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Brain study shows how small lies grow into whoppers

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## Brain study shows how small lies grow into whoppers

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By [Sharon Begley @sxbegle](#)

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A study of what goes on in the brain when someone tells a lie could offer a biological explanation for why untruths often “snowball over time,” according to psychologist Tali Sharot of University College London.

When people tell small fibs, she and her colleagues [reported](#)<sup>1</sup> on Monday in *Nature Neuroscience*, their brain becomes desensitized to the emotional twinge that dishonesty usually causes. Lying becomes easier and telling ever-bigger self-serving whoppers becomes more likely, they found: that may be why nickel-and-diming on tax returns sometimes balloons into massive fraud, why spousal white lies become deeper secrets, and why scientific misconduct escalates from “losing” data to faking findings.

Neuroscientists who have studied the neural basis for moral decisions and were not involved in this research generally praised it, but questioned how well it described the real world.

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Sharot and her colleagues suspected that the brain mechanism behind the escalation of dishonesty is “emotional adaptation.” Little lies initially feel bad. That feeling “holds you back” from making your first lie a whopper, said Sharot. But might subsequent lies not feel so bad?



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To find out, she and her colleagues had 80 volunteers, aged 18 to 65, scrutinize 60 photos of glass jars containing pennies and estimate how much money they held, which ranged from 15 to 35 British pounds. The volunteers each had an unseen partner (actually one of the researchers) who also had to come up with an estimate, but whose photos were blurry. The partner therefore had to rely on the volunteer’s advice, sent via computer, to estimate.

Sometimes the volunteers were told that the more accurate their estimate they sent their partner the more they both would win; that was an incentive to send the truest estimate possible. In other cases, the more the partner overstated the money in a jar the more the volunteer would win and the less the partner would — an incentive for the volunteer to feed the partner false information. In that situation, volunteers lied a little more, on average, with each round of the game, reaching 12 or more pounds in some cases.

## Lies in the mind

Twenty-five of the volunteers also underwent neuroimaging via fMRI while they were relaying information to their unseen partner. The amygdala, a brain structure that responds to and processes unpleasant emotional experiences, erupted with activity after the first self-serving lie. That fits with the idea that lying is aversive: People like to think they’re good, and as children most people absorb the message that lying is immoral. “At first we do it only a little so our perception of ourselves doesn’t suffer,” Sharot said.

But amygdala activity decreased before each subsequent lie. The sharper the decrease, the greater a volunteer's lie in the next round. That suggested the decrease in amygdala activity was easing people's slide down a slippery slope.



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“The amygdala responded a lot the first times people lied, but it went down over time,” said lead author Neil Garrett, who is now at Princeton University. “We think this is the first empirical evidence that lying escalates” because of emotional adaptation. That, he added, highlights “the potential danger of engaging in small acts of dishonesty on a regular basis.”

The lying wasn't all selfish — volunteers lied most when it also benefited their partner. When the lie helped them and harmed the partner, people lied to the tune of 7 pounds; when it helped both it reached nearly 13. That's likely because lying that also benefits someone else “doesn't feel as bad,” Sharot said.

## Deception in the real world

The findings fit with [a 2014 study](#)<sup>2</sup> in which amygdala activity tracked how bad an immoral act felt and how much people said they disapproved of it, said neuroscientist Amitai Shenhav of Brown University, a coauthor of that research.

“The amygdala is more active when engaging in more difficult moral decisions,” he said. As an action, such as lying, becomes less unpleasant, “you'd predict that as the amygdala's response decreases over time, people would be more likely to” do something unethical.

But the key is “over time.” In the latest study, people were getting new chances to lie every few seconds. Their amygdala had unrealistically frequent chances to, in essence, throw up its little neural hands and say, *oh fine, lie, see if I care*. In the real world, our lying opportunities might be separated by enough time that the amygdala doesn't get worn out, Shenhav said, in which case the escalation of lying would need a different explanation.

“We have to be careful generalizing these results to the real world, since it's hard to know what real-life time scale this maps onto,” Shenhav said.

But if the finding does describe the real world, and emotional arousal — conscience? — decreases with every lie, it suggests not only that bigger lies are less unpleasant to pull off but that they're harder to detect. The “tell” fades away. “Practice,” said Sharot, “makes you a better liar.”

## Links

1. <http://www.nature.com/articles/doi:10.1038/nn.4426>
2. <https://www.ncbi.nlm.nih.gov/pubmed/24672018>

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