

Research sheds light on out-of-body experiences

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Researchers have found a way to induce out-of-body experiences using virtual-reality goggles, helping to explain a phenomenon reported by about one in 10 people.

The illusion of watching oneself from several feet (meters) away while awake is often reported by people undergoing strokes or epileptic seizures or using drugs.

In the studies published in Thursday's Science journal, two teams of researchers managed to induce the effect in healthy people by scrambling their senses of vision and touch with the aid of the goggles.

"We ... describe an illusion during which healthy participants experienced a virtual body as if it were their own, and localized their 'selves' outside their body borders at a different position in space," wrote Olaf Blanke, a researcher at the Ecole Polytechnique Federale de Lausanne in Switzerland.

One team, led by Henrik Ehrsson at University College London, had volunteers sit in a chair in the middle of a room wearing virtual-reality goggles showing the view from a video camera placed behind them.

A researcher moved a rod up to the camera at the same time as the person's chest was touched, and then the rod disappeared from view.

This created the illusion that the person was sitting a few steps

back, where the camera stood.

In Blanke's experiment, subjects wearing virtual-reality goggles watched an image of a mannequin representing their own body placed directly in front of them while a researcher scratched their back.

Afterwards, the volunteers were blindfolded and guided backwards. When they were asked to return to their original positions, they went toward the place where they had seen their virtual body -- the mannequin.

The researchers said mixing up the senses of sight and touch was key to the experiments.

"We tried to take two modalities -- sight and touch -- and systematically dissociate the information with those two senses, using virtual information to do this," Blanke said in a telephone interview. "It is a mismatch between the two senses."

This type of experiment could help to shed light on philosophical questions surrounding the sense of self, and could also lead to more practical applications in video games or remote surgery, the researchers said.

This could involve providing tactile information to a surgeon who is using video to control robot arms in a remote operating theatre, said Ehrsson, now at Sweden's Karolinska Institute.

"In the best case it would be the whole self transported to the operating theatre," he said. "This experiment will help to improve things like that."