

NUTRITION ACTION

HEALTH  LETTER™

Undercover Calories

Why We Eat More Than We Think

Why are two out of three Americans overweight? We're moving less and eating more. Food is cheap, at our fingertips, and calorie-heavy. Restaurant meals typically have *at least* 1,000 calories, not including dessert or drinks. Three square meals a day has morphed into two or three feasts sandwiched between several meal-sized snacks.

And we're not even aware of it.

Brian Wansink, a professor of psychology at the University of Illinois, has spent a career studying what consumers don't notice. The size of a package, the shape of a glass, the words on a menu or label, our proximity to food, and other invisible influences can determine *how much of what* we eat, according to his research.

Here's how to spot—and sidestep—the eating pressure that slips the radar.

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Brian Wansink is Professor of Marketing, Nutritional Science, and Agricultural Economics at the

University of Illinois at Urbana-Champaign. He is director of the University's Food and Brand Lab (www.foodpsychology.com), which focuses on the psychology behind what people eat and how often they eat it. He spoke with *Nutrition Action's* Bonnie Liebman by phone.

Q: Why worry about what makes us eat a few extra calories?

A: If we ate 100 fewer calories each day, instead of gaining a pound at the end of a year, maybe we'd lose a pound. Small factors that we're not even aware of add 100, 200, 400 calories. My studies examine when that happens and when it doesn't.

Q: Don't most people watch what they eat?

A: Many of us are reasonably diligent about *what* we eat but we don't put that much thought into *how much* we eat. People may decide to eat Chinese food instead of pizza or fruit instead of potato chips because they're healthier. But once they make that initial choice, they tend to not monitor how much they eat. And a pound of grapes isn't calorie-free.

Package Size

Q: Do larger portions make us eat more?

A: Yes. We went to movie theaters in Chicago and randomly gave people either medium or really large buckets of popcorn. We found out that the people who were given big buckets ate roughly 50 percent more than the people who were given smaller buckets. But if you asked them to estimate how many ounces or calories they ate, there was no difference between what the two groups reported.

Q: We just don't notice?

A: To see how automatic this behavior is, we gave Philadelphia moviegoers medium or large buckets of stale, 14-day-old popcorn that tasted terrible.

The people who got the large buckets ate 31 percent more than the people who got the medium buckets. And, again, both groups thought they had eaten the same amount of popcorn.

Q: Is it a clean-your-plate mentality?

A: That may be at work in some cases, but it goes much deeper.

We sent people home with two-pound, one-pound, or half-pound bags of M&Ms and a videotape. We wanted to see how much they ate while watching the tape. As soon as they finished watching, we picked up the video and the M&M bags.

We found that people who were given the smaller bag averaged 63 M&Ms, but it increased to about 120 M&Ms with the one-pound bag and even more with the two-pound bag. That can't be a clean-your-plate phenomenon because no one can finish a bag of M&Ms without needing insulin.

Q: And you've tested other foods?

A: If you give people a larger package, they'll pour more whether it's M&Ms, dog food, cat food, plant food, non-food items, anything.

Q: If it's not clean-your-plate, what is it?

A: We think the size of a package or a portion gives people a perceptual consumption cue as to what's acceptable, or normal. We even did a study where we gave people either a big or a medium box of spaghetti, and we took half of the spaghetti out of the big box so that they both had the same amount of spaghetti. They still ended up using more from the big box.

Q: And we don't realize when we eat more?

A: No. I designed this refillable soup bowl by drilling holes through a cafeteria table and running tubing from the bowls to a pot of hot soup in the next room. We brought in four people at a

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time. Two were eating out of these refillable soup bowls that refill so slowly that it's imperceptible, and two were eating out of regular bowls.

Women with the refillable bowls ate 30 percent more and men ate 40 percent more. But when we asked them afterwards how much ate, they estimated the same number of ounces and calories as people eating from normal bowls. They weren't aware that they'd eaten that much more.

Q: Do people eat more at all-you-can-eat buffets?

