

## ARTICLE #2

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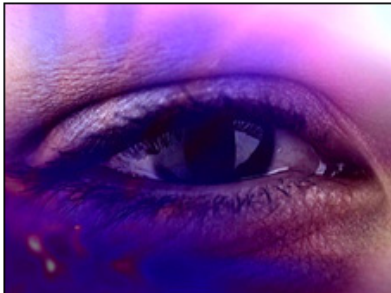
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### Stem cell eye surgery to be tried

**A new surgical treatment offering hope to patients with corneal blindness is to be trialled in Scotland.**

Doctors in Edinburgh and Glasgow will work together using an innovative technique involving adult stem cells.



About 20 patients will take part in the initial tests, using cells cultivated before being transplanted onto the surface of the cornea.

Millions of people worldwide suffer from corneal blindness, 80% of whom are elderly.

Stem cells are a source of great scientific interest as a result of their ability to renew and multiply indefinitely, potentially regenerating entire organs from only a few cells.

Unlike the more controversial embryonic stem cell research, the technique takes stem cells from dead adult donors.

The trial is being led by Prof Bal Dhillon at the Princess Alexandra Eye Pavilion in Edinburgh, working with the Gartnavel General Hospital in Glasgow.

Prof Dhillon said: "This study is the first of its kind anywhere in the world and it is exciting to be involved in such groundbreaking work. "I probably see two or three new cases of corneal disease every month. On a larger scale, it's a significant problem."

The trial will hope to emulate the success of a similar study in the US in September last year.

In trials at the University of Pennsylvania, subjects with inherited blindness experienced dramatic improvements in vision after a corrective gene was injected into the eye.

The procedure will transplant cells onto the cornea

**“ On a larger scale, it's a significant problem ”**

Prof Bal Dhillon  
Princess Alexandra Eye Pavilion

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1. Describe the difference between embryonic and adult stem cells

a) From the ethical point of view

The handling of embryonic stem cells involves the destruction of the blastocyst (human embryo). The blastocyst can become a human being: this is the point that raises ethical concerns.

Adult stem cells do not involve the destruction of human embryos.

b) From the potential in research and remediation point of view

Embryonic stem cells are more flexible (pluripotential) and can yield any type of cell; adult stem cells can only produce a specific types of cells.

2. Describe what is a blastocyst

A blastocyst is a 5-10 days human embryo before implementation in the uterus. Its inner mass cell is used in embryonic stem cell investigations.

3. What is the function of adult stem cells in bone marrow?

They produce diverse types of blood cells.

4. Describe the advantages of the new surgical treatment mentioned in the article

One advantage is that it can improve the vision of people with inherited blindness (by injecting a corrective gene into the eye).