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One of the most exciting areas of modern medicine is the development and use of stem cell therapy. Using stem cells from our own body, we can regenerate nearly any damaged or missing tissue within the body, reversing the problems that come with degenerative diseases of all kinds.

Stem cell therapy provides great hope for patients who are ill with a wide range of diseases, from many different types of cancers to Parkinson’s to Alzheimer's and more. With stem cell therapy, the damage done by these diseases can be reversed or even stopped entirely.

But, how does it all work? What are stem cells? What can a patient expect when going through stem cell therapy? How long has this type of treatment been around?

Here is a guide for understanding the process and the benefits of stem cell therapy.

**What are Stem Cells?**

So, what exactly are stem cells? In the most basic terms, stem cells are “blank slate” cells that can become anything the body needs them to become, based on the other cells that are nearby.

Our bodies are full of blood cells, skin cells, brain cells, and cells that make up every other part of our bodies. At the same time, cells throughout our bodies are dying and being replaced. Our body has a large supply of stem cells that are just waiting for an opportunity to replace nearby cells when they are needed.

Stem cells exist in everyone's bodies, so they can be harvested easily. They also exist very prevalently in embryos and umbilical cords of newborn babies, as their bodies are so early in the development process. These are the two most common ways to find and utilize stem cells for stem cell therapy.

Specifically, stem cells are commonly sourced from a patient's body and consist of two types. Mesenchymal stem cells (also known as MSCs) are found in the connective tissue near the area that needs stem cell therapy. These cells are great for regenerating specific areas of the body, as they come right from nearby where they are needed. These cells are already born near the area where they are needed, making it easier for them to grow into cells that are needed in that area of the body.

Induced pluripotent stem cells (also known as iPS) are stem cells that are pulled from anywhere in the body, then regenerated in the lab to produce more cells. Fewer stem cells need to be extracted with iPS because the few that are pulled will be used to create more stem cells on their own before use in therapy. Once enough stem cells have been created, they can be put to use.

**What is Stem Cell Therapy and What does it do?**

Stem cell-based therapy is any procedure that utilizes stem cells to treat a disease. Typically, stem cells are taken from one part of the body and injected into another area where they are needed. These cells “learn” from nearby cells how to develop into similar cells, regenerating lost tissue and replacing dead cells. This kind of regenerative medicine allows the patient’s own body to repair itself.

Stem cell therapy is one of the best ways to replace nearly any tissue in the human body. Many diseases are known to deplete or permanently damage body tissue in a variety of areas, such as organs, in the blood, or the brain. Stem cells can be put into the body in those depleted areas and help regenerate new tissue to replace what is being lost due to the disease.

Patients with diseases like Parkinson’s and Alzheimer's are major candidates for stem cell therapy. These degenerative diseases are known for destroying brain tissue and muscle tissues throughout the body, causing a wide variety of health issues including muscle spasms and loss of memory among others. Using stem cell therapy, these “blank slate” cells can be injected into the areas of the brain and muscles where they are needed most so they can regenerate the tissue quickly and effectively.

**Facts and Stats on Stem Cells**

Stem cell therapy has been around for decades but only recently has grown into a major source of safe and effective treatment for degenerative diseases. Many studies over the years have come out, proving the power of stem cell therapy to repair the human body.

In 2013, doctors were able to create new blood vessels in lab mice using human stem cells. Within two weeks of injecting the cells, the new blood vessels had developed to the point of being just as healthy as the original blood vessels inside the mice. Countless stories like this one have been reported in both lab animals and humans across the globe over the past few years.

Stem cells have been used in over 1 million patients worldwide as of 2012, with that number grown more and more every year. There are up to 2,500 clinical trials involving stem cell therapy according to the National Institutes of Health. Over 70 different diseases have been treated by the use of stem cells.

These stories and statistics show that stem cell therapy is quickly on the rise as a popular treatment for disease. In the coming years and decades, it is assumed that more studies and clinical trials will come about and more success will be enjoyed by patients who undergo stem cell therapy.

**How Stem Cell Therapy Works**

The stem cell therapy process is fairly simple. Doctors take a source of stem cells from a patient’s body and inject them into another area where they will regenerate damaged or missing tissue. With a mix of chemotherapy, radiation, and stem cell therapy, patients could see significant improvement in their health. Even better, these improvements tend to arise within just a few weeks after treatment of their disease or condition.

The process commonly begins with chemotherapy or radiation, as is common for patients with major diseases such as cancer. These treatments damage the cancerous cells, but may also damage healthy cells. One thing these treatments also do is make it easier for doctors to reach the stem cells.

Once chemotherapy and radiation are complete, doctors can more easily access sources of stem cells. They pull the stem cells out of the body and typically work with them in the lab to generate more. Because stem cells are “blank slates”, they can help create more of their own kind in a controlled environment. The doctors can stimulate these cells in such a way as to generate as many as they need for stem cell therapy.

Once the doctors have enough stem cells available, they inject the cells back into the body, specifically where they are needed most. Rather than just putting them back in the body where they came from, doctors can pinpoint the areas of the body where tissue has been significantly damaged and inject them locally. This allows the stem cells to go to work quicker. Stem cell transplants work best when the cells are locally injected.

Once the stem cells are in the body, they will slowly become like the cells around them, filling in the gaps wherever they are needed. After a while, the stem cells will become brain cells, blood cells or whatever cell types may be needed to help repair the damage inside the body.

**What to Expect during Stem Cell Therapy**

The process of stem cell therapy is relatively quick, taking only a few hours to complete. The doctors usually take stem cells directly from your body, then inject them where they are needed. Most patients can go home on the same day as therapy. Doctors say that patients can usually return to regular activities such as work and exercise within a few days. Patients with pain issues from their disease can expect improvement in just a few weeks.

The entire process usually takes 3 to 4 hours at the doctor’s office. Depending on the situation, it may take longer, or the doctors may want you to have a few rounds of therapy over the course of a few weeks. The doctors at the stem cell clinic will outline the entire process in detail before they begin treatment.

Doctors take stem cells from different areas of the body, depending on where they are readily available and where they need to be injected later. Common areas include the lower abdomen and the bloodstream as these sources tend to have more stem cells than other areas of the body. If needed, doctors can pull the stem cells and take them to the lab where they will regenerate additional stem cells before being put back into the body.

Once the stem cells are pulled, doctors inject them into any area that is in need of them. For example, a patient suffering from Alzheimer's, a disease that breaks down brain tissue, would have the stem cells injected into the areas of the brain where tissue has been lost. Patients with cancer in any given area of their body would have the stem cells injected in the proper areas to fight the cancer and regenerate damaged tissue.

Over a few weeks to months, the stem cells go to work becoming proper cells based on their location. Patients typically feel pain relief in a few weeks as their body regenerates the damaged tissue. Over a few months, patients usually have continued pain relief.

As with any procedure, doctors will want to have a few follow-up visits to the office to make sure things are going well. MRIs or CAT scans can be done to see if tissues have been repaired and if more therapy is needed.

Stem cell therapy is one of the most exciting areas of today’s healthcare. With many success stories over the past few decades, patients who were once given a death sentence with their diagnosis can manage to live with their illness or even beat it completely thanks to stem cells. Pain relief, improved health, and being cured of a major disease are a few of the benefits of stem cell therapies that are only becoming more and more advanced by the day.

Stem cell therapy can be the safe, effective, FDA-approved tool you need to beat your illness.