A: We haven't looked, but we have found that the more people pay for these buffets, the more they eat. They want to get their money's worth. And the more they eat, the lower they rate the food.

Q: Why?

A: I think that if you eat and eat, your satisfaction from the food goes down, and that's what you remember. The owner of a famous Japanese restaurant, Nobu, said that when people leave the restaurant, they should be satisfied, but not full. Then you really appreciate what you've just eaten, even if it's the last course, because you're just as hungry and eager to eat it as the first course.

Shapes

Q: What other cues make us eat more?

A: We looked at whether the shape of glasses unknowingly influences how much we eat. We went to health and fitness camps where kids go to lose weight over the summer. These people are pretty diligent. They're taught portion control, calorie counting, calorie estimation.

The Swiss psychologist Jean Piaget found that if you show very young kids something tall and skinny, they think it holds more than something that's short and wide. They look at the height of an object and under-account for the width.

When kids came in for breakfast we randomly gave them a tall, skinny, 12-ounce glass or a short, wide, 12-ounce glass. Almost to a person, kids who

were given the short, wide glass estimated that they had poured less than kids who were given the tall, skinny glass. In reality, they poured 77 percent more into the short, wide glasses—11½ ounces instead of 6½ ounces.

And these kids are supposed to be diligent, since their entire objective for being at this camp is to lose weight.

Q: And it's not just kids?

A: No. We asked 48 Philadelphia bartenders to pour a gin and tonic into either a highball glass or a short, wide tumbler. They were supposed to pour a shot—1½ ounces—but we didn't let them use shot glasses. We figured these guys know pouring. They're pro-

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fessionals.

And even though they had an average of five years of experience, the bartenders poured 31 [18?] percent more into the wide tumbler than the highball glass. So if somebody's job is pouring the right amount and even *they* can't do it, what about the rest of us?

Easy Access

Q: Most of us are clueless.

A: Right. We asked some university secretaries if they wanted to fill out a questionnaire for a study on candy consumption. And then we said—I felt so guilty about this—"As part of our thanks, we're going to give you this nice dish of candy."

We asked some of the secretaries to put the dish on the desk and others to put it about six feet away from the desk. That's only like three steps, but they had to get up and move. We put 30 Hershey's Kisses in either a clear or opaque bowl with a lid. And every

night for four weeks, we secretly went to the secretaries' offices, counted how many kisses they had eaten, and filled the bowl back up to 30.

We found that if you put the candy on somebody's desk, they ate about nine chocolates a day if the bowl was clear and 6½ if the bowl was opaque. But all you had to do was put it six feet away and the number dropped down to four kisses a day, whether it was opaque or clear.

People in our biochemistry department say, "What's the big deal? Five more chocolates isn't that significant." But five more chocolates is 125 more calories per day. Over a month, that's 2,300 calories, or two-thirds of a pound.

Q: Does the same apply to healthy foods?

A: Yes. We brought people in under some guise and we gave them huge or small bowls holding 40 versus 20 baby carrots. We either handed the bowl to them or put it in the corner of the room and said, "Help yourself to the carrots. The experimenter will be with you in 15 minutes."

When we gave people the bowl, they ate about 12 from the large bowl and about eight from the small bowl. But when we put the bowl away from them, the numbers dropped way down—to six from the large and three from the small bowl. So having the food in front of you and having a larger quantity makes you eat more.

Q: That's not so bad if it's carrots.

A: Yes. What's encouraging is that if package size or shape matters more than taste—as we found in the movie theater study—you can give somebody large bowls of reasonably healthy stuff. So if they're snacking while they watch TV or eating so they won't be bored, at the end of the movie they've eaten a lot of carrots or fresh broccoli. There's a silver lining to these results.

Stockpiling

Q: So nearby food makes us nosh?

A: Yes, especially in large quantities. We looked at how much people ate when food was stockpiled—because

they bought it in bulk at stores like Sam's Club. People say, "I bought this five-pound barrel of pretzels, but I won't really eat them all."

