

[Skip to content](#)

STAT

[Reporting from the frontiers](#)[of health and medicine](#)

Brain study shows how small lies grow into whoppers

Follow

• [The Regulars](#)• [Newsletters](#)• [In the Lab](#)• [Job Board](#)• [Business](#)• [Politics](#)• [Health](#)• [First Opinion](#)• [Video](#)• [Most Popular](#)• [Morning Rounds](#)• [Megan Thielking](#)• [On Call](#)• [Casey Ross](#)• [Pharmalot](#)• [Ed Silverman](#)• [The](#)• [Readout](#)• [Damian Garde](#)• [& Meghana Keshavan](#)• [Endnotes](#)• [Bob Tedeschi](#)• [Off the Charts](#)• [Jennifer Adaeze Okwerekwu](#)• [Signal](#)• [Luke Timmerman](#)• [& Meg Tirrell](#)• [Gut Check](#)• [Sharon Begley](#)• [Science Happens!](#)• [Carl Zimmer](#)• [Game of Genomes](#)• [Carl Zimmer](#)• [The](#)• [Watchdogs](#)• [Adam Marcus](#)• [& Ivan Oransky](#)• [See All](#)[In the Lab](#)

Brain study shows how small lies grow into whoppers

- [Twitter](#)
- [Facebook](#)
- [LinkedIn](#)
- [Email](#)
- [Republish](#)
- [Print](#)



John Gevers/Creative Commons

By [Sharon Begley @sxbegle](#)

October 24, 2016

- [Twitter](#)
- [Facebook](#)
- [LinkedIn](#)
- [Email](#)
- [Republish](#)
- [Print](#)

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](#)¹ 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.

article continues after advertisement

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?



[Read More](#)

[The bigger the yawn, the bigger the brain, scientists find](#)

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.



Read More

[In living color: New technique sees gene activity in human brains](#)

"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](#)² 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>

Sharon Begley can be reached at sharon.begley@statnews.com
Follow Sharon on Twitter [@sxbegle](https://twitter.com/sxbegle)

- [Twitter](#)
- [Facebook](#)
- [LinkedIn](#)
- [Email](#)
- [Republish](#)
- [Print](#)

[brain](#)

[lying](#)

[neuroscience](#)

Leave a comment

Name

Please enter your name.

Email Address

Please enter a valid email address.

Comment

Please enter a comment.

Notify me of followup comments via e-mail

Submit

[Privacy Policy](#) | [Comment Policy](#)

—

Subscribe to our new hospitals newsletter, On Call

Your guide to the people and ideas shaping hospitals and transforming the delivery of health care

Email Address

Trending



[FDA weighs crackdown that could shut hundreds of stem...](#)
[FDA weighs crackdown that could shut hundreds of stem cell clinics](#)



[Dope Sick: A harrowing story of best friends, addiction...](#)
[Dope Sick: A harrowing story of best friends, addiction — and a stealth killer](#)



[Inside the \\$100 million ad blitz for a \\$1,100-a-pill...](#)
[Inside the \\$100 million ad blitz for a \\$1,100-a-pill drug for hepatitis C](#)

—

Recommended



[Synthetic human genome project releases its draft timeline](#)
[Synthetic human genome project releases its draft timeline](#)

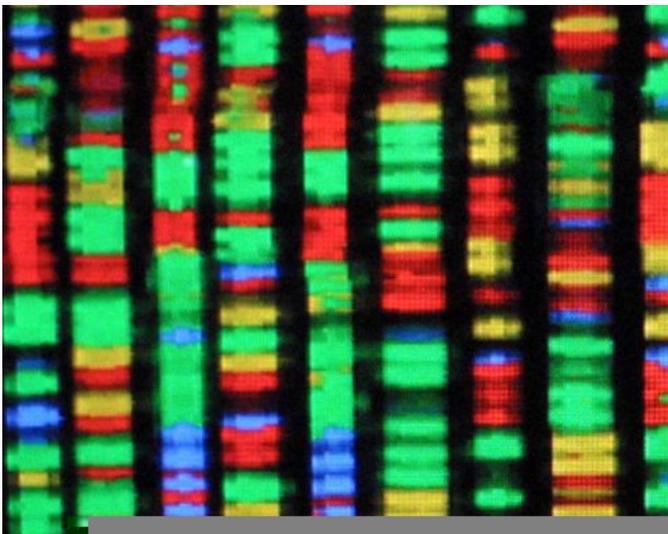
[Insight into exhausted immune cells could open new doors...](#)
[Insight into exhausted immune cells could open new doors for cancer therapy](#)



[WATCH: What happens to the brain when we get...](#)
[WATCH: What happens to the brain when we get scared?](#)

—

Recommended Stories



Mario Tama/Getty

BRIEFLY

The research group behind an effort to build a human genome from the ground up this week released more information about its plans.

[Synthetic human genome project releases its draft timeline](#)

By [Ike Swetlitz](#)

NIH

BRIEFLY

The body's immune T cells fight off foreign invaders, but often get worn out. A discovery about how they tire could open new paths for cancer treatment.

[Insight into exhausted immune cells could open new doors for cancer therapy](#)

By [Megan Thielking](#)

Hyacinth Empinado/STAT

BRIEFLY

The setup, which includes lung cells and a machine timed to mimic the inhale and exhale of a smoker, could replace animal studies.

[This machine smokes up to 10 cigarettes at a time — in the name of science](#)

By [Hyacinth Empinado](#)

James Vonderhuevel via AP Keith Vonderhuevel picks up his 2-year-old granddaughter, Allison, in Sidney, Ohio, using...

BRIEFLY

A next-generation artificial hand is letting two amputees tell the difference between a soft or firm touch.

[Artificial hand helps amputees feel just how hard to squeeze](#)

By Associated Press

ProMED/International Society for Infectious Diseases John Payne Woodall

BRIEFLY

John Payne Woodall — known to all as Jack — was one of the founders of ProMED, an Internet-based outbreak reporting system.

[Scientist who pioneered early warning system for outbreaks dies](#)

By [Helen Branswell](#)