

The Need for Stem Cell Research.

If you had an illness or disease that could be cured or helped if someone just decided to do a little more research, would you not want this person to give it their all to try and help you out of your misfortune? If stem cell research could benefit millions of people world wide, suffering from Parkinson's diseases, spinal cord injury, stroke, burns, heart disease, diabetes and arthritis, would you not want even one scientist in the world to spend an hour more each day trying to see if there was a possible cure through the recent findings of stem cell research? More stem cell research can change the lives of hundreds of thousands if not millions of lives. In this article I am not disputing the morality of abortion. I am arguing the necessity and possibilities of stem cells research.

A stem cell is a primitive type of cell that can be coaxed into developing into most of the two hundred and twenty types of cells found in the human body (e.g. blood cells, heart cells, brain cells, etc). Some researchers regard them as offering the greatest potential for the alleviation of human suffering since the development of antibiotics. Over one hundred million Americans suffer from diseases that may eventually be treated more effectively with stem cells or even cured. This is how Stem cells have the ability to help these diseases because stem cells can change into any type of cell, from kidney to bone to skin or even brain cells (Lemonick). Knowing this, stem cell research should be promoted, not held up by technicalities. For something that has so much potential why would it be so limited?

They are Pluripotent meaning they can develop into all cells and tissues inside the body. These stem cells are primarily important because they can produce all aspects of a cell and make up any cell in the human body as well as the overall structure (Stem).

Stem cells can help different tissues while not only coming from embryonic cells but they can also be found in adult tissues, without harm to the subject. An adult stem cell is an undifferentiated cell found among differentiated cells in a tissue or organ, can renew itself, and can differentiate to yield the major specialized cell types of the tissue or organ. The primary roles of adult stem cells in the living organisms are to repair and maintain the tissue in which they are found. Unfortunately, they are difficult to remove and are severely limited in quantity. There has been a consensus among researchers that adult stem cells are limited in usefulness -- that they can be used to produce only a few of the two hundred and twenty types of cells in the human body. However, some evidence is emerging that indicates that adult cells may be more flexible than has previously been believed (Stem).

“Scientists are now thinking that because pluripotent and multipotent stem cells (which are cells in two specific developmental stages) have the ability to renew themselves and form many types of specialized cells, scientists suspect they could possibly serve as a renewable source of cells. As the process becomes known, neuroscientists suspect that they could duplicate the process in laboratory dishes and create a supply of nervous system cells to test in transplantation studies” (About).

In the United States there are many colleges and institutions doing research to find a cure, but the resources are limited with little support by the government. President George W. Bush said on August 9, 2001, that taxpayer dollars could not be spent to create new stem cell lines (Connelly). Specifically, he was referring to surgical procedures that are not supported. A substantial amount of the research being done in the world is not being done in the United States. Instead, more research is being done in Italy, China, and Israel, “research in the United States is far behind that of Europe and Asia” (Connelly). “The federal government limits the number of

previously created stem cell lines to be used for government funded research. A number some doctors say is fewer than a dozen viable stem cell lines. The Bush administration prohibits federal money from being spent on creating new stem cell lines and restricts federally funded research to already created lines” (Connelly). Stem cell research is responsible research that could potentially better the lives of millions.

The reason behind the government not funding stem cell operations is because of how many people oppose it. “Opponents to stem cell research, including religious groups who condemn cloning and abortion, have argued that to create stem cells, embryos must be destroyed” (Connelly). Stem cells can be extracted from very young human embryos -- typically from surplus frozen embryos left over from in-vitro fertilization procedures at fertility clinics. There are currently about one hundred thousand surplus embryos in storage. However, a minority of pro-lifers and a majority of pro-life organizations object to the use of embryos. They feel that a few-days-old embryo is a human person. Extracting its stem cells kills the embryo -- an act that they consider murder. Stem cells can now be grown in the laboratory, so (in a pinch) some research can be done using existing stem cells. No further harvesting needs to be made from embryos. However, existing stem cell lines are gradually degrading and will soon be useless for research. Even with such a loss, stem cells can still help many different problems and ailments (Stem).

Currently over two hundred and fifty thousand people in the United States alone have a debilitating spinal cord injury. Scar tissue from a spinal cord injury can act as a barrier for growth. Stem cells have the ability to fix this. The scar tissue can be removed, then injecting stem cells, the harmed area will heal (Vandersaar). “Stem cells can be used to generate cells and tissue that can be used for cell therapies. In previous years when transplanting stem cells, the

cells generally died quickly, that is if it could be done (Lewis). Tests have now been done with rats that have been successful. Paralyzed rats given stem cell injections regained the ability to stand on four legs and walk, within two weeks (Seppa). Stem cell treatments can re-grow the damaged area of the spinal cord up to two centimeters. Two centimeters is a large distance considering many injuries are much less (Vandersaar).

Stem cell research also has the ability to help Parkinson's disease. Parkinson's disease is caused by a progressive degeneration and loss of dopamine-producing neurons, which leads to tremor, rigidity, and hypokinesia (abnormally decreased mobility). Scientists have the ability to manipulate stem cells to become cells that produce dopamine which can be transplanted. Scientists have been able to recreate Parkinson's in lab rats, in which this procedure was done and has improved the function of the rats. With further research this is possible with humans who have Parkinson's (Stem).

A loss of oxygen or rich blood can create a stroke which in return creates a large hole or gap in the brain which no longer functions, due to loss of oxygen. Someone who has suffered from a stroke can use the findings of stem cells to fill in the large hole or gaps found in the brain so the person can still function properly despite having the stroke in the first place. Stem cells can substitute the loss of original brain cells lost after the stroke has occurred (Stem).

As well as being able to help stroke by filling in for missing cells, Stem cells can also help in the case of diabetes. Stem cells have the ability to replace the insulin-producing cells of the pancreas that are destroyed by a patient's own immune system. Diabetes develops when the body's immune system sees its own cells as foreign and attacks and destroys them. As a result, the islet cells of the pancreas, which normally produce insulin, are destroyed (Stem).

Stem cells can not only help in replacing insulin producing cells, but can also substitute for cardiovascular tissue cells. Cardiovascular diseases affects nearly sixty-two million people and is the number-one cause of death in the United States. Stem cells offer hope to those with heart disease because they might be able to stimulate the growth of new heart-muscle cells. Because heart muscle cells do not replace themselves naturally, those who now suffer from a heart attack, from congenital heart disease, or from congestive heart failure have few treatment options. However with the help stem cells can end this problem (University).

Stem cells are also able to help burn victims. After a person is burned the only treatment or “cure” is to cover the burned are with skin grafts. Burn victims often go through several surgeries in which their skin is unburned skin is removed from certain places and grafted to the damaged area. Often times the burn victims will have to stretch and grow their skin for their grafts, leaving them with even more scars. Since stem cells can develop into skin cells it would be beneficial for burn victims to have pregrown skin for their grafts, instead of going through long processes of growing and stretching skin and skin grafts.

Laws preventing stem cell research is holding up medical science that can help if not cure many diseases and ailments. It is time for the government restrictions to be lifted so research may be done to better millions of lives. The citizens and the government of United States needs to recognize to potential of stem cells and increase the research. When this is realized the people suffering from Parkinson's diseases, spinal cord injury, stroke, burns, heart disease, diabetes and arthritis and a number of other problems not mentioned will be much closer to having cures or help with their ailments.

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