The Mental Strain of Making Do With Less

By SENDHIL MULLAINATHAN

DIETS don’t just reduce weight, they can reduce mental capacity. In other words, dieting can make you dumber.

Understanding why this is the case can illuminate a range of experiences, including something as far removed from voluntary calorie restriction as the ordeal of outright poverty.

Imagine that you are attending a late-afternoon meeting. Someone brings in a plate of cookies and places them on the other side of the conference table. Ten minutes later you realize you’ve processed only half of what has been said.

Why? Only half of your mind was in the meeting. The other half was with the cookies: “Should I have one? I worked out yesterday. I deserve it. No, I should be good.”

That cookie threatened to strain your waistline. It succeeded in straining your mind.

This can happen even with no cookie in sight. Dieters conjure their own cookies: psychologists find that dieters have spontaneous self-generated cravings at a much higher rate than nondieters. And these cravings are not the dieters’ only distraction. Diets force trade-offs: If you eat the cookie, should you skip the appetizer at dinner? But that restaurant looked so good!

Many diets also require constant calculations to determine calorie counts. All this clogs up the brain. Psychologists measure the impact of this clogging on various tasks: logical and spatial reasoning, self-control, problem solving, and absorption and retention of new information. Together these tasks measure “bandwidth,” the resource that underlies all higher-order mental activity. Inevitably, dieters do worse than non-dieters on all these tasks; they have less bandwidth.

One particularly clever study went further. It tested how dieters and non-dieters reacted to eating a chocolate bar. Even though the bar provided calories, eating it widened the bandwidth gap between dieters and non-dieters. Non-dieters ate and moved on, but dieters started wondering how to make up for the calories they had just ingested or, even more fundamentally, pondered, “Why did I eat the bar?”

In other words, diets do not just strain bandwidth because they leave us hungry. They have psychological, not just physiological, effects.
The basic insight extends well beyond the experience of calorie counting. Something similar happens whenever we make do with less, as when we feel that we have too little time, or too little money. Just as the cookie tugs at the dieter, a looming deadline preoccupies a busy person, and the prospect of a painful rent payment shatters the peace of the poor. Just as dieters constantly track food, the hyper-busy track each minute and the poor track each dollar.

As Prof. Eldar Shafir at Princeton University and I argue in our new book, “Scarcity: Why Having Too Little Means So Much” (Times Books), a similar psychology of scarcity operates across these examples but with varying degrees of force. If a cookie can tax our mental resources, imagine how much more psychological impact other forms of scarcity can have.

Take the case of poverty. In a paper published last month in Science, with Profs. Anandi Mani at the University of Warwick and Jiaying Zhao at the University of British Columbia, Professor Shafir and I waded into politically charged territory. Some people argue that the poor make terrible choices and do so because they are inherently less capable. But our analysis of scarcity suggests a different perspective: perhaps the poor are just as capable as everyone else. Perhaps the problem is not poor people but the mental strain that poverty imposes on anyone who must endure it.

One of our studies focused on Indian sugar cane farmers, who typically feel themselves to be both poor and rich, depending on the season. They are paid once a year at harvest time. When the crop is sold, they are flush with cash. But the money runs out quickly, and by the time the next harvest arrives they are stretched thin: they are, for example, 20 times as likely to pawn an item before harvest as after it. Rather than compare poor and rich farmers, we compare each farmer to himself: when he is rich against when he is poor. This kind of comparison is important because it addresses valid concerns that differences in psychological tests merely reflect differences in culture or test familiarity.

We measured farmers’ mental function — on what psychologists call fluid intelligence and executive control — one month before and one month after harvest. And the effects were large: preharvest I.Q., for example, was lower by about nine to 10 points, which in a common descriptive classification is the distance between “average” and “superior” intelligence. To put that in perspective, a full night without sleep has a similar effect on I.Q.

**Bandwidth scarcity has far-reaching consequences, whether we are talking about poor farmers or affluent dieters.** We all use bandwidth to make decisions at work, to resist the urge to yell at our children when they annoy us, or even to focus on a conversation during dinner or in a meeting. The diversity of these behaviors — combined with the size of the measurable effects — suggests a very different way to interpret the choices and behaviors of the poor. Just picture how distracting that cookie was, and multiply that experience by a factor of 10.

For dieters, bandwidth scarcity has one particularly important consequence, illustrated in one study that gave people a choice between fruit salad and cake. Before choosing, half of the subjects had their bandwidth taxed: they were asked to remember a seven-digit number. The other half had a mentally less-demanding task: they were asked to remember a two-digit number. Those with less available bandwidth ate more cake: they were 50 percent more likely to choose
cake than the others. **There is a paradox here: diets create mental conditions that make it hard to diet.**

This may sound defeatist. But there are positive lessons for how to manage the different kinds of scarcity.

THE United States government, laudably, offers financial aid for low-income students to attend college. Qualifying for it, though, requires completing a densely packed 10-page booklet, mentally taxing for anyone. A one-page version would not only be simpler but it would also recognize that the poor are short on bandwidth as well as cash.

The same tactic — economizing on bandwidth — can be used in dieting. Take the Atkins diet, which effectively bans many foods, including bread and a lot of desserts. A ban is less complex than the trade-offs and calorie accounting required by many other diets. **While all diets require self-control, Atkins requires less thinking. This might explain its popularity, and even its effectiveness: a recent study shows that people persist longer with diets that require less thought.**

The same study had another interesting finding: it was the perceived complexity of a diet — not its actual complexity — that determined persistence.

So keep this in mind the next time you're picking a diet to shed a few pounds. Try one that won’t also shed a few I.Q. points.

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