

UNDER THE INFLUENCE

HOW EXTERNAL CUES MAKE US OVEREAT



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EXTERNAL CUES

Q: Why do people overeat?

A: We should be pretty well calibrated to know how much to eat to fill us up. We eat three times a day every day of our lives.

Yet when we asked people, "When was the last time you ate to the point of regretting it?" almost everyone could think of a time. Then we asked, "Why did you eat so much?"

What we found is that roughly 12 percent said, "I overate because of something emotional," or "I had a terrible day," or "I was feeling down," or "I was bored." About 51 percent said they overate because they were really hungry, and 37 percent said they overate because the food was spectacular.

So we asked ourselves what happens if the person is not hungry and the food is terrible. That led to our stale popcorn study.

Q: What did you test?

A: We gave people popcorn that was either fresh or five days old. The stale popcorn had been kept in a humidity-controlled entomology lab. On a scale of

1 to 10, people rated the taste a 3. It tasted like Styrofoam.

Q: And you gave moviegoers either medium or large bags?

A: Yes. And we gave them to people who had eaten dinner within 20 minutes of arriving at the theater. So we gave them bad food when they weren't hungry, and people ate 34 percent more from the bigger bucket. If the popcorn was fresh, they ate 45 percent more from the larger bags.

When people left, we said, "Gee, you ate 34 percent more. Do you think the size of the bucket had anything to do with it?" And to a person they said, "No, how could it?"

Q: Are big servings the only influence on how much we eat?

A: No. Very simple things have a tremendous influence not just on how much but on how frequently we eat.

We studied secretaries who had won an award for being great that year. We said, "Congratulations. We're going to give you all the candy you can eat for a month!"

So we put candies either on their desks or six feet from their desks in either a clear or an opaque bowl, and every day we refilled the candy dishes. And we found that a typical secretary on a typical day would eat about nine Hershey's Kisses—which is about 225 calories—if they were sitting on her desk.

But if we moved the candy dish six feet away, they ate only four candies—or about 125 fewer calories a day. Over the course of a year, that would translate into 11 to 12 pounds of extra weight they would gain by having the candy on the desk instead of six feet away.

We asked the secretaries if six feet was just too far to walk, but they said, "No, it's just that the six feet gave me pause to think, 'Am I really that hungry?'" And half the time, they said no.

Seeing the candies also made a difference. Secretaries who got a clear bowl averaged two more candies per day than

those who got an opaque bowl.

Q: What else influences people?

A: Names. A while back, someone who operated a healthy cafeteria called to say, "No one is eating in our cafeteria. What should we do?" So we simply changed the names of the foods they served.

Instead of Italian Pasta, we called it Succulent Tuscany Pasta. Or instead of Chocolate Cake, we called it Belgian Black Forest Cake, even though the Black Forest isn't in Belgium. Once we added a descriptive name, sales jumped by 27 percent. And it's not just *that* food. People rated the restaurant better and the chef more competent.

If you believe that something's going to taste good, you look for the qualities that confirm that. If you believe the milk is spoiled, you drink the milk looking for confirmation of that, too.

This has great implications for wine. If you buy cheap wine, you think it's going to be terrible.

Q: Does a person's reaction to one food affect others?

A: Yes. We had a big wine and cheese party for my grad students, and we found that if the wine tasted terrible, people rated the cheese served at stations with that wine as terrible also.

We wondered if the first thing people try has a poisoning—or halo—effect on everything the person tries. We had this restaurant on the University of Illinois campus called the Spice Box. Every Thursday people would come in and eat a *prix fixe* dinner. They thought they were trying new recipes, but we were actually doing studies on them.

One week we soaked all the labels off the wine bottles and replaced them with labels saying the wine was either from North Dakota or from California. They don't even make wine in North Dakota.

Q: And it wasn't the best wine?

A: It was all the same \$2 cabernet. And we found that if people thought it was from California, they rated the wine as

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better, they rated the food as better, they stayed at the restaurant about 10 minutes longer, and many of them made reservations to come back.

