

Australians implant 'world first' bionic eye

August 30 2012



Dr Penny Allen examines bionic eye prototype recipient Ms Dianne Ashworth.
Bionic Vision Australia

Australian scientists said Thursday they had successfully implanted a "world first" bionic eye prototype, describing it as a major breakthrough for the visually impaired.

Bionic Vision Australia (BVA), a government-funded [science consortium](#), said it had surgically installed an "early prototype" robotic eye in a woman with hereditary sight loss caused by degenerative

retinitis pigmentosa.

Described as a "pre-[bionic eye](#)", the tiny device is attached to Dianne Ashworth's retina and contains 24 electrodes which send [electrical impulses](#) to stimulate her eye's [nerve cells](#).

Researchers switched on the device in their laboratory last month after Ashworth had fully recovered from surgery and she said it was an incredible experience.

"I didn't know what to expect, but all of a sudden, I could see a little flash—it was amazing," she said in a statement.

"Every time there was stimulation there was a different shape that appeared in front of my eye.

Penny Allen, the surgeon who implanted the device, described it as a "world first".

Ashworth's device only works when it is connected inside the lab and BVA chairman David Penington said it would be used to explore how images were "built" by the brain and eye.

Feedback from the device will be fed into a "vision processor" allowing doctors to determine exactly what Ashworth sees when her retina is subjected to various levels of stimulation.

"The team is looking for consistency of shapes, brightness, size and location of flashes to determine how the brain interprets this information," explained Rob Shepherd, director of the [Bionics](#) Institute which was also involved in the breakthrough.

The team is working towards a "wide-view" 98-[electrode](#) device that will

provide users with the ability to perceive large objects such as buildings and cars, and a "high-acuity" 1,024-electrode device.

Patients with the high-acuity device are expected to be able to recognise faces and read large print, and BVA said it would be suitable for people with retinitis pigmentosa and age-related macular degeneration.

Penington said the early results from Ashworth had "fulfilled our best expectations, giving us confidence that with further development we can achieve useful vision".

"The next big step will be when we commence implants of the full devices," he said.

More information:

[Press release](#)

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Citation: Australians implant 'world first' bionic eye (2012, August 30) retrieved 2 May 2024 from <https://medicalxpress.com/news/2012-08-australians-implant-world-bionic-eye.html>

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