We intercepted shoppers in the parking lot and said, "If you want to be involved in a little study, we'll give you a whole bunch of food." And we gave them six different types of food—like candy, chips, cookies, and granola bars—but some people got them in small quantities like four bags of chips, and others got massive quantities like 12.

We found that for the first week, people ate about twice as much of the large than the small quantities.

Q: Just because they had more?

A: Because they're more aware of food when it's stockpiled. It's more salient, more visible. Whenever you come back from the store, you're more aware of the food you bought. It's more visible because you just picked it, you just unloaded it, you just put it away in the cupboard.

So you're more likely to eat anything you bring home for the first day. But if it's stockpiled, you continue to do that for the first week. By the seventh or eighth day, you eat it as often as the foods that you bought in smaller quantities.

Q: Why the drop-off?

A: Two things are going on. First, the quantity levels are no longer to the point where they provide what we call stock pressure. You don't think "God, look at all those cookies." Second, something called inter-temporal satiety occurs after a week. You think, "I'm really tired of eating those cookies."

Q: What if you store the food away from the kitchen?

A: That helps. And you're less likely to eat foods that you have to prepare—like ramen noodles, soup mixes, and microwave popcorn. That little barrier of inconvenience helps. So being a member of Sam's Club isn't a bad idea if you store the food in the basement or if you're buying things that are inconvenient to consume. It's the cookie jar on the table that causes trouble.

Taking Control

Q: Can we just ignore cues that make us eat more?

A: A lot of diets aren't successful or lead to yo-yo dieting because they're based on cognitive control. People say, "A moment on the lips, forever on the hips," or "I shouldn't eat that chocolate cake." But why is it that people who have so much control over other parts of their lives are overweight? It takes so much cognitive effort, it becomes a full-time job.

I know that at different times in my life I decided that I would get back into the shape I was in when I was 21. Two-thirds of your life goes on hold because you're always focused on that goal. And most of us can't closely monitor what we eat or make 200 decisions a day to eat or not eat something.

Q: So we eventually give up?

A: Yes. It's much easier to let the environment do the work for you. We can't control whether there's a McDonald's on the corner, but we can control whether we have potato chips sitting on the counter or ice cream in the freezer or cookies in the cookie jar.

That doesn't mean that we can't have those foods in the house. But we can put them someplace else. We can control our portion size. Instead of eating family style, we can leave the food on the stove, so if you want seconds or thirds, you have to get up every time to get it.

In our lab, as well as in our house, we've gotten rid of our small, fat glasses. We only have tall, skinny glasses. It's okay to save money with bulk buying and large packages, if you repack the food in smaller bags. That way, the environment makes the decision for us. Relying on our mental resistance is a whole lot less effective than changing our environment.

Variety

Q: Does more variety make people eat more?

A: Yes, but what if you just increase the amount of variety people *perceive* there is?

We gave people bowls of jelly beans and other colored candies. The bowls

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had either four or six different colors of candies. If we gave people four different colors, they ate about 40 percent less than if we gave them six different colors, even though they all tasted exactly the same.

Q: All the colors tasted the same?

A: Yes. But having more colors was more inviting. We also took six different flavors of jelly beans and organized them on a tray into six groups. We had 100 strawberry, 100 orange, 100 lemon, 100 grape, and so on. The other half of the people were given 600 jelly beans that were scrambled, but they were the exact same mix of jelly beans. And we said, "Take all the jelly beans you want," and looked at how much people ate.

If they were given the six different flavors separated, they ate about 12, and if the jelly beans were disorganized, they ate 23—almost twice as much.

Q: So disorganization looks like more variety?

A: Yes. We stocked grocery shelves with 24 items—six different types of detergent, each in four different sizes. If you organize them by size—like small, medium, large and extra large of one brand and small, medium, large and extra large of the second brand,



and so on, people don't perceive that as a whole lot of variety.

But if you mix them up, people think the store has much more variety, and some people think it's a better place to shop.

Q: They like it disorganized?

