

# Half-brain girl sees all in one eye

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Scientists say they had discovered how a girl born with half a brain has both fields of vision in one eye. [Skip related content](#)

The 10-year-old is able to see with the power of both the left and right eye in a single eye in the only known case of its kind in the world.

The girl, who is from Germany, is able to do so despite the failure of the right hemisphere of her brain to develop in the womb. In other cases where patients have half of the brain removed - for example to treat severe epilepsy - one field of vision is lost in both eyes.

This would leave them only able to see objects on the left or right side of their vision. In the case of the German girl, her left and right field vision is almost perfect in one eye.

Scientists at Glasgow University now believe that the girl's brain rewired itself during its development. Scans on the girl showed that retinal nerve fibres which should have gone to the right hemisphere of the brain diverted to the left.

Dr Lars Muckli, of the university's Centre for Cognitive Neuroimaging, said: "The brain has amazing plasticity but we were quite astonished to see just how well the single hemisphere of the brain in this girl has adapted to compensate for the missing half.

"Despite lacking one hemisphere, the girl has normal psychological function and is perfectly capable of living a normal and fulfilling life. She is witty, charming and intelligent."

The girl's underdeveloped brain was discovered when, aged three, she underwent an MRI scan after suffering seizures of brief involuntary twitching on her left side. Apart from the seizures, which were successfully treated, and slight weakness on her left side, the girl has had a normal medical history, attending school and taking part in regular activities.

Dr Muckli added: "If we could understand the powerful algorithms the brain uses to rewire itself and extract those algorithms together with the general algorithms that the brain uses to process information, they could be applied to computers and could result in a huge advance in artificial intelligence."

The study, which also involved researchers in Germany, is published in the Proceedings of the National Academy of Science USA.