Hooked

What’s in it for me? Understanding the true cost of eating cheap fast food.

How much control do you have over what you eat? When you visit a fast-food restaurant on your way home from work, do you choose to buy that greasy burger – or are you being manipulated by some hidden force? The answer might surprise and disturb you. These blinks take you deep into human psychology, to uncover why, and how, we came to love fast food. From sugary cereal to variety packs of potato chips to microwave convenience meals, you’ll discover the intoxicating effects of fast food on your brain, and discover the true price we’ve paid for putting our family’s health in the hands of the food industry. In these blinks, you’ll learn

what sugar has in common with alcohol and cigarettes; how a childhood junk food habit turns into adult obesity; and why a calorie isn’t a calorie.

Science is just beginning to understand how our brains respond to food.

Yale graduate student Ashley Gearhardt was studying our relationship with food in 2007. And when she invited people to her laboratory to talk about food, she made a remarkable discovery. The stories people told sounded incredibly similar to those told by people addicted to drugs or alcohol. They talked about powerful cravings and how impossible it seemed to give up eating certain foods. They even spoke of dropping out of their social lives to try and get away from the foods they craved. Here’s the key message: Science is just beginning to understand how our brains respond to food. Gearhardt decided to run some tests. She put together a survey that asked respondents whether they agreed with statements like “I eat much more of certain foods than I planned” and “I feel sad or nervous when I stop eating certain foods.” Ultimately, Gearhardt concluded that a whopping 15 percent of the American population met the criteria for being addicted to food. What’s more, most of them were severely addicted. These people were overconsuming certain types of food and were losing control. They couldn't stop eating – even when they wanted to. But what kinds of foods are people addicted to? By putting participants into an MRI scanner, researchers have been able to study our brain activity when we taste our favorite foods. Incredibly, when some people taste their favorite fast foods, such as cheeseburgers, fried chicken, and ice cream, their brains show a pattern of activity that’s typically associated with taking cocaine. Scientists have concluded that some people’s brains respond in the same way to junk food as they would to addictive drugs. In both cases, their brains shout “This is good, I want more!” Of course, many of us eat junk food from time to time, and most don’t lose control over how much of it we eat. So doesn’t that prove that it’s not addictive? Well, the fact that most of us can eat this food without becoming addicted doesn’t matter. In fact, a useful definition of addiction is that it's a repetitive behavior that some people find hard to stop. The key here is some people. In the same way that most people who drink alcohol or occasionally use recreational drugs aren't addicted to them, most people who eat processed food aren't addicted to it either. All that matters is that some people do become addicted, making certain foods, just like alcohol, tobacco, and cocaine, potentially addictive.

Your brain controls your appetite but addiction can control your brain.

For many years, scientists and gastronomes the world over assumed that our appetites were controlled by our stomachs. When our stomachs were full, we felt full, and when our stomachs were empty, we felt hungry again. But in recent years, scientists have discovered that appetite is controlled by our brains rather than our stomachs. This discovery has been in part thanks to the rise of bariatric surgery, a medical procedure that reduces the size of an obese person's stomach. After this surgery, patients can only consume very small amounts of food at a time, because their stomachs are so reduced. What's more, their appetite is drastically diminished, too. This seems to indicate that appetite control is located in the stomach. But here's the thing: this reduction in appetite doesn't last long. This is the key message: Your brain controls your appetite but addiction can control your brain. After about a year, many bariatric patients start to regain the large appetites they had before the surgery, even though their stomachs are still just as small and get full very quickly. This can lead to devastating consequences: with their returning appetite, some patients eat until their reduced stomachs become engorged – or even burst. This disturbing phenomenon has led scientists to conclude that hunger is, in fact, all in the mind. As one relapsed patient remarked, "the problem is that they only operated on my stomach, not my brain." This revelation firmly supports the idea that food can be addictive; given addiction is something that happens in the brain. Specifically, scientists believe that addiction hinges on how fast a substance can get into your bloodstream and travel to your brain. The quicker a substance can travel, the more addictive it is. For instance, the reason tobacco gets us hooked is that it takes just ten seconds from your first puff on a cigarette for the nicotine to affect your brain. Disturbingly, sugar, salt, and fat – the hallmarks of processed foods – only take about half a second to start affecting your brain. So when you put something sweet on your tongue, like your favorite ice cream or donut, the sugar changes your brain chemistry 20 times faster than both tobacco and crack cocaine. The sheer speed at which sugar, salt, and fat reach your brain is enough to excite your neurons and leave you craving more.

