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It's Hope at first sight

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HRH Princess Maha Chakri Sirindhorn gets a preview of German technology that can restore vision

Doctors at the Institute for Ophthalmic Research and University Eye Hospital in

Tuebingen, Germany, had an enthralled visitor last month when Her Royal Highness

Princess Maha Chakri Sirindhorn came to see a microchip that restores a semblance of

sight to blind people.

Retinitis pigmentosa is blamed for a quarter of Europe's estimated 100,000 annual

cases of people going blind.

It's an irreversible and likely hereditary affliction in which the eyes' retinas remain

intact but their photoreceptor layers gradually degenerate.

There's no known cure, or even treatment, so far, said institute director Dr Eberhart

Zrenner, but now a 3mm-wide microchip implanted beneath the retina is having

encouraging results.

The chip has 1,500 light-sensitive photodiodes and connects via a tiny cable to a bat

tery behind the ear.

"The chip transmits a full image, with 1,500 pixels, at about seven times per second,"

Zrenner said. "It processes the visual signals. The patients don't need to wear glasses."

The Princess and other visitors watched a video of a patient who'd been blind for 15 years correctly identify an apple and banana placed in front of him. "Somehow the object is bent," he discerned, before concluding, "It's a banana." The attending physicians applauded.

Princess Sirindhorn asked whether the technique would help people who are blind since birth, but Zrenner explained that it only works for those who have at some point had vision, whose brain had a chance to developed some visual cognition.

Asked if the microchip might be used in Thailand, Dr Pairash Thajchayapong - a former Science and Technology Ministry permanent secretary and assistant director of the IT Project initiated by the Princess - said the results of further clinical trials are awaited to ensure its safety.

The chip has not produced clear vision, but is enough to change the lifestyles of its users. In some cases their vision is better than "legally blind".

"It is not much compared to normally sighted people," Zrenner said, "but for blind people it's a big difference."

Eleven people have so far had the implants, their ages ranging from 25 to 58 years and their terms of blindness two to eight years. None has suffered ill effects and all can move their eyes freely and painlessly.

Zrenner plans to involve 25 more patients and hopes to make the treatment available to everyone within a year or two. Physicians in Hungary, England and elsewhere in Germany are also running trials.

Meanwhile the US firm Second Sight has been able to restore some vision in the blind using eyeglasses with cameras. The camera transfers images wirelessly to a retinal implant. But the implanted device has only 60 microelectrodes, producing far less detailed vision.

Zrenner said his team's biggest challenge is in improving the microchip's duration.

"After a year or two it doesn't work anymore, so we're looking forward to the coming technology. The second-generation chip will last at least two years and have much better resolution, at 2,200 pixels."

Focal points

Founded in 2007, the Institute for Ophthalmic Research explores the causes of degenerative, inflammatory, neo-plastic and vascular eye diseases.

It's closely allied with University Eye Hospital, which has five operating rooms handling more than 13,000 surgeries a year for 6,000 in-patients and 16,000 outpatients.