

# The Truth about Stem Cell Research

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**There is a controversy in America today over "stem cell research." The purpose of this report is to provide you with the real facts about the matter.**

It is being said that if federal funds were allocated to embryonic stem cell research, most wonderful medical cures would result,—cures which could not be obtained by any other means.

### Here is a brief summary of the situation:

- The spending of private funds on embryonic stem cell research is not prohibited in America. Private and corporate money can be spent on the research, if this was desired. The quarrel is over the fact that the federal government will not provide the research funds.

- **To date, in spite of extensive private research, embryonic stem cells have not been found capable of healing anything!** That is why little private research money is currently being allocated to embryonic stem cell research. It never produces any useable results.

- The problem is that **embryonic stem cells tend to go wild and do not multiply into the kind of cells that researchers want them to.**

- **Embryonic stem cell research would require killing fertilized human eggs. In other words, human beings would be killed.** A tiny human being must be destroyed, so its cells can be extracted.

"Many ask this question: *When does the baby start existing?* Various theories have been proposed. The answer is simple enough: The baby begins existing as soon as growth begins. That is obvious; as soon as the baby begins growing. Growth begins as soon as the two cells (the sperm and the egg) unite. From that point onward, a new person exists."—*Natural Remedies Encyclopedia, Fourth Edition*, p. 669 [to be published in October].

- **The use of adult stem cells does not require killing human babies** and has been found to work quite efficiently in effectively treating many physical problems.

- **Why then is there demand from liberals for embryonic stem cell research?** The answer is simple enough: First, the hue and cry is being raised in order to embarrass the current U.S. president. Second, **the liberals want yet another opportunity to kill babies. Why? Because doing so would strengthen their case, that it is alright to kill unborn children.** Keep in mind that the abortion industry is extremely profitable. Millions of dollars siphoned from the profits are channeled into political action committees which are demanding more federal funds for Planned Parenthood, more protection for abortion mills, full legaliza-

tion of embryo body parts sale, embryonic stem cell research, and (eventually) human cloning.

Although, at the Democratic Convention, John Kerry and Ron Reagan received standing applause and newspaper headlines for criticizing White House limits on federal funding of embryonic stem cell research, the entire matter is a smoke screen. No breakthroughs in the treatment of disease are being blocked by the government. **Scientists themselves know the truth, that embryonic stem cells are useless in the treatment of disease.**

"Candidate John Kerry is spreading very serious misinformation regarding stem cell research. Among many errors, he insists that miraculous cures are just around the corner. Leaving aside the serious ethical concerns with destroying human embryos, the results of embryonic stem cell research are nil. **Destructive embryonic stem cell research has not treated a single patient or a single disease. Adult stem cells, however, have successfully treated thousands of patients and more than 90 diseases.**"—Austin Ruse, president, *Culture of Life Foundation*.

**Here is the reason that not one human being has ever been treated with embryonic stem cells: Those cells are known to create malignant tumors in lab animals.**

Dr. D.G. McKay of the *National Institute for Neurological Diseases and Stroke* has called the notion that embryonic stem cells will provide an antidote to Alzheimer's disease a "fairy tale." **No human clinical trials are being conducted, using embryonic stem cells because of their unpredictability and the lack of treatment success during animal testing.**

But there is a kind of stem cell research that is accomplishing extraordinary results; and, with further research, it will accomplish even more. But it is one which the media does not tell you about. It involves adult stem cells.

**While embryonic stem cell research requires the loss of life, adult stem cells do not kill one person in order to help another one.** They do not kill a tiny human being.

### SOURCES OF STEM CELLS

There are five sources of adult stem cells. **The first two, below (embryonic and fetal stem cells), require the destruction of a human being:**

1. **Embryonic stem cells** - are harvested from the inner cell mass of the blastocyst seven to ten days after fertilization, during early cell differentiation. The embryo at this stage may be up to 200 cells in size.

2. **Fetal stem cells** - are often taken from the germline tissues that will make up the ovaries or testes of aborted fetuses.

**The following three types of stem cells are categorized as "adult stem cells," because they do not require killing small humans.** Therefore, in this present report, they are included in the phrase, "adult stem cells."

3. **Umbilical cord stem cells** - Umbilical cord blood contains stem cells similar to those found in the bone marrow of newborns.

4. **Placenta derived stem cells** - Anthrogenesis Corporation recently announced the development of a commercial process that can extract ten times as many stem cells from a placenta as from cord blood.

