

The Eye on Abortion

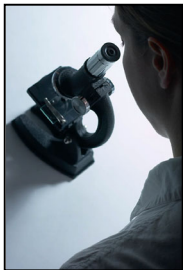
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SHOULD WE KILL IN ORDER TO SAVE? STEM CELL RESEARCH

Dear Advocates for Life,

Should human beings in the earliest stages of life be used as raw materials for the supposed betterment of other human beings' health? This is one great question that has been facing the people of our nation for some time now, and it is not going away any time soon. I am referring to embryonic stem cell research, a topic that I have not covered yet. It is high time that I tackle it.



We have all heard the promises of embryonic stem cell research over and over, how scientists are confident it holds the cures to many terrible diseases such as Parkinson's, Alzheimer's and more, but are these claims true? What does stem cell research, as a whole, consist of? What other types of stem cells are there? I'm glad you asked! My goal is to go through the basics of it all in this newsletter. There is much that could be said, but I will only hit on the key points, lest this newsletter become a book!

"STEM CELL RESEARCH 101"

Often times we hear snippets about stem cell research, but we never really get the full picture of what it actually involves. Let's start by defining the terms.

WHAT IS A STEM CELL?

A stem cell is a cell that has the potential to develop into different types of cells in the human body. In embryos, these cells develop into the 210 distinct cell types in the body. *In adults, we all have stem cells within various body parts that lie dormant until either disease or injury strikes. When that happens, these cells are activated in order to help repair damaged tissues in the body.* This is one more evidence that there is, indeed, a Creator! Truly, we are fearfully and wonderfully made!

According to the National Institutes of Health (NIH) website, there are three classes of stem cells: **totipotent**, **pluripotent**, and **multipotent**.

- A fertilized egg is considered totipotent, meaning that its potential is total; it gives rise to all the different types of cells in the body.
- Pluripotent stem cells can give rise to any type of cell in the body, except those needed to develop a fetus.
- Stem cells that can give rise to a small number of different cell types are generally called multipotent.

TYPES OF STEM CELLS

The two main types of stem cells are:

- Embryonic
- Adult

Embryonic stem cells are often trumpeted as the “best material” for scientists to use in order to produce potential cures for patients. That is why scientists are so eager to get their hands on more embryos for research.



Embryonic stem cells are among the pluripotent class, able to change into all parts of the human body. In the past, adult stem cells were thought to be among the multipotent class, able only to change into one or more parts of the human body. But recent findings show this is not at all the case. In fact, adult stem cells have the capacity to change into all parts of the human body as well, making them pluripotent, just like embryonic stem cells.

But which stem cell source is successful *and* ethical?

EMBRYONIC STEM CELLS

Embryonic stem cells are derived from embryos that develop from eggs that have been fertilized via *in vitro* fertilization, and then donated for research purposes with informed consent of the donors.



The moral dilemma with embryonic stem cell research is that when embryos’ stem cells are taken, so are their lives. All in the name of science! On the other hand, when *adult* stem cells are used, no life is lost.

As I said earlier, embryonic stem cells are the stem cells scientists are clamoring for. Never mind that so far all that science has been able to produce when experimenting on human embryos is mutations that do not work. So far, when embryonic stem cells are used, tumors form on them, rendering them useless.

When proposed with the question of how “promising” embryonic stem cell research is for patients, the bioethics department of Focus on the Family responded like this:

If by “promising,” you mean in theory, some scientists argue that embryonic stem cells have the most potential. So far, success with animal embryonic stem cell experiments is limited and researchers have been unable to move beyond animal studies because of the unpredictability and tumor-causing propensity of these cells. It’s important to note that embryonic stem cells (human or animal) have not “cured” or treated a single human patient. To date, there are no clinical trials being conducted using human embryonic stem cells.

If by “promising,” you mean actual therapies treating patients, adult stem cells have much to offer today. Non-embryonic stem cells are successfully used on a regular basis to treat patients and have been for more than 20

years. As of June 2004, the National Institutes of Health (NIH) reports funding 330 human clinical trials using non-embryonic stem-cell sources.⁶ **The National Marrow Donor Program has identified more than 70 treatable diseases using these cells in therapy**, including breast cancer, leukemia and sickle cell anemia.⁷ Researchers also have successfully treated patients with Parkinson's disease, multiple sclerosis, heart damage and spinal cord injuries using non-embryonic stem cell sources. Adult stem cells offer tangible hope to patients today.

Ethically speaking, in my opinion, it is morally reprehensible to use embryos for research, since they are human beings in their earliest stages of life. How can it ever be right to take advantage of, and exploit, the weak in order to make the strong stronger? This is not the way of our Lord.

ADULT STEM CELLS

Adult stem cells are highly effective, and it does not require the taking of human life in order to obtain the cells. The NIH reports:

The adult tissues reported to contain stem cells include brain, bone marrow, peripheral blood, blood vessels, skeletal muscle, skin and liver.