A: It depends on the type of shopper. The "grab-and-go" shoppers didn't. But the "browsers," who liked to shop, rated the store better because they thought it had a larger assortment, and not just of detergent.

If we asked them, "How likely would you be able to find mouse traps here?" they would say, "Of course it would be there. This place has everything."

Q: How do grocery stores influence what we buy?

A: We did an experiment in Philadelphia where we put signs up that said, "Apples: buy 18 for the weekend" or "Snickers bars: buy 12 for your backpack." They weren't on sale or anything. But when people saw the sign, they typically bought one to two more than people who didn't see the sign. This is a very ubiquitous phenomenon called anchoring.

We're very suggestible to numbers, just like we're suggestible to labels. If the store says, "Limit 12 per person," people say, "I don't need 12." But on average, they buy seven, compared to when there's no limit, they buy three.

Menu

Q: How do restaurants influence what we eat?

A: We did a couple of studies in restaurants where we described 12 menu items that had either a normal name like Chicken Breast or a name like Tuscan Sun-Kissed Breast of Chicken. Or, we'd say either Chocolate Cake or Belgian Black Forest Double Chocolate Cake. But the foods were exactly the same.

After people finished their meal, we'd ask them about the taste or texture. People who ate the generically labeled items would say, "The taste was OK." And they said "Not very likely" when we asked if they'd order it again.

But if they ate the [exact] same foods that were descriptively labeled, they'd say "Gee, that was pretty good. I like the taste." And they said they'd be more likely to order it again.

Q: So our expectations influence our taste buds?

A: Yes. Researchers in the sensory sciences believe that the senses don't lie. They say that if your tongue tastes vanilla, by God, there's vanilla in there.

I believe our senses are more suggestible, particularly within a reason-

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able range. If you say, "Would you like some filet mignon?" and it's actually cat food, people would figure it out. But I think there's a loose relationship between reality and perception, [while there's] a strong relationship between perception and your behavior—whether you eat a food or buy it again or tell somebody else to eat it.

Q: So if people expect food to taste good, it will?

A: Yes. One reason we did studies on names on menus is that the person in charge of nutrition at the University of Illinois cafeteria is trying to get people to eat better. He wanted to see if changing a food's name from "Skanky Squash" to "Illinois Prairie Squash" would get people to think it was better.

And it worked really well, particularly for vegetables and the main dishes. For the desserts, it wasn't quite so good, I think because desserts taste so good anyway, there's a ceiling effect.

Taste

Q: And if people expect a bad taste, that's what registers?

A: Yes. We gave people energy bars with absolutely no soy in them. We asked them what they thought of the taste when the wrapper said "contains 10 grams of protein." And they'd say, "Not bad...kind of chocolatey...good texture."

But when the label [on the exact same food] said "contains 10 grams of soy protein," they'd say "Oh geez, I can't get the taste out of my mouth...this is terrible...doesn't even taste like chocolate." If people imagine they're going to taste something, they're going to look for it.

Q: How can we help people eat healthier foods?

A: You can't just tell them that they shouldn't eat chips or candy or meat. You have to convince them that there's an alternative.

If you're trying to convince somebody to eat, say, an apple instead of candy for a snack, you can either emphasize that the apple is similar to candy, that it's sweet, it tastes good, or you can emphasize the differences—it's healthy, it's got fiber, etc.

We find that the more similar the two foods are, the more you want to emphasize the different traits. So you could say, "Why don't you eat a granola bar instead of a candy bar? It's got oatmeal, it's going to last you longer, won't spoil your dinner."

Q: But not if the foods are different?

A: Right. If you have, say, an apple instead of a candy bar, the differences are apparent to begin with. So there you want to start with advertising the similarities. You want to say, "An apple is really sweet, it's refreshing, it's fun to eat, it's got the same crunch as a candy bar." You want people to see it as an analogous substitute.

If dietitians are trying to get people to eat more fruits and vegetables, they need to stress the commonalities, not just that they're healthy foods. That just accentuates the differences. 🍏