5. **Adult stem cells** - Tissues, like bone marrow, lung, pancreas, brain, breast, fat, skin, and even tooth pulp contain stem cells that have been isolated.

**Of all the above five types of stem cells, only the last three are useable in the treatment of disease. The first two, when removed from their normal location, "go wild" and do not grow into something predictable.**

"The great advantage of embryonic stem cells is that they can differentiate into 210 different types of tissue. This is also their greatest weakness. How does a scientist direct development down just one path [instead of going in another of 210 paths]? Geron [Corporation] researchers at the December 2000 meeting of the Society of Neuroscience reported that they had attempted to transplant human embryonic stem cells into the brains of rats. The embryonic stem cells did not differentiate into brain cells. They stayed in disorganized clusters and brain cells near them began to die."—Christian Medical and Dental Association statement.

#### THREE TYPES OF STEM CELLS

This will help clarify why only adult stem cells can be used in the treatment of disease:

There are three types of stem cells: (1) *totipotent* stem cells, (2) *pluripotent* stem cells, (3) and *multipotent* stem cells.

*Totipotent stem cells* are in a fertilized human egg and can become an entire human being. (What a miracle of God!). But they cannot be used to multiply into the cell or organ that the researcher wants them to.

*Pluripotent stem cells*, such as those found in a seven-day-old embryo (a blastocyst), can develop into any body cell type; and, in some cases, they can become an entire human being. But they are useless for the treatment of specific diseases.

**Unlike the above two, these are adult stem cells.** **Multipotent stem cells can only differentiate into the same type of tissue cell.** For example, a bone marrow stem cell can differentiate into a monocyte (a white blood corpuscle) or lymphocyte. This is because the blood is made in the bone marrow. But a bone

marrow stem cell cannot form into kidney, heart, muscle, or brain.

#### BENEFITS OF STEM CELLS

Stem cells have the ability to differentiate into a variety of tissues. This means that, **through careful work, adult stem cells could be used to repair a damaged brain or heart, rebuild a knee, restore injured nervous system connections, treat diabetes, and much more.** That is the potential power of stem cells. But **only adult stem cells can be used to do this; for they are the only type which predictably will grow into the desired type of tissue.**

Unlike embryonic stem cells, which are unmanageable and do not produce the right kind of cells, stem cells from adult bone marrow do not trigger such problems, even after the cells differentiate.

"The cells seem to go only to damaged areas . . . [turning] into heart muscle, blood vessels, and fibrous tissue."—New Scientist, December 15, 2001.

One writer described it this way: It is as though they had stumbled upon a packet of magic seeds. Depending on where they were planted, they can grow carrots, broccoli, corn, or cabbage.

Theoretically, according to the type of adult stem cell that is used, **they can produce any of the 210 different types of tissue in the human body;** and they can divide and multiply for an indefinite period of time.

#### USES OF STEM CELL THERAPY

There are three proposed stem cell applications:

1. **Cell Therapy** - Adult stem cells can be guided to differentiate into specific types of cells, so they can be used to treat disease characterized by cell death (such as diabetes, multiple sclerosis, myocardial infarctions, or strokes).

2. **Gene Therapy** - The ability of adult stem cells to enter an organ and generate new cells makes them extremely useful in providing gene therapy to replace genetically defective cells.

3. **Organ Generation** - Adult stem cells could become the seeds of an unlimited source of lab-grown organs for transplantation.

#### STEM CELL THERAPIES USEABLE NOW

It is claimed that there is a great need of embryonic stem cell research, so physicians can treat various diseases and disorders with stem cells.

**But—right now—adult stem cells can, and are, being used to treat several different types of diseases.**

**There are already 15,000 adult stem cell therapies carried out in this country each year.** Bone marrow derived stem cells are used in cancer and autoimmune treatment protocols, to replace or repair organs that are damaged by chemotherapy during cancer therapy. Adult stem cell therapy is being used to treat brain tumors, retinoblastoma, ovarian cancer, sarcomas, multiple myeloma, leukemia, breast can-

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cer, neuroblastoma, renal cell carcinoma, juvenile rheumatoid arthritis, and other diseases. Thus scientists already have broad experience in many aspects of adult stem cell therapy.

## **Here are some sample instances in which adult stem cells are being used to treat disease:**

**1. Diabetes** - Eleven out of 115 Type 1 diabetes patients are "completely off insulin" after receiving adult pancreatic cell transplants (*Medical Post*, June 19, 2001).

