ADVANCES

PSYCHOLOGY

Healthy See, Healthy Do
Nutritious supermarket displays can sway purchasing decisions

Visit the grocery store on an empty stomach, and you will probably come home with a few things you had not planned to buy. But hunger pangs are not the only culprit behind impulse purchases. The location of store displays also influences our shopping choices—and may make or break some healthy eating habits.

The checkout area is a particular hotspot for junk food. Studies have found that the products most commonly found there are sugary and salty snacks—and a few studies have suggested that simply swapping in healthier options can shift customer behavior. A 2012 study in the Netherlands found that hospital workers were more likely to forgo junk food for healthy snacks when the latter were more readily available on canteen shelves, for example. In 2014 Norwegian and Icelandic researchers likewise found that replacing unhealthy items with healthy ones in the checkout area significantly increased last-minute sales of healthier foods.

These findings caught the attention of the New York City Department of Health and Mental Hygiene, which has been working with more than 1,000 store owners to encourage them to stock and promote nutritious foods. “We know that the food retail environment is full of cues meant to encourage consumption,” says Tamar Adjoian, a research scientist at the department. “Making healthy food more convenient or appealing can lead to increased sales of those products.”

Adjoian and her colleagues wondered if such findings would apply to their city’s dense urban checkout areas, so they recruited three Bronx supermarkets for their own study. They gave one checkout line in each store a healthy makeover, replacing candy, cookies and other processed snacks with fruit, nuts and similar items containing 200 or fewer calories per serving. Then they recorded purchases over six three-hour periods in each store for two weeks.

Of the more than 2,100 shoppers they observed, just 4 percent bought anything from the checkout area. Among those who did, however, customers in the healthy lines purchased nutritious items more than twice as often as those in the standard lines—and they bought unhealthy items 40 percent less often. The findings were reported in September in the Journal of Nutrition Education and Behavior.

The potential impact may seem small, but Adjoian believes that converting more checkout lines would open customers’ eyes to nutritious, lower-calorie foods. Health department officials are now exploring ways to expand healthy options at checkout aisles throughout New York City.

—Rachel Nuwer

BIOMECHANICS

Wag the Lizard
How leopard geckos adapt to losing their tail

Somewhere in the highlands of Afghanistan, a hungry fox pounces on a tasty-looking leopard gecko. But the lizard has a get-out-of-jail-free card: a detachable tail. The dropped appendage flails around long enough to distract the fox, allowing the gecko itself to run off and hide.

Leopard geckos are one of a few lizard species that possess this self-amputation ability, known as autotomy. The technique is effective, but the tail can account for about a quarter of the lizard’s body mass. So how do these animals adapt to losing so much of it that quickly?

When geckos lose their tail, they “take this more sprawled posture” and walk with their limbs splayed out farther from their body, says Chapman University biologist Kevin Jagnandan. Most researchers initially assumed this stance was a response to a suddenly shifted center of mass. But when Jagnandan observed leopard geckos with a tail in his laboratory, he realized that they wag it as they walk, suggesting that these movements may be key to the lizards’ locomotion.

To test this hypothesis, Jagnandan and his team assessed the postures of 10 geckos walking in various conditions: with their tail intact; with their tail restrained by a small section of glued-on fishing rod (of negligible mass); and with their tail self-amputated. These comparisons allowed the researchers to distinguish the effects of lost mass from those of lost tail-wagging on the geckos’ movements.

The lizards with an immobilized tail adopted stances similar to those with no tail, the researchers reported in a study published in September in Scientific Reports. This result suggests the sprawling walk they adopt after losing their tail is not compensating for the missing mass but rather for the lack of tail-wagging. Jagnandan thinks tail movements help the lizards maintain balance and stability as they walk. He suspects that the tails of arboreal mammals, such as cats and monkeys, serve a similar purpose.

Bill Ryerson, a biologist at Saint Anselm College, who was not involved in the study, was surprised by the findings. “We thought we had settled it—it seemed pretty open and shut” that mass was the main factor, he says. The new study challenges this earlier idea in a “beautifully simple” way, Ryerson adds.

Jagnandan hopes that understanding how animals react to missing body parts could ultimately help engineers design robots that can move more efficiently as heavy loads—or even entire limbs—are added and removed. —Jason G. Goldman