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'Gene cure' for colour blindness

Scientists say they are step closer to curing colour blindness using gene therapy.

A US team were able to restore full colour vision to adult monkeys born without the ability to distinguish between the colours red and green.

Nature journal describes the technique used by the researchers at the University of Washington.

Although more studies are needed, the same treatment may work for humans who are colour blind, experts believe.

Full colour

Until now scientists had not thought it was possible to manipulate the adult brain in this way.

It was considered that adding new sensory information, such as the visual receptors necessary for perfect colour vision, could only be done in the earliest years of life when the brain is at its most malleable or "plastic".

But Professor Jay Neitz and his team were able to introduce therapeutic genes into the light-sensing cells at the back of the eye of adult male squirrel monkeys.

> **“ This provides a positive outlook for the potential of gene therapy to cure adult vision disorders**
>
> The study authors

The therapeutic genes contained the necessary DNA code to enable the light-sensing cells to distinguish between red and green - something lacking in the male monkeys.

Tests revealed the gene therapy was a success. The male monkeys now possessed the necessary photopigments to see all colours and were able to correctly pick out red from green on computer image tests.

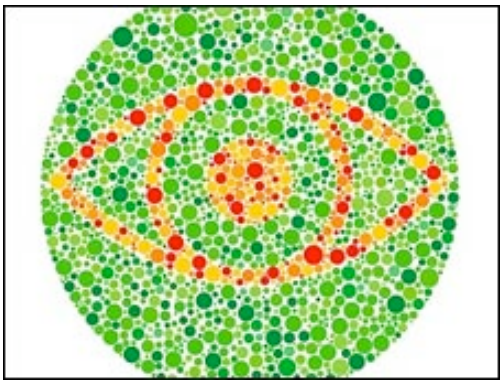
The monkeys were treated over two years ago and their improvement in colour vision has remained stable since.

Professor Neitz's team will continue to monitor the animals to evaluate the long-term treatment effects.

They are hopeful that a similar therapy could benefit people who are colour blind.

"This provides a positive outlook for the potential of gene therapy to cure adult vision disorders," they said.

There are several forms of colour blindness. The most common form is inherited red/green colour blindness, passed on through a faulty colour vision gene on an X chromosome.



A person with normal colour vision will be able to see the eye in this image

Sometimes colour blindness occurs because of diseases such as macular degeneration or from side effects of medicines.

Winfried Amoaku, an expert in ophthalmology at the University of Nottingham, said the research could eventually benefit approximately 7% of males and 1% of females born with genetic colour deficiencies.

He said: "These research seems to be the first in primates to address the colour vision deficiencies and indicate that intact cells are modifiable in their colour perception.

"Further research is required, however, before this comes to human clinical trials, and therapy in the clinics."