

Living with MS

Stem Cells in MS

Stem cell therapy is any treatment that uses or targets stem cells, which are the types of cells that change into many different specialized cells in our bodies. Stem cells are found in both embryos and adults. There are different types of stem cells and the effects of receiving them depend on additional factors, including the specific procedures used to prepare and administer them, and biological conditions in the person to whom they are given.

Different Types of Stem Cells

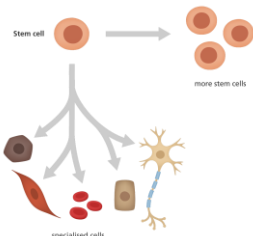
- **HSCs (hematopoietic stem cells)** – adult stem cells that are found in bone marrow and blood. HSCs are capable of producing all of the cells that make up the blood and the immune system.
- **MSCs (mesenchymal stem cells)** – adult stem cells found in several places in the body, including the bone marrow, skin and fat tissue. They produce cells which help other stem cells function properly.
- **NSCs (neural stem cells)** – specialized stem cells responsible for repairing nerve-insulating myelin in the brain. These can be derived from other types of stem cells such as mesenchymal cells.
- **hESCs (human embryonic stem cells)** – stem cells derived from donated embryos. They can naturally produce every type of cell in the body. One concern about their potential therapeutic use is that they have been found to cause tumors.
- **iPSCs (induced pluripotent stem cells)** are engineered from adult cells to produce many types of cells. One concern about their potential therapeutic use is that they have been found to cause tumors

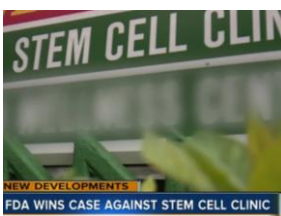
Stem Cell Research in MS

Hematopoietic Stem Cell Transplantation (HSCT) attempts to “reboot” the immune system, which is responsible for damaging the brain and spinal cord in MS. A person’s own HSCs are collected and stored, prior to depleting much of the immune system using chemotherapy drugs. Then the stored HSCs are reintroduced to the body. The new stem cells migrate to the bone marrow and over time reconstitute the immune system. Currently there are phase III clinical trials ongoing to further study the efficacy and safety of HSCT.

Adult mesenchymal stem cells are being tested in phase I and II clinical trials in MS. A person’s own mesenchymal stem cells are isolated from the bone marrow or blood stream and multiplied in the lab, and then re-introduced in greater numbers into their body. Alternatively, the cells are sometimes treated prior to transfer to potentially enhance their ability to suppress nervous system-damaging immune responses and/or promote myelin repair.

Another line of stem cell research in MS relates to efforts to repair nervous system damage directly with stem cells that may replace the cells that make myelin and nerve cells that have been destroyed. One avenue being explored in early stages is the concept of taking samples of a person’s skin cells or other cells and turning them into stem cells. These cells are called “induced pluripotent stem cells” or iPSC. The potential advantage of this approach is that it’s possible such cells would not be rejected by the person’s immune system, and this approach bypasses possible ethical concerns connected with human embryonic stem cells.





Stem Cell Clinics

There is a lot of progress being made in stem cell research however there is still a lot of work to be done before it is an approved therapy for MS patients. There are several for-profit stem cell clinics popping up around the world, including in the U.S. These clinics are unregulated and none have provided medical evidence that their treatments are safe. Stem cell therapy is still in the experimental stage, so it's important for people to have the best available information to understand this exciting area of research and make decisions related to this complex issue. You should always discuss treatment options with your MS provider even if you will be receiving the treatment elsewhere.

Upcoming Events:

- Saturday, August 17th – SMC's 4th Annual Health Fair
 - 9am-noon @ Saunders Medical Center
 - Several MS related vendors
 - Free screenings
 - Contact Sam Jack at 402-443-1457 or sjack@smcne.com if you have questions or wish to register for heart or hearing screenings
- Friday, December 6th – SMC's 5th annual Night of Lights
 - Buses leave SMC at 5pm or you can meet at The Players Club at 5:30
 - Food and Drinks at The Players Club in Omaha
 - Arrow Stage Line buses to look at Christmas lights
 - Raffles and giveaways
 - Tickets are \$30 per person and can be purchased starting August 19th by contacting Sam at 402-443-1457 or sjack@smcne.com
- **We would like to let everyone know that Patti, our prior authorization person, will be out of the office indefinitely. Please contact Katherine for all prior authorization needs at 402-443-4191 ext 539.**

General Information/Tips

- Due to our increasing patient load, we need to start charging patients who cancel their appointment less than 24 hours in advance.
- Please arrive a half hour before your appointment to ensure there is adequate time for the check in process and our providers do not get behind for other patients.
- To schedule appointments please call registration at 402-443-4191. Our nurse is unable to schedule appointments and will have to transfer you.
- **Please notify Katherine at 402-443-4191 ext 539 if you have any change in your medical or prescription insurance. Also please make sure to give registration both cards at check-in.**
- If you have questions regarding the newsletter, please email Sam at sjack@smcne.com.

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