Your childhood eating habits are still affecting you today.

Many people have fond childhood memories of eating processed foods. The author remembers joyfully pouring sugar on his Cap'n Crunch breakfast cereal and feasting on frosted Pop-Tarts after school. Although these memories might seem innocent, they play a major role in keeping you hooked on processed foods throughout your adult life. The reason for this goes back to how your brain is wired. When you have an exciting or stimulating experience, your brain creates a permanent memory of it. That memory is stored as a neural pathway; a physical connection between two neurons in your brain. Every time you have that experience again, or even think about it, the neural pathway is strengthened. This makes it easier for you to think about that memory in the future. The key message here is this: Your childhood eating habits are still affecting you today. These neural pathways are a bit like riverbeds: every time water flows over it, the riverbed is carved deeper into the rock. When you eat processed food, your brain becomes excited because of the high levels of sugar, salt, and fat. So, if you had a lot of

experiences eating processed food as a kid, then you've already established neural pathways in your brain that make it easy for you to think about junk food, and to remember how good it tastes. What's more, the memories you make as a child or adolescent seem to be easier to remember in general. This means that when you drive past a billboard advertising, say, McDonald's, your brain will become excited by all your childhood memories of eating "happy" meals. Before you know it, you might find yourself turning off to pick up a burger and fries. On the other hand, if you didn't really eat junk food as a kid, then this sign won't have any particular effect on you – you simply don't have neural pathways associating McDonald's with comfort, or pleasure, or family fun. Harkening back to our riverbed metaphor – you can think of the McDonald's billboard like a rain cloud. If it rains on an existing riverbed, the water will all be channeled in one direction, and may even cause a flood hundreds of miles downstream. In other words, even though you ate McDonald's in the distant past, it may still have the power to sweep you up and carry you through its doors today. But if that riverbed doesn't exist, then the water can't be channeled, and there's no risk of flood.

You've evolved to enjoy a wide variety of high-calorie foods.

Why do so many of us find potato chips irresistible? What is it about these salty snacks that leads one bag so often to become two, or three, or more? To find out, we'll need to journey back to the dawn of human evolution and look at the world of our ancestors. That world was one of extremes; the climate swung between very hot and very cold. In order to survive, our ancestors evolved to eat and enjoy a wide variety of foods – everything from meat and fish to fruit, roots, leaves, and nuts. This ability to tolerate variety meant we could eat the plants and animals that thrived in the hot weather, as well as those available in colder climes. The key message here is: You've evolved to enjoy a wide variety of high-calorie foods. But while this love for variety served our ancestors well, today it's encouraging us to overeat. Picture, for instance, the potato chip aisle in your local grocery store. There aren't just two or even three varieties, there are dozens. You can choose from BBQ, salt and vinegar, sour cream, cheddar cheese, bacon . . . you get the idea. Faced with this dizzying range, the ancient part of your brain finds it difficult to resist. There's another way our evolutionary biology works against us, too. But it's not our brains that betray us this time, it's our stomachs. Our ancestors ate a lot of starchy tubers. This food was good for them; the tubers were dense in calories and gave them the large amounts of energy they needed to survive in their harsh environment. But this food also didn't have a lot of flavor. This posed a problem; our ancestors needed to like and want to eat the calorie-rich tubers, even though they didn't taste very good. So evolution came up with a clever adaptation. Our ancestors' stomachs evolved to recognize high-calorie foods and to signal to their brains that this type of food was good. So even though a starchy tuber might not taste so good when our ancestors were munching it, when it hit their stomachs, they realized that they liked it and wanted to eat more. This adaptation is still with us today, and your stomach is programmed to like calorie-dense foods. That's partly why processed foods like four-cheese pizzas and double-stuff Oreos are so pleasurable to eat. It's not just that they taste good in your mouth, they taste good in your stomach too, purely because they're so dense in calories.

Modern families have turned to

unhealthy food that’s quick to prepare.

