

'Shortcuts' of the mind lead to miscalculations of weight and caloric intake

June 15 2009

Psychologists at the University of Pennsylvania have identified a cognitive shortcut, or heuristic, they call "Unit Bias," which causes people to ignore vital, obvious information in their decision-making process, points to a fundamental flaw in the modern, evolved mind and may also play a role in the American population's 30 years of weight gain.

Researchers who focus on the cognitive aspects that contribute to obesity conducted several studies with college-age participants in which the subjects were asked to estimate the weight of adult women from either photographs or a live presentation by models. Other student participants were asked to estimate the [calories](#) in one of two actual meals. Both meals contained the same foods, but one had larger portion sizes than the other.

The results demonstrated that when estimating the body weight of women, participants apparently disregard or ignore the provided height information and focus solely on the width of the model. In certain instances, researchers would inflate the provided height information of the models as much as 10 inches, though that did not alter participants' estimates of the models' weights.

When estimating calories, study participants assumed portion sizes were culturally typical and guessed no caloric differences between small and large portions.

The findings are akin to asking a room full of people to calculate the volume of a box when given only the height and width and no one asks for the length. Or, more accurately, the length is provided and no one pays attention to that one, crucial dimension, thereby making it impossible to arrive at the correct answer.

The study suggests that there are situations where critical dimensions to understanding are devalued or ignored. The paper examines different circumstances discovered by researchers where single dimensions dominate multidimensional judgments. In these studies specifically, participants estimated body weight based on the model's shape even though height information was provided in the photographs or directly available with live models. Meanwhile, participants devalued or completely ignored other parameters critical to an accurate judgment.

Penn psychologists point to the study as a novel example of the negative artifacts packaged within the evolved way the human brain processes information. The mind has evolved to develop a capacity to free up our conscious thinking for dangerous and reproductive situations. For example, a driver at a green light doesn't need to cycle through a series of decisions. Green simply means go. The brain has evolved to remove common or repetitive situations or tasks from our awareness because the capacity of our consciousness is quite limited.

What ties these studies together is that missing information was literally thrust in the face of participants, and yet they didn't use it.

"We have heuristics in our brain — simple mechanistic shortcuts that have evolved over hundreds of thousands of years, which free up precious space in our consciousness," said Andrew Geier, lead author in the Department of Psychology in Penn's School of Arts and Sciences. "In these atypical instances, however, it's the shortcut that hurts us."

The researchers believe that the negative artifacts of the evolved mind may be directly connected with America's obesity epidemic.

"We have evolved in a very different environment," Geier said. "It used to be that food was scarce, and you ate what was available because you didn't know where your next meal would come from. That is not the case anymore. Although we have yet to prove this, we believe that the ecology of eating in the current food environment has become an example of the atypical situations demonstrated in this new article, which may be an explanation for why almost 70 percent of American adults are either overweight or obese. This represents a cognitive explanation for why America is gaining so much weight. The eating environment has morphed into an atypical scenario where our usually helpful mental mechanisms betray us."

Source: University of Pennsylvania ([news](#) : [web](#))

Citation: 'Shortcuts' of the mind lead to miscalculations of weight and caloric intake (2009, June 15) retrieved 20 April 2024 from <https://medicalxpress.com/news/2009-06-shortcuts-mind-miscalculations-weight-caloric.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.