent hits: chipotle peppers from Mexico and acai berries from Brazil). They also dream up unexpected flavors for familiar products. (Have you tried Lay’s Chicken & Waffles potato chips? Neither have we.)



Slimy Pink Blob

Perfecting a new taste can take years of experimentation in the lab. A successful flavor—a tangy citrus for gum, a **piquant** powder for the next flavor of Doritos—can earn millions for the company that creates it. No wonder flavor companies guard their formulas as prized treasures.

But what exactly makes a flavor a success? Why do we love certain flavors and curl our lips at others?

To understand the answers, wander over to a mirror and stick out your tongue. That slimy pink blob is actually an incredibly sophisticated instrument, packed with tiny flavor-detecting taste buds. Your 10,000 taste buds (they are on the insides of your cheeks as well as on your tongue) can sense five different flavors: sweet, sour, salty, bitter, and *umami*, which means savory.

Our power to detect flavors is a critical survival tool. Thousands of years ago, when our ancestors were hunting and gathering food in the wild, a quick taste could determine whether a



food was edible or deadly. A bitter berry? It will kill you! That sour hunk of buffalo meat? Bleh, it's rotten!

Our tongues, however, play only a small role in how we experience flavor. Ever wonder why food tastes bland when you have a stuffy nose? It's because your tongue is pretty lost without your nose. Sure, the tongue can tell the difference between something sweet and something bitter, but it's the complex interplay between aroma and taste that tells your brain whether that **delectable** ice cream you're eating is chocolate or vanilla. In fact, about 85 percent of what we perceive as taste we actually sense through smell.

Burst of Flavor

If flavorists understand the intricacies of taste, then food companies understand which tastes will translate

into a best-selling product. They know because they spend big bucks studying us. They analyze our diets, question us in small focus groups, examine our buying habits, and hire experts in human behavior. Through such research, food companies have found that the most successful products “pop” in the mouth, with a burst of flavor that quickly fades, leaving the brain wanting more. They have also discovered that texture—the buttery softness of a cookie, the delightful ooze of cheese on a pizza—is just as important as flavor. In fact, food companies are armed with detailed knowledge of exactly how we prefer nearly everything, from how much crunch we want in our chips to how thick we like our doughnut glaze. All this data enables companies to make foods that are seriously **scrumptious**.

But is it possible that some foods are *too* delicious? Many of the foods we most love are the least healthy—potato and corn chips loaded with fat and salt, and cookies, yogurts, and drinks packed with sugar.

Some experts believe food companies are deliberately creating foods that are hard—indeed, almost impossible—to resist. Studies have shown that certain textures combined with just the right flavor short-circuit our body's system for signaling when we're full. So we just keep eating . . . and eating and eating. This means more money for food companies—and health problems like obesity and diabetes for us.

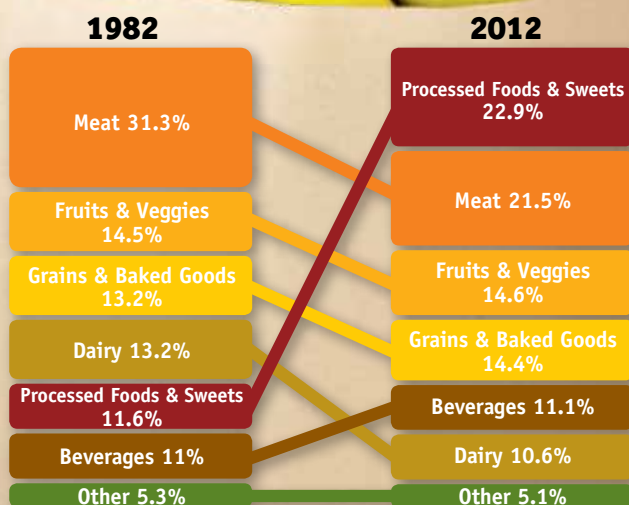
Most food companies dismiss this criticism. They insist they're just making foods that taste great. Isn't it up to us to know when we've had enough?

Of course it is.

This bag of chips we've been eating? We know we should put it away. We've eaten way too many already.

But they're so delicious!

Maybe we'll have just a few more. ●



SOURCE: BUREAU OF LABOR STATISTICS

THEN

A BLOODY HISTORY

How the quest for spices led to exploration—and murder.



Until the 1700s, one of the most valuable items in Europe may have been the homely brown seed of the nutmeg tree. Peppercorns and cloves were worth almost as much.

These spices were so costly that a few handfuls could make a person exceedingly rich. Explorers crossed oceans searching for them. Bloody battles were fought over the far-off islands where these spices grew.

Humans have always sought ways to make their foods more **appetizing**, but it wasn't just for their heavenly tastes and smells that certain spices were prized. Before the era of refrigeration, food spoilage was a major problem. Meat had to be eaten within days of an animal's slaughter, or else it had to be dried in the sun or cured with salt. Spices such as nutmeg and cloves were added to cured meats to mask their often stomach-turning flavor. By the 1400s, many people had come to believe these spices had additional powers; some even believed that nutmeg could protect against the dreaded plague known as the Black Death.

But most Europeans had no idea where these spices came from. The Middle Eastern and Asian traders who brought spices to Europe refused to reveal where they procured the seasonings. By keeping their sources

secret, they maintained control of the spice trade and could charge exorbitant prices to European customers.

Among European leaders and explorers, finding the "spice islands" became an obsession. Christopher Columbus tried and failed in the late 1400s. A few years later, the Portuguese explorer Vasco De Gama navigated a route to the west coast of India, which gave Portugal control of the lucrative peppercorn trade. Finally, in the early 1500s, Europeans discovered the one place on

Earth where nutmeg trees grew: the Moluccas, a string of tiny Pacific islands 600 miles north of Australia.

The Portuguese landed there first. Explorers from England and Holland soon followed. Over the next 150 years, these countries fought for control of the spice trade. They massacred natives on the islands and captured each other's ships, murdering the captains.

Demand for spices continued to grow. By the 1700s, though, people had figured out how to grow spices in more convenient locations. Prices fell and the spice wars came to an end. Today, few people have heard of the Moluccas. Biting into a piece of nutmeg-spiced pumpkin pie, you may find it hard to believe that something so delightful has such a violent history. ●

There is some truth to this. Nutmeg may have repelled fleas, which carried plague.

WRITING CONTEST

In two paragraphs, compare the early spice trade to the modern flavor industry. What is similar? What is different? Be sure to use text evidence. Send your paragraphs to **SPICE CONTEST**. Five winners will each receive *Cold Cereal* by Adam Rex.

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