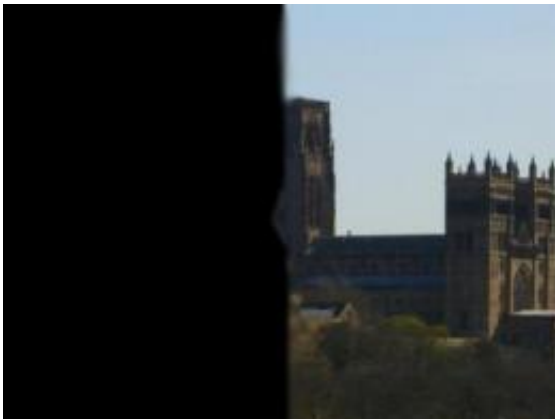


# Computer technique could help partially sighted 'see' better

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This image shows what a person with hemianopia can see when looking at Durham Cathedral. Credit: Durham University

Thousands of people who are partially-sighted following stroke or brain injury could gain greater independence from a simple, cheap and accessible training course which could eventually be delivered from their mobile phones or hand-held games consoles, according to a new study.

The new research has found that a computer-based technique developed and assessed by Durham University improved partially-sighted people's ability to 'see' better. It may eventually improve and broaden the portfolio of rehabilitation techniques for partially-sighted patients.

The study, published in the academic journal, *Brain*, tested the technique

on patients who suffer from a condition affecting their sight called hemianopia.

Hemianopia affects over 4,000 people in the UK each year. Sufferers lose half of their visual field due to stroke or other [brain injury](#). They are heavily dependent on others as they struggle with balance, walking, finding things around the house, and they are not normally able to drive.

The research was funded by the Medical Research Council, Economic and Social Research Council, and supported by the charity Action for Blind People.

The study, which tested patients' visual ability before and after the training, found that patients became faster and more accurate at detecting objects, such as coloured dots or numbers, on a [computer screen](#).

The researchers believe the test helped patients to compensate for their lost vision by exploring their 'blind field' more, which is the part of the visual field affected by the brain damage. Further research is needed to pinpoint exactly why the technique helps patients to 'see' better but the scientists believe it is likely due to improved attention, concentration and awareness of their visual problems.

The study findings offer hope that people who receive regular training like this could live more independently in their day-to-day lives because their visual ability would be improved.

Lead researcher, Dr Alison Lane, from Durham University's Psychology Department, said: "This research shows us that basic training works in getting people to use their 'poor' visual side better.

"Although we are not yet sure why this happens, we think it might be

because training increases their attention, concentration and awareness of their 'blind' field.

"We think attention is key in improving people's abilities to use their limited vision."

She added: "This simple technique is a very viable rehabilitation option and in future could be easily accessible at low cost to everyone who needs it."

Currently, there is no widely available treatment for people who experience visual loss following [brain damage](#) because of the lack of scientific evidence that existing therapies are effective, according to the study authors.

The Durham study compared two types of rehabilitation techniques - one focused on exploration and the other on attention. Neither training option is currently available on the NHS although alternative training programmes can be bought privately.

The research, which tested 46 patients, found that the basic attention training without the need for patients to move their eyes extensively was for the most part as effective at rehabilitation as the more specialised exploration technique.

The scientists say patients may even be able to see similar improvements in their vision by playing mainstream computer games, particularly those whereby you need to scan virtual environments with your eyes.

Professor David Mendelow, a neurosurgeon at Newcastle General Hospital and professor of neurosurgery at Newcastle University, said: "Hemianopia is often not recognised and is probably much more common than realised. Patients and their families find it very difficult to

understand this problem of 'half blindness'.

"At Newcastle General, we have trained our occupational therapists to recognise this visual problem and we can now identify patients with hemianopia at an early stage.

"The Neurosciences Unit at Durham University, where we refer patients on to, is to be congratulated on demonstrating how successful this kind of visual retraining can be."

Provided by Durham University

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