

# Neuroscientists show how tiny fibs snowball into big lies

The findings, published in the journal *Nature Neuroscience*, demonstrate how self-serving lies can escalate.

By **Amina Khan**

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**A** little dishonesty goes a long way. Scientists who studied the brain activity of people who told small lies for their own benefit found that these fibs appeared to pave the way to telling whoppers later.

The [findings](#), published this week in the journal *Nature Neuroscience*, demonstrate how self-serving lies can escalate and offer a window into the processes in the brain that allow this to happen.

Conventional wisdom holds that small transgressions often lead to bigger and bigger ones, said study coauthor [Tali Sharot](#), a neuroscientist at University College London.

“Whether it’s evading tax, infidelity, doping in sports, making up data in science, or financial fraud, deceivers often recall how small acts of dishonesty snowballed over time and they suddenly found themselves committing quite large crimes,” Sharot said.

The researchers suspected this had to do with a biological process known as emotional adaptation, where over time the brain responds less and less strongly to a repeated stimulus.

The first time you put on a perfume, for example, you smell it clearly; on the 10th day, you might barely detect it. The amount of perfume hasn't changed, but your brain's response has.

Something similar might be happening when people lie, Sharot said.

"The first time you cheat, you feel quite bad about it, but that bad feeling keeps you from cheating a whole lot," she said. "So it's good. It curbs your dishonesty."

But over time, the brain reacts less and less, the way it would to a strong smell. A milder negative reaction could make it easier to lie the next time, the theory goes.

So Sharot and her colleagues set up an experiment to see if this was really true.

The researchers designed a set of two-person guessing games. Eighty participants were asked to work with another person (who they thought was another participant, but was in fact an actor) to guess how many pennies were in a jar.

By shifting who got the reward after each round, the scientists made several different versions of this game, some of which incentivized participants to lie. The actual study participants had higher-resolution images of the jar of pennies than their partners, so they could choose whether to lead their partners to a more or less accurate answer.

In one version, participants were told that going for the most accurate estimates would help both them and their partner. In another, overestimating the amount would benefit them but hurt their partner. In a third, both players would benefit if the participant overestimated the amount; in a fourth, overestimating the number of pennies would benefit the partner, at the participant's expense.

The scientists also took 25 of the volunteers and used a functional magnetic resonance imaging scanner to observe their brain activity during these tests.

The study authors found that the first time people exaggerated the estimates to benefit themselves at the expense of their partner, they stretched the truth only slightly. On top of that, a region of the brain called the amygdala — which is associated with emotion — lit up.

But as the experiment went on, the exaggerations grew bigger and the response from the amygdala waned. The larger the drop in activity in the amygdala, the bigger their future lies.

"I think this study's the first empirical evidence that dishonest behavior escalates when it's repeated ... and it ties this phenomenon to emotional adaptation," said study lead author **Neil Garrett**, a graduate student in Sharot's lab. "The same mechanism may well underlie all sorts of other escalations, such as escalation of risk-taking or escalation of violent behavior."

People tended to lie most readily when lying in the game would help both them and their partner — perhaps because the mutual benefit made it easier to rationalize, Sharot added.

“I think it highlights the potential dangers of engaging in small acts of dishonesty on a regular basis,” Garrett said. On the bright side, he added, it suggests “possible avenues for curbing dishonesty, such as finding ways to reproduce the negative emotional reaction that stops us from engaging in such acts.”

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