When we served them the North Dakota wine, it poisoned the entire meal. They didn't rate the food as good, they left 10 minutes earlier, and they didn't make reservations to come back. That's great news you can use if you have people for dinner parties. I find that if I'm running out of time, I will make sure that the first thing they eat is the best thing I'm cooking, because it has a halo on everything you eat. It's so powerful.

Interestingly, both groups drank the same amount of wine...which was all of it. It's free? Sure.

Q: Any other tips for cooking at home?

A: The power of expectation is immense. We did a study where we gave people a really good brownie on a napkin, a paper plate, or a really nice piece of Wedgwood china. And we asked what they thought of the brownie.

If they ate it on the napkin, they'd say, "Wow, this is really good." On a paper plate, they said, "This is really, really good." If they ate it off of Wedgwood china, they would say, "This is the greatest brownie I've eaten in my entire life." And the amount they were willing to pay for it tripled.

So when I'm having people over for dinner, if I put the nice china out and put a tablecloth on and candlelight, they'll think the dinner is more amazing and that I'm a more amazing cook than if I don't.

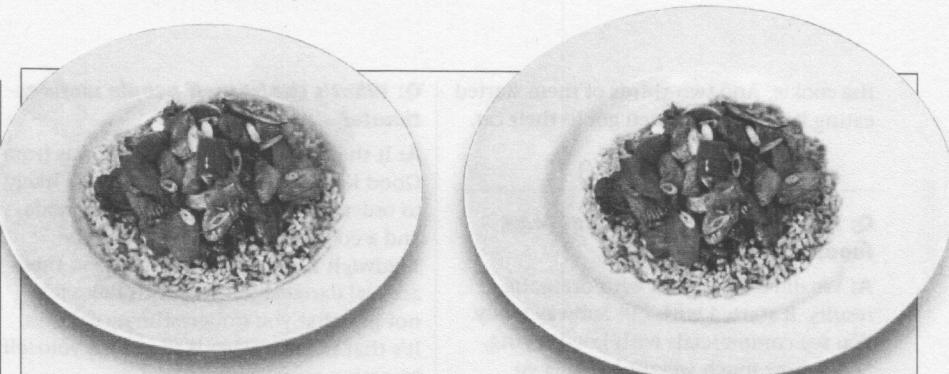
Q: If we leave the food on the table, do people eat more?

A: Guys eat about 29 percent more if you put the serving dish on the table instead of the counter. Women eat about 10 percent more if you put it on the table.

The primary reason is that guys eat very fast. They finish a meal, and then they impatiently watch while the rest of the family pokes at their food. So guys often have seconds and thirds. Women tend to eat a bit slower and are not as prone to going back for seconds and thirds.

Q: Weren't you also able to influence how quickly people ate?

A: Yes. We had people eat lunch sitting across from somebody who they believed was also part of a taste-testing study. They didn't realize that the other person was a researcher who was instructed to eat either 50 percent more slowly or 50 percent



SMALL IS BEAUTIFUL. These two plates contain the same amount of food. On the smaller plate it looks like more, so you're likely to eat less.

faster than the typical person would eat. We called it forks per minute.

We found that when someone was paired with someone eating faster, they ended up eating significantly more calories than if they ate alone. And when they were paired with someone eating slower, they ate fewer calories. There's this mimicry effect.

Q: And we're oblivious?

A: Yes. We did another study where we brought in people for this free buffet lunch. We found that if a woman was following another woman, the woman behind took, on average, a portion that mimicked—though not exactly—the serving taken by the woman in front.

Now, if a woman was following a guy, the person in front mattered less. How can you benchmark off a 240-pound guy who's wearing a baseball cap backwards? For guys, the person in front had no impact. Guys just fill their plate.

Q: Does it matter what the woman in front looks like?

A: No. We put the person ahead of the woman in line in a fat suit so she looked obese. You might think, "Gee, if you follow someone who's really heavy and they take a lot of food, you're probably going to take less because you'll see the consequences of eating too much."