**Diabetes** - Researchers at Harvard Medical School used animal adult stem cells to grow new islet cells to combat diabetes. Researcher Denise Faustman said, "It was astonishing! We had reversed the disease without the need for transplants." Plans for human trials are underway ("Adult stem cells effect a cure," *Harvard University Gazette*, July 19, 2001).

**2. Heart Disease** - German heart specialist Bodo Eckehard Strauer successfully treated a heart patient, using stem cells from the man's bone marrow. Dr. Strauer said, "Even patients with the most seriously damaged hearts can be treated with their own stem cells instead of waiting and hoping on a transplant" ("Stem cell therapy repairs a heart," *London Daily Telegraph*, August 25, 2001).

**Heart Disease** - "Four out of five seriously sick Brazilian heart-failure patients no longer needed a heart transplant after being treated with their own stem cells" ("Stem cells used to repair heart tissue," *MSNBC News*, September 8, 2003).

**3. Sickle Cell Anemia** - CBS' *60 Minutes II* reported on 15-year-old Keone Penn, whose physicians at the University of Pittsburgh say was healed of sickle cell anemia with an injection of stem cells from umbilical cord blood. According the report, "the stem cells changed his entire blood system from type O to type B" and eliminated the sickle cell problem ("Stem cells from umbilical cord blood used to save a boy's life," *CBS broadcast transcript*, November 28, 2001).

**4. Acute Myeloid Leukemia** - Sixteen-year-old Nathan Salley told a U.S. Congressional subcommittee how stem cells from umbilical cord blood saved his life ("Teenager testifies he's 'living proof' of stem-cell option," *Denver Post*, July 22, 2001).

**5. Multiple Sclerosis** - Thirty-six-year-old Susan Stross is one of more than 20 MS patients whose conditions have remained steady or improved after receiving an adult stem cell transplant. The same results are reported with several hundred patients worldwide ("Already saving lives, stem cell research may soon be in full swing," *Seattle Times*, August 20, 2001).

**6. Non-Hodgkin's Lymphoma** - Forty-year-old Mark Fulford was not able to receive a bone marrow transplant; so doctors used stem cells from umbilical cord blood ("Different kind of stem cell already saving lives," *Denver Rocky Mountain News*, August

18, 2001).

**7. Parkinson's Disease** - "Jefferson researchers have early evidence of bone marrow stem cells able to become brain cells" (*Thomas Jefferson University news release*, November 12, 2001).

**8. Improved Stroke Recovery** - "Cells from the blood of an umbilical cord help rats recover from stroke faster, new study finds" (*University of South Florida Health Sciences Center News Release*, November 8, 2001).

**9. Blood Stem Cell Transplant** - "Transplantation: Surgical team uses standard stem cell procedure in unique way for kidney recipient" (*Blood Weekly*, March 7, 2002).

## **Adult stem cells are being used, in increasing amounts, to improve and save lives.**

"Everyone here gets a sense of accomplishment, recognizing that about 100 lives are saved each year by the [umbilical cord blood] products from this bank alone," said Director Michael Creer of the St. Louis Cord Blood Bank."—*Belleville, Missouri, News-Democrat*, March 24, 2002.

## **FUTURE ADULT STEM CELL RESEARCH**

**Researchers have strong hopes for great success, using non-embryonic stem cells.** New breakthroughs keep developing:

"A stem cell has been found in adults that can turn into every single tissue in the body. It might turn out to be the most important cell ever discovered."—*New Scientist*, January 23, 2002.

Researchers at New York University School of Medicine announced:

**There is a cell in the bone marrow that can serve as the stem cell for most, if not all, of the organs of the body . . .** This study provides the strongest evidence yet that the adult body harbors stem cells that are as flexible as embryonic stem cells."—*Science Daily Magazine*, May 4, 2001.

McGill University researchers, in Montreal, have discovered another excellent source of useable stem cells:

"Stem cells deep in the skin of humans that can become fat, muscle or even brain cells . . . Scientists are driven by the hope of bringing science closer to treatments for spinal cord injuries, juvenile diabetes, heart disease and brain disorders, through treatments made from the patients' own cells."—*Los Angeles Times*, August 19, 2001.

**For additional information on this**, obtain a transcript of the expert testimony given at the *Hearing on Advances in Adult and Non-Embryonic Stem Cell Research*, given to the U.S. Senate Committee on Science, Technology, and Space, Thursday, June 12, 2003.

