

## Neuroscience

# New twist on famous invisible gorilla psychology study

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ALLISON MICHAEL ORENSTEIN/GETTY IMAGES

WHEN we focus on one task, we often fail to notice something obvious in our field of view. This phenomenon, known as inattention blindness, was famously demonstrated in a study involving a person in a gorilla suit, which people failed to spot. Now it seems the gorilla isn't so invisible, and we do actually take in information even when we might miss the wider picture.

In a classic experiment from 1999, Daniel Simons and Christopher Chabris, then at Harvard University, made a short video featuring people passing basketballs. Halfway through the video, someone in a gorilla suit walks through the shot. When volunteers were asked to count the number of passes made by people in white t-shirts, only half reported seeing the gorilla.

"I showed my daughters the famous gorilla demonstration, and one of them couldn't believe that there had been a gorilla there, and I remember that experience myself," says Ian Phillips at Johns

Hopkins University in Baltimore, Maryland.

The results of some other studies made him think that simply asking people if they saw something unexpected might not reveal the full picture. To test this, Phillips and his colleagues got 25,000 people to do one of five experiments online for a small fee.

In the first experiment, people were asked to look out for crosses appearing on

**"One of my daughters couldn't believe that there had been a gorilla there"**

a screen for 0.2 seconds and say whether the horizontal or vertical arms of the cross were longer. On the fourth occasion, a red line appeared on one side of the screen as well as the cross.

When volunteers were asked, "Did you notice anything unusual on the last trial that wasn't there on previous trials?" 71 per cent said yes.

But when they were told that a red line appeared on

**You might see a person in a gorilla suit without realising it**

one side of the screen and were asked which side it was on, 87 per cent chose the correct side. Of those who replied no to the first question, 64 per cent chose the correct side, far more than the 50 per cent that would be expected by chance. The results of the other four experiments were similar (bioRxiv, doi.org/nr65).

"I think it shows clearly that people might well have processed some information about the critical unexpected object even when they reported not having seen it," says Simons, who is now at the University of Illinois Urbana-Champaign and wasn't involved in the new study. "We should be wary of attributing that to anything subliminal or subconscious, though."

Phillips thinks the simplest explanation for his findings is that some people were partly aware of the unexpected object, but were reluctant to say they saw it when they weren't sure.

"So, that's a bias in relation to saying whether they saw something or not," he says. "And the point about it being a bias is that it's something you can work with. You could potentially try to train people in fields where it is really important they don't miss things."

Phillips says the study is in no way debunking the notion of inattention blindness. "It shows that there really is something very striking going on when attention is consumed by another task," he says. It is just that people may not be as unaware as previously assumed. ■

## Genetics

# Sweeter tomatoes are coming thanks to gene editing

**IF YOU** like your tomatoes sweet, the smaller cherry tomato varieties are currently the ones to go for. But bigger tomatoes could soon get a genetic sweetness boost.

The bigger a tomato, the lower its sugar content usually is, says Jinzhe Zhang at the Chinese Academy of Agricultural Sciences in Beijing. Efforts to boost the sweetness of larger varieties have had downsides, such as lowering yields.



CLARE HARGREAVES/ALAMY

Gene editing can make larger tomato varieties, like Moneymaker, sweeter

So Zhang and colleagues compared varieties to identify genetic variants that affect sweetness. They found that two related genes called *SICDPK27* and *SICDPK26* are more active in large varieties. These genes code for proteins that lower the levels of an enzyme that produces sugars.

When the team used CRISPR gene editing to disable these genes in a variety called Moneymaker, the levels of glucose and fructose in the fruits increased by up to 30 per cent with no decrease in yield. The fruits were also rated as sweeter in a taste test. The only other effect was fewer and smaller seeds, which consumers may prefer (*Nature*, doi.org/nr68).

"We are working with some companies to develop some commercial varieties by knocking out these genes," says Zhang.

The gene-edited Moneymaker tomatoes aren't as sweet as cherry varieties such as Sungold, but it should be possible to boost sweetness further, says Zhang. "There are still many important genes that regulate sugar waiting to be discovered." ■ MLP