No. If the person ahead in line is really heavy, the follower takes more. People seem to think, "I'm not that heavy, so I can afford to take a lot of food." The same thing happens if the server is in a fat suit. We also varied the attractiveness of the server, but that had no effect.

Q: Can't people tell when they're full?

A: Most people say, "Okay, all these little things around me might influence me

a little bit. But I know when I'm full. I know when to stop." So we asked ourselves, What happens if your plate never empties? Would you eat like the family dog until you threw up? So we brought in these refillable bowls.

Q: People couldn't see that the bowls refilled as they ate?

A: Right. And those who unknowingly ate out of the refillable soup bowl ate 73 percent more soup than others. When we asked them if they were full, they didn't rate themselves as more full than the other group. They'd say, "How can I be full? I have half a bowl of soup left."

Q: They relied on external cues?

A: Yes. The idea is that you count with your eyes, not your stomach. We did a similar study in Atlanta. We brought people into an all-you-can-eat buffalo wings restaurant.

We randomly assigned them to tables where the bones left from the eaten wings were either bussed or just kept building up on the table so you could see how much you'd taken.

We found that if the wings were taken away, people ate around 28 percent more. When the bones were gone, there was no visual evidence that they were there to begin with.

Q: So people kept eating?

A: Yes. And on the way out of the restaurant, we offered them all the chance to test a free 450-calorie skillet cookie. Only 15 percent of the people who had seen how many bones they had eaten took the huge cookie.

The other group not only ate more wings, but about 85 percent of them took

the cookie. And two-thirds of them started eating it before they even got to their car.

HEALTH HALO

Q: How did you discover that some foods have a health halo?

A: We did four studies with dramatic results. It started with our Subway study. You see commercials with Jared saying, "Look how much weight I lost." I go to Subway pretty regularly, and I'd see people asking for double cheese and mayo and other stuff. When I'd ask why they eat at Subway, they'd say, "I watch what I eat, and it's a healthy place to eat."

That led us to wonder who overeats more—someone who eats at a Subway or someone who eats at a burger place like McDonald's—especially if you define overeating as eating more calories than you think. So we did a number of studies.

One involved intercepting people who just finished dinner at a McDonald's or a Subway at a mall. And we found that the typical person leaving McDonald's was eating about 1,090 calories, but they thought they had eaten 880 calories, which isn't a bad guess.

In contrast, people leaving Subway believed they were eating about 495 calories, and they really averaged 680 calories.

Q: So the McDonald's eaters underestimated their calories by 19 percent, but the Subway eaters underestimated by 27 percent?

A: Yes. Because of Subway's health halo, they underestimated the calories in the sandwich, they didn't count the extra cheese or mayo, and it led them to think that the chips are healthier. The Subway eaters thought they were being virtuous and they weren't.

Q: What other foods have a halo?

A: A health halo permeates a lot of our food decisions. I just had a dissertation defense for a student who found that if people were given a food labeled "organic," they estimated the calories as 15 to 20 percent lower than if the food wasn't called organic.

In another study, we gave people an Italian sandwich and a menu showing that it was either from Jim's Hearty Sandwich Shop or Good Karma Healthy Foods. If they thought it was from Good Karma, they estimated the calories as 24 percent lower than if they thought it was from Jim's.

Q: What's the harm if people underestimate?

A: If they thought the sandwich was from Good Karma, they were much more likely to order potato chips, a full-calorie soda, and a cookie with the meal. And the sandwich itself had 660 calories. So there are real dangers to the health halo. It's not just that you underestimate calories. It's that the next step is to reward yourself by eating even more.

Q: What else creates a halo?

A: We did another study about the low-fat loophole. We invited people to watch a movie in an art house, and afterwards, we offered them some snacks. We labeled a low-fat trail mix as either "low-fat" or "regular." We did the same with regular M&M's.