## **A PETITION SENT TO CONGRESS**

Unfortunately, although adult stem cells are being used to treat some diseases, there are others which could also be treated (including Alzheimer's)—but the research funds are not available. Instead, the pro-abor-

tionists are clamoring for funds to be spent on embryonic stem cell research, when it is well-known in the scientific community that embryonic research is a blind alley which will not produce the desired cures.

**"Research and treatments using adult stem cells are 20 to 30 years ahead of embryonic stem cell research."**—Dr. Tadeusz Pacholczyk, Massachusetts neuroscientist.

### The Christian Medical Association has decided to urge Congress to fund the right kind of research:

"More than 2,000 physicians, members of the Christian Medical Association (CMA), have signed and sent a letter to the U.S. Congress requesting them to educate themselves on the benefits of research using adult stem cells.

"According to CMA Executive Director, Dr. David Stevens, the letter clarified that **the quickest and most economical path to real cures is through adult stem cell research**, and it urged Congress to focus its funding on that line of study.

"Many of them are unaware of the research that is out there, and what the medical journals are showing," he said. "What they're hearing is from the so-called scientific experts who are blinded by their desire for federal funding."

"Stevens said his group's membership is made up of physicians taking care of patients with maladies such as Parkinson's disease and diabetes—patients they can help if they can get the cures promised by adult stem cells.

**"We cannot stand by and see the country go down the wrong research path—morally and scientifically—when patients are going to continue to suffer,"** Stevens said.

"Dr. David Prentice, a former science adviser to members of Congress who now works for the Family Research Council, said adult stem cells—not embryonic stem cells—are the ones showing the real success.

"What we're finding," he said, "is you can take these adult stem cells, and they stimulate regeneration in the heart, in the brain, in the liver, in virtually any tissue we need."

"But embryonic research advocates stand to make millions of dollars from years spent on fruitless research. **And then there's the abortion industry.** 'Their fear,' Prentice said, 'is that, if you say you shouldn't destroy embryos, it obviously puts their particular bent on human life in question.' "—News release by the Christian Medical Association, no date.

#### A WAY TO MAKE MONEY

Some scientists and research centers are urging the release of federal funds for stem cell research. An investigative report, by Neil Munro in the *National*

*Journal*, found that the cause may be "the pecuniary interests of the physicians and scientists." Three scientists have been quoted 216 times in the national press. **In only 17 instances was it mentioned that they were shareholders and founders or board members in private biotech companies that would benefit from federal funding.**

Johns Hopkins' John Gearhart was co-discoverer of embryonic stem cells while working for Geron Corporation, a leading biotech firm. **Geron has a profit sharing agreement with Hopkins as does the University of Wisconsin**, where James Thomson, the other co-discover works. **All these scientists were special contributors to the NIH report on stem cells delivered to President Bush.** But this conflict of interest has been ignored by the media.

#### BIBLICAL AND ETHICAL IMPLICATIONS

**The Scriptures describe a continuity of human personhood from before birth (Ps 51:5, Isa 44:2).** Man is not to unjustly take human life (*Deuteronomy* 5:17). Christ's incarnation began with a miraculous fertilization (*Luke* 1:43, 26-38). Our Saviour was once a one-cell embryo.

#### In addition, there are many ethical implications.

Adult human beings are the result of continuous growth that begins at fertilization. There is no normal break in their development. The embryo has total capacity to develop full physical and brain activity if allowed to do so. Regardless of whether or not an embryo can feel pain, it is a person which is harmed by being cut in pieces.

Personhood is not dependent on a mother's ability to feel her baby moving. Birth is just a change of location and degree of dependency. A baby is more dependent on the efforts of another after birth than it is before.

**What about legal implications?** At the present time, 38 states recognize that life begins at conception and 25 states already regulate embryo and fetal research. Ten states ban harmful embryonic research altogether. Louisiana designates IVF [in vitro fertilization] derived embryos as judicial [legally recognized] persons. Maine, Michigan, and Massachusetts impose up to five years of imprisonment for harmful research on live embryos or fetuses. Five states restrict the sale of embryos, five more restrict sale for research, and eight others prohibit sale for any reason.

**The good news is that there is an ethical alternative to embryonic stem cell research which, although ignored by the liberals and the media, is wanted by medical researchers and physicians. The alternative is adult stem cell research.**

**Tell others the facts. They need to know them.**

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