

Name \_\_\_\_\_  
Literacy Lab #5: "Embryonic Stem Cells..."

Date \_\_\_\_\_  
Living Environment: Comet 2011-2012

**Directions:** Take a few minutes to read the article below either online (or on the back of this page.) Write responses to the statements or questions below. Cut/copy/paste is not allowed – use your own words and thoughts, based in research if needed.

Read more: [http://www.cnn.com/2012/01/23/health/stem-cell-research-breakthrough/index.html?hpt=hp\\_t2](http://www.cnn.com/2012/01/23/health/stem-cell-research-breakthrough/index.html?hpt=hp_t2)

**Fact-finding:** List three facts that you learned in this article.

1.

2.

3.

**Vocabulary:** List and define three unfamiliar words in the space below.

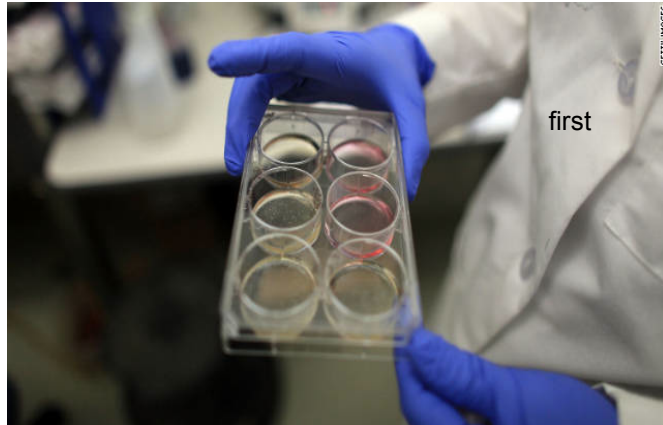
**Implications:** What are your feelings about this "discovery"? Why is this type of research

# Embryonic stem cells improve sight of legally blind women

By Elizabeth Cohen , Senior Medical Correspondent  
2012-01-23T22:25:50Z

(CNN) -- Two women who had gone legally blind from untreatable eye diseases had dramatic improvements in their vision after injections of human embryonic stem cells, making it the documented time these controversial cells have helped someone.

"I'm thrilled and so excited," said their ophthalmologist, Dr. Steven Schwartz, at UCLA's Jules Stein Eye Institute. "We're not saying we found a cure for blindness, but this is a big step forward for regenerative medicine."



Schwartz and his colleagues published their study in *The Lancet*. For each patient, stem cells derived from an embryo were injected into their retinal tissue. They had to take anti-rejection drugs for a short period so their eyes wouldn't reject the foreign tissue. Before her stem cell surgery in July, Sue Freeman, 78, couldn't take a walk, go shopping or cook by herself because of macular degeneration, a disease that affects millions of Americans and for which there is no cure. "I couldn't pour a glass of water without spilling it on the counter," she said.

Now, after surgery in one eye, she cooks, shops and walks on her own. "I can even read my own writing now," she added. "And I've noticed other things. My husband and I were walking around one of our rental properties and I noticed scuff marks on the wall. I told him we need to fix this, and he said, 'You're seeing things better, but that's making my honey-do list even longer.'"

Schwartz, chief of the retina division at Jules Stein, emphasized that the results are preliminary and it is possible the patients' vision could get worse again. Researchers will now try the procedure in 12 other patients at 10 research centers across the country. The second patient in the study, a 51-year-old woman who preferred not to use her name, said she first noticed a change in her vision a few weeks after surgery when she woke up one morning and looked at an armoire across her bedroom.

"It has a lot of detailed carvings and I thought wow, I was missing those before," she said. "I thought, is this for real?"

Later, she noticed she could see the knobs on her stove, which she couldn't see before at a certain distance.

Before having the surgery, the patient couldn't read any of the letters on an eye chart with extra large letters for people with vision problems, but after the surgery, she could read five letters on the chart, according to the study. Before the surgery, she couldn't see how many fingers an examiner was holding up in front of her face, but afterward she could.

In a commentary in *The Lancet*, Dr. Anthony Atala, director of the Institute for Regenerative Medicine at Wake Forest School of Medicine, warned that the report was preliminary, in only two patients, and with a short-term follow-up.

"But the results are impressive, especially considering the progressive nature of both diseases," he added.

The stem cells were derived from an embryo in a fertility clinic that a couple had chosen not to use to start a pregnancy and was going to discard, Schwartz said.

According to Dr. Robert Lanza, chief scientific officer at Advanced Cell Technology and a co-author of the study, the embryo was destroyed after the stem cells were derived, but in the future, doctors will be able to derive stem cells from an embryo without destroying it.

This is the first time a scientific study has been published about the results of an embryonic stem cell trial, but not the first time these cells have been used. Geron became the first company to get FDA approval for human trials using cells grown from human embryonic stem cells in 2009, but abandoned that effort for financial reasons in 2011.

Many who consider an embryo to be human life have objected to embryonic stem cell research. In his commentary, Atala said induced pluripotent stem cells, which can be made without destroying an embryo, may also be useful. These cells, which have been derived from skin, can be derived directly from a patient, making anti-rejection drugs unnecessary.

John Bonifield contributed to this report.