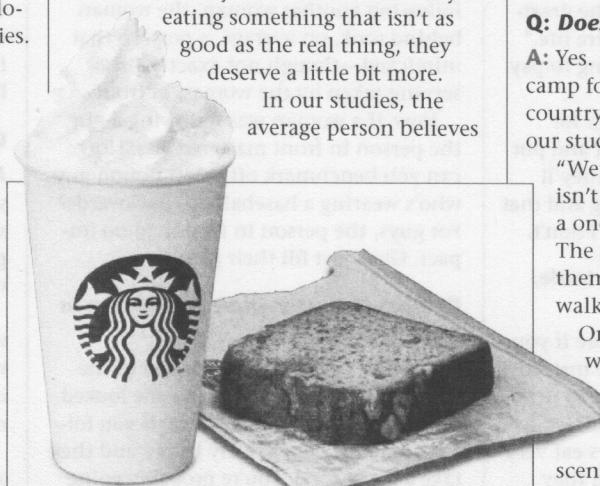
We found that if you give people a food that they think is low-fat, they eat 21 to 46 percent more calories, even if they rate the food as tasting worse or even if it's the exact same food as the regular version.

Q: Why?

A: One reason is that people estimate the food to be lower in calories than it is. Another is that they believe that since they're

eating something that isn't as good as the real thing, they deserve a little bit more.

In our studies, the average person believes



WORKOUT REWARD? Can you afford 580 calories for a venti White Chocolate Mocha and another 490 for a slice of Banana Walnut Bread after the gym?

that a low-fat version of a snack has 40 percent fewer calories. People think they're being tremendously virtuous so they overeat. In reality, we found that snack foods that are labeled low-fat aver-

age only 11 percent fewer calories than the regular versions.

Q: Do foods labeled low-calorie have a halo?

A: Yes, but if the label says it's low-calorie, it has so few calories that you really can eat more.

EXERCISE

Q: How does exercise influence what we eat?

A: We found that exercise can have an opposite impact than we might expect.

In one study, we showed people normal ads for washers and dryers and such before a meal, or we showed them exercise ads. If people saw the exercise ads and they were reasonably active exercisers, the ads dramatically decreased how much they ate.

We think the ads bring to mind how much you have to do to work off a certain amount of calories. So it's a pretty dramatic reminder. The ads have much less impact if people aren't exercisers. So if you're a pretty good exerciser, it might be a pretty good idea before dinner to think about your next workout.

Q: Does the exercise itself matter?

A: Yes. Every June we have consumer camp for anyone from anywhere in the country who's been involved in one of our studies. At one of these, we said,

"We're through for the day but dinner isn't ready yet so we're going to take a one-mile walk around Beebe Lake." The students who set the pace told them that it was either an exercise walk or a scenic walk.

On the exercise walk, the students would say, "We're a quarter way through," or "We're halfway through, keep your heartbeat going, keep it high." On the scenic walk, the students would say, "Here's the stone bridge that was built in 1922," or "Look, there's an island and three kinds of birds live on the island." And it was an easy walk but the same pace and distance in both cases.

When they got back, they were given dinner, and they ended up eating more calories if they had been on the exercise walk. And most of the increase was from dessert. The exercise group estimated that they had burned more calories, and they ended up eating more calories.

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Q: They figured that they deserved a reward?

A: Exactly.

THE INTELLIGENCE TRAP

Q: It seems that people always find a rationale to eat more.

A: Yes. Intelligent people especially can figure out a rationalization for anything they want to believe. We call it the intelligence trap.

And with food, it's the tyranny of the moment. It might be the same with drug users. People say, "Well, I was going to stop using heroin or smoking cigarettes today, but today was really difficult," or "Today is a day to celebrate," or "It's Friday," or whatever. We can always think of why the day is unique so that we don't have to do something.

Q: And ads urge us to celebrate or suggest that "You deserve a break today."

A: When I was in college, the ads said, "Weekends are made for Michelob." And on weekends, we'd spend an extra 25 cents for a Michelob because, by golly, we deserved it.

