

Put your glasses on to hear better, says a new study

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By: PTI (<http://www.financialexpress.com/author/pti/>) | Los Angeles | December 11, 2015 12:03 AM

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Our vision and hearing are not as reliable as we might think, according to a new study that found human brain is wired to use information from multiple senses to correct other senses.

Researchers at the University of California in Los Angeles (UCLA) played brief bursts of sound and triggered flashes of light, in various combinations, and asked participants to identify where they originated.

A total of 384 people, most between the ages of 18 and 22, participated. They typically were asked to identify about 525 stimuli during a 45-minute test.

In the study, subjects were asked to sit facing a black screen, behind which were five loudspeakers. Mounted on the ceiling above was a projector capable of flashing bursts of light onto the screen, at the same spots where the speakers were located.

In general, they fared poorly when the light and sound were played alone. Participants mostly believed that the light sources were closer to the centre of the screen than they actually were, and that noises were coming from closer to the periphery.

The researchers conducted the study in part because there had never been a comprehensive research to examine whether humans' "spatial localisation" ability u2014 whether we can immediately and accurately perceive where an object is located – is as well-honed as we believe it to be.

"We didn't expect these spatial errors; they're very counterintuitive. Spatial localisation is one of the most basic tasks the brain performs, and the brain does it constantly," said Ladan Shams, a professor at UCLA.

Millions of years of evolution would have perfected spatial localisation in humans, researchers said, but that is not the case.

"Maybe evolution has favoured high precision in the centre of the visual field. We are really good at localising and discriminating at high acuity in the centre of our vision, and that comes with the cost of making more errors at outer area," Shams said.

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The participants answered much more accurately when the flashes and noise were played simultaneously at the same location.

“The brain is wired to use information from multiple senses to correct other senses. The saying is true – ‘If you want to hear better, put your glasses on’,” Shams said.

“Our basic sensory representation of the world u2014 how information from our eyes and ears is processed by neurons in the brain u2014 is inaccurate,” she added.

The study was published in the journal PLOS Computational Biology.

First Published on December 10, 2015 11:49 pm

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