Scientists in many laboratories are trying to find ways to grow adult stem cells in cell culture and manipulate them to generate specific cell types so they can be used to treat injury or disease. **Some examples of potential treatments include replacing the dopamine-producing cells in the brains of Parkinson's patients, developing insulin-producing cells for type I diabetes and repairing damaged heart muscle following a heart attack with cardiac muscle cells.**

Here they site *adult stem cells* as having the potential to treat even Parkinson's disease! That is amazing! Over and over we have wrongly heard how embryonic stem cells are our *only* hope of curing such diseases!

In fact, the following are some stunning examples of what adult stem cells can develop into, and various ways they have, or possibly can, produce potential treatments for patients:

Mouth Stem Cells:

Blindness

- 8 out of 9 patients that had mouth stem cells placed in their eyes (cornea) recovered their sight.

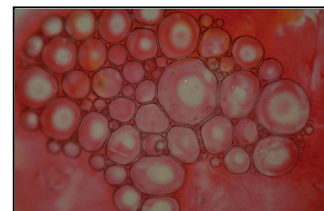
Brain Stem Cells:

Degenerative Conditions

- Functioning neurons produced from adult brain stem cells provide potential to treat patients with Parkinson's disease, epilepsy, and Huntington's disease.

Bone Marrow Stem Cells:

- Stem cells from bone marrow have the capacity to develop into all cell types in the human body including those that make up the glands, digestive tract, hair, skin, nails, brain, nervous system, and muscle.



Diabetes

- Bone marrow stem cells transplanted into the pancreas can morph into insulin-producing beta islet cells. Insulin levels increased. This discovery may help treat people with Type 1 Diabetes by eliminating the need for daily injections of insulin.

Heart Damage

- Bone marrow stem cells can help repair damaged heart muscle by helping the heart develop new, functional tissue.
- Bone marrow stem cells placed in damaged hearts (after a heart attack) improved the hearts' pumping ability by 80%.

Cord Blood Stem Cells:

Cerebral Palsy

- Injections of cord blood stem cells into 9-year-old twins with cerebral palsy increased their ability to speak, decreased their leg cramps and allowed them to sit up unassisted.

Liver Regeneration

- Cord blood stem cells have the capability to treat liver diseases.

And these are merely a *few* of the many treatments being discovered!

I strongly encourage you to check out an article called "*What the Media Won't Tell You About Stem Cell Research*" by Dawn Vargo, from Focus on the Family. She lists nearly six pages of facts and treatments that have already been discovered using adult stem cells! The previous listing of treatments comes from that article.

<http://www.family.org/cforum/fosi/bioethics/cloning/a0036470.cfm>

And what have scientists been able to produce from embryonic stem cell research? Here is NIH's answer (who, by the way, is quite supportive of embryonic stem cell research):

Scientists have only been able to do experiments with human embryonic stem cells (HESC) since 1998, when a group led by Dr. James Thomson at the University of Wisconsin developed a technique to isolate and grow the cells. Moreover, federal funds to support HESC research have only been available since August 9, 2001, when President Bush announced his decision on federal funding for HESC research. Because many academic researchers rely on federal funds to support their laboratories, they are just beginning to learn how to grow and use the cells. **Thus, although HESC are thought to offer potential cures and therapies for many devastating diseases, research using them is still in its early stages.**

Adult stem cells such as blood-forming stem cells in bone marrow (called hematopoietic stem cells, or HSCs) are currently the only type of stem cell commonly used to treat human diseases.

The NIH can give all the excuses they want, but the fact is that *no* cures have been discovered through the killing of embryos, but *only* through the use of adult stem cells!

HOW DOES IT WORK?

Now *this* part gets interesting! According to LifeNews, University of Pennsylvania scientists recently published new data showing that adult stem cells change into almost any environment in which they are inserted.

"Basically, mesenchymal stem cells **feel where they're at and become what they feel**, said Dennis Discher, a professor in Penn's School of Engineering and Applied Science and a member of Penn's Institute of Medicine and Engineering.

According to the researchers, **soft microenvironments that mimic the brain guide the cells toward becoming neurons, stiffer microenvironments that mimic muscle guide the cells toward becoming muscle cells and comparatively rigid microenvironments guide the cells toward becoming bone.**

Learning about this is important because the environment can change in a person's body when an injury occurs. After a heart attack, for example, the heart becomes so scarred that stem cells seem ineffective in fixing the damage by turning into replacement cardiac muscle.

However, Discher said the studies show that it might be possible to prime stem cells for therapy in the lab, before implanting them in the heart, spine, or whatever damaged environment into which they're inserted.

Wow! So adult stem cells basically morph to mimic their environments! There is truly no limit to what astonishing treatments can come from adult stem cells as research moves forward!

WHAT IF KILLING EMBRYOS IS THE ANSWER?

Although this is not the case, let's just say that scientists end up finding cures for every ailment known to mankind through embryonic stem cell research. Would the end justify the means?

I don't think we should *ever* feel at peace about accepting cures derived from the broken backs of our smallest children. I hope and pray that the American public will rise up and express that same sentiment, from hearts that care more for their weak, defenseless neighbors than for their own well-being and comfort. Lord, may it be!



Next month, we will talk about cloning and its possible ramifications.

On behalf of the innocent unborn,

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