Q: So well-educated people believe that they don't eat mindlessly?

A: Right. Many believe that an informed, intelligent person would never be fooled by these cues. When I gave a talk at the Institute of Medicine of the National Academy of Sciences a while back, that was the very question I was asked.

"Clearly, once you tell an informed, intelligent person about this, problem solved," they said. "So global education is the answer." Of course, if you have 17 years of college behind you, you're likely to think that education is the answer to everything.

Q: But it doesn't work?

A: No. We did a study where we took 60 tremendously motivated, intelligent grad students. For 90 minutes in one class I told them, "If I give you a big bowl of Chex Mix, you will eat a lot more than if I give you a slightly smaller bowl."

And for 90 minutes, I had illustrations and lecture and videotapes and broke them into study groups to show how they can fight this. Then they went home for holiday vacation.

Photo: Jorge Bach

When they returned, I invited them to a Superbowl party at a sports bar. They were led randomly into one of two rooms that were identical except that one room had enormous bowls of Chex Mix and the other had bowls that were slightly smaller.

Q: And they could take as much as they wanted?

A: Yes. And we found that the typical person serving themselves from a large bowl took and ate about 53 percent more food, even though six weeks earlier they'd gone through a 90-minute session with a demonstration and videos and they came up with strategies to prevent it from happening to them.

And it was the exact same food in the same orange bowls that they saw in the videos. The same bowls!

Afterwards, we asked people if they thought they took more from the bigger bowls. They said no. And everyone had an excuse like, "I took more because I didn't have breakfast on Tuesday."

That study, which was published in the *Journal of the American Medical Association*, illustrated that education is probably not the way to go.



HEALTH HALO. People often eat more of lower-fat snacks, but they're not that much lower in calories.

Q: Do some people think that they're immune?

A: Yes. What makes this stuff so difficult is that people confidently think, "Now

that I know it, it shan't influence me."

But we found that even professional bartenders are influenced. When we showed them that they poured more into a short wide tumbler than a tall narrow highball glass that held the same amount of liquid, they still mixed and poured more into the tumbler 45 seconds later.

It influenced incredibly smart and motivated grad students who we bored for 90 minutes with this one concept. Six weeks later, they ate 140 calories more if they were given larger bowls.

I explained at a meeting of the American Diabetes Association how these biases influence people. And then I turned right around and put them in a study and showed that they were influenced as much as a typical person we recruit from the mall.

Q: What tricked the bartenders?

A: The shape of the glasses. We asked them to pour a drink into 10 oz. glasses that were either short, wide tumblers or tall, thin highball glasses. Even though the typical bartender had over six years of experience, on average, they served 20 percent more in the short wide glasses.

People's overconfidence is just amazing. And we find that the smarter people are, the more they get fooled because they believe that they are smarter than a bowl or because they went to Wellesley. Just joking. I hope you didn't go there.

Q: So you can't make yourself less mindless?

A: This whole idea that you can prevent mindless eating with the power of your mind is a tremendous fallacy. When I talk about mindless eating, some people erroneously say, "Then the secret to solving mindless eating is to eat mindfully."

No, not if you're 95 percent of the population. To eat half of a pea and ask, "Am I full yet?" may work for some people. And I know calorie counting and pre-portioning works for some people.

But for most Americans, our lives are way too chaotic to accommodate that. We have screaming kids running around the table, a to-do list before dinner that's 40 things long, we're thinking about how things went at work that day, how they didn't go how we wanted.

Q: And we get interrupted by phone calls, e-mails, texts.

A: Right. So for normal people, the solution is not mindful eating. It's to set up our environment, whether at our home or work, so that we mindlessly eat less, rather than just continue to gorge ourselves.

WHAT WORKS

Q: What changes should we make?

A: The good news is that for every external cue that messes people up in our studies, you can solve the problem by doing the opposite. If going from a 10-inch to a 12-inch plate causes you to eat 22 percent more, use a 10-inch or 9½-inch plate.