The processed food industry not only exploits our evolutionary biology to sell us its products, it also exploits our lifestyles. In recent decades our lifestyles have changed dramatically, and processed food makers have seized on this tantalizing opportunity. One of our biggest lifestyle shifts has been a change in gender roles. From the late 1950s onward, the role of American women began to change. In the late 1950s, just over a third of women worked outside the home, but by 2013, that number had increased to over three-quarters. While this represents progress for gender equality, and greater economic prosperity for all, it also left families with much less time to plan, shop, and cook for their meals. Here’s the key message: Modern families have turned to unhealthy food that’s quick to prepare. Enter the processed food industry and its new solution to this problem: convenience foods. These foods took all the work out of food preparation. Whereas before, parents had to decide how much sugar to put on their child’s cereal, or how much salt and fat went into their salad dressing, the food industry now stepped in to take those decisions out of their hands. Everything, from cereal to sodas to your complete family dinner, suddenly came ready-made, and heavily salted or presweetened. So, there was a catch. When busy American families tucked into their conveniently microwaved pizzas, or enchiladas, or pot pies, they didn’t know exactly what ingredients their new food contained. If they’d known, they might have been more cautious. Because instead of just adding sugar to things we expect to be sweet, like cereal and candy, the processed food industry also started adding it to everything else. In fact, food makers put sugar in three-quarters of the products in the grocery store, from bread to yogurt to pasta sauces. The reason they did this was simple: the sweeter something is, the harder it is to stop eating. That’s because our appetite is controlled by two distinct parts of our brains, which some neuroscientists call the go brain and the stop brain. The go brain encourages us to eat, whereas the stop brain kicks in when we’ve had enough. But the processed food industry has come up with a way to override this delicate system. It’s called the bliss point, and it describes the exact point at which a product becomes so sugary, and our brains get so excited by eating it, that our stop system is disabled. When this happens, we mindlessly eat, and eat, and eat.

Cutting calories in processed foods might not solve the problem.

In 2015, the processed food industry faced a formidable critic. Michelle Obama, the former first lady of the United States, publicly accused fast food of causing America’s childhood obesity crisis. She asked the industry to alter its products to make them healthier and less damaging. The industry’s response was to make some changes, but the question remains: did it change enough? Even before the former first lady’s intervention, processed food makers were trying to tweak their products and their unhealthy public image. Major food manufacturers like PepsiCo, Kelloggs, and Coca-Cola formed a group called the Healthy Weight Commitment Foundation and agreed to cut 1.5 trillion calories from their products. These weren’t empty words. Between 2007 and 2012, these manufacturers went from selling 60.4 trillion calories a year, to 54 trillion. But does lowering calories really reduce weight gain? Perhaps not. This is the key message: Cutting calories in processed foods might not solve the problem. In fact, evidence is now emerging that the relationship between processed food and weight gain is extremely complex. In 2019, a study published in the Journal of Cell Metabolism

suggested that it's not just the high calorie count in processed foods that causes us to gain weight, but something else, too. The study’s researchers discovered this by giving 20 participants a highly-processed diet for 14 days and then swapping them over to an unprocessed diet for the same amount of time. Importantly, the two diets contained the same amount of fat, sugar, salt, and calories. But even so, the participants still gained weight on the highly-processed diet. The researchers couldn’t say why the processed food diet had caused weight gain, but some scientists think they're starting to understand. Specifically, the problem may be that your digestive system cannot calculate how many calories there are in highly-processed foods. This might not sound like a big deal, but it is. Whenever you eat a meal, your stomach can accurately judge how many calories the meal contains. Your body then uses this information to decide how many to store as fat, and how many to burn off through your metabolism. So, if your body can’t calculate how many calories are in a meal, then your metabolism can’t function properly, and too many calories are stored as fat. So even though the processed food industry has cut the number of calories in its products, those products may still cause people to gain weight.

Final summary

The key message in these blinks: Processed food gets us hooked in lots of different ways. From childhood memories of enjoying junk to the sheer variety of sugar-packed products, it can be almost impossible for some people to make healthy choices. Families have come to rely on the convenience of ready-to-eat foods, but the disturbing truth is that these meals are a poor fit for our digestive systems. They’re making us, and our children, gain weight. Actionable advice: Take the fun out of junk food. Fast foods are made to manipulate our tastes, but there are some simple ways you can resist their allure. If you must have junk foods in your house, try taking them out of their fun, colorful packaging. You could put Oreo cookies into a cookie jar, for instance. Putting processed foods in plain packaging will make your brain less excited every time you catch a glimpse of them in your kitchen cupboard. Got feedback? We’d love to hear what you think about our content! Just drop an email to with Hooked as the subject line and share your thoughts!