Use smaller bowls. Don't rely on your willpower or the power of education. Don't say, "Now I know that I'm three times more likely to eat the first thing I see in my cupboard than the fifth thing I see in my cupboard...but I won't let that influence me." It absolutely will!

The solution is to make sure that the first thing you see—the thing that's front and center—is healthier than that chocolate-covered foie gras.

People eat food that's on the table much more frequently than food that's off the table, so just put the salad and vegetables on the table. Leave everything else on the counter or stove.

Q: What else can people do at home?

A: Package things in smaller containers. If you want to buy in bulk, that's smart. But when you buy in bulk, you eat in bulk, so you have to repack the food in smaller baggies or Tupperware-like containers. Then you'll eat only the amount you put in.

Q: Are these small differences in calories enough to matter?

A: When you put them all together, they're not additive, but the effect is still positive. Let's say that a smaller plate makes you eat 22 percent less, a smaller serving spoon means you eat 14 percent less, and a smaller serving bowl helps you eat 50 percent less. If you do all of those, you don't eat 86 percent less or you'd starve and die. It's going to be somewhere in between. But the overall influence is that you're eating less.



REPACKAGE. Each 140-calorie serving of this trail mix is just 3 tablespoons. Odds are, you'll eat more if you eat out of the large bag.

FOOD PACKAGING

Q: Do people eat less from 100-calorie packs?

A: We did the research on that in 1996, before they were on the market. We gave people candy that was either in one 440-calorie serving or in four 110-calorie servings.

We found that about 70 percent of people ate less when we broke the candy into these smaller-size mini-packs. And half of them said that they'd pay an average of 15 percent more per ounce for something that causes them to eat less.

So I called up all the major snack-food manufacturers—M&M/Mars, Nabisco, Kellogg, and Kraft—and I said, "We've got a great way you can make a lot of money and help people eat less."

I presented the research, and their staff said it was interesting but they couldn't wrap their heads around the idea that people would pay a premium for something that would help them with self-control. About two years later, the 100-calorie packs came out. But it was hard to convince food companies at first, because they were stuck thinking that people would only pay more for more food.

Q: Do 100-calorie packs work for everyone?

A: Overweight people are more responsive. I think it's because they're used to eating a bigger volume without thinking about it, and all of a sudden this causes them to think about it.

In contrast, a skinny person might eat less and be less prone to overindulging. In about 30 percent of people, mini-packs

had no effect or they made people eat more. If you typically eat about 250 calories of M&M's and there's only 200 in two mini-packs, you think, "I'd like a couple more," so you open the third pack and it's gone.

SCHOOL LUNCHES

Q: What have you done with school lunches?

A: The New York State Department of Health called us to say that a bunch of upstate schools were getting grants of \$3,000 or \$4,000 to increase fruit sales by 5 percent. They asked, "How much do we need to decrease the price of fruit to increase sales?"

I said, "I think you could make the fruit free and people aren't going to eat 5 percent more. Why don't I take a team up there for a couple of days and we'll figure something out?"

And we found that all these schools serve fruit in these stainless steel containers underneath these sneeze shields in a dark part of the food line.

Q: That sounds unappetizing.

A: So we said, "Why don't you buy a cheap, colorful bowl at Goodwill or find one in your basement and put the food in a well-lit part of the line?"

And when they did that, fruit sales initially went up 187 percent. And over the course of the semester, they dropped to the point where they were selling 104 percent more fruit than at the beginning of the year. And the price of the bowls ranged from \$15 to \$30, so they still had a whole lot of money left over.

Q: Having food visible makes a difference?

A: Yes. With adults, we found that covering the clear window of the ice cream freezer with butcher paper decreased how much people took by 30 percent. The nice thing is that the person who eats it two or three times a week can still find it. Others may not think about ice cream if they don't see it.

Q: And people can do the same at home?

A: Sure. Why not make the fruit bowl more visible? Put your fruit on the table and not in the refrigerator bin. People say, "That's okay because I have self-control." Why not give your self-control a break?