



## A New Frontier: Stem Cell Therapy for Low Back Pain

**One of the most common causes is degeneration of discs in the spine. As we age, there is a normal amount of expected “wear and tear” of our spinal discs; however, arthritis in our spine can accelerate this process and can in turn lead to low back pain, stiffness, weakness, and eventually, loss of function.**

Back pain is a very common complaint. It is the second most common complaint made to a primary care doctor by a patient, surpassed only by the common cold. It is estimated that 331 million Americans have low back pain at any given time and one of every two adults in the U.S. experience at least one day of back pain every year.

There are many reasons why people have back pain, but one of the most common causes is degeneration of discs in the spine. As we age, there is a normal amount of expected “wear and tear” of our spinal discs; however, arthritis in our spine can accelerate this process and can in turn lead to low back pain, stiffness, weakness, and eventually, loss of function.

Current treatment for low back pain includes exercise and physical therapy, medications such as anti-inflammatories, therapeutic injections, and ultimately surgery. These treatments are aimed at maximizing function, and returning the patient to as normal a life as possible.

As science progresses, we are gaining further understanding of how the degeneration process occurs in the spine. At a cellular level, there is continual loss of healthy cells inside the disc that is responsible for the degeneration of the disc’s structure. Eventually, normal cells are replaced with fibrotic cells, and the walls of the discs break down. This could lead to bulging discs, protrusions, and bone spurs from neighboring vertebrae begin to form. This process leads down its own pathway of natural degeneration, but what if there was a way to reverse this and return normal, healthy cells to our discs?

Every person carries inside their bodies cells that have the ability to form new and healthy tissues. In fact, adult stem cells are found throughout the body and exist in order to replenish dying cells and regenerate healthy tissue. Muscles, bones, cartilage and tendons all come from a certain kind of adult stem cell called Mesenchymal stem cells. The main reservoirs of Mesenchymal stem cells are bone marrow and adipose (fat) tissue.

Scientists have known about these stem cells as early as 1993 and were deemed safe for therapeutic use in humans shortly thereafter. Since then, research has continued to show that they can aid in the repair of tendon ruptures, bone fractures, diseased muscles, and degenerated cartilage. Even more recent research has shown that adult Mesenchymal stem cells have the ability to produce new cells in lumbar discs, which are able to bring new healthy tissue to a degenerating disc.

If the procedure is performed by a specialist in the field, adult stem cells can be transferred into a person’s degenerated disc safely and effectively in an outpatient setting, without resorting to surgery. Completed in the safe and sterile environment of an outpatient center, a small volume of stem cells can be easily harvested from a person’s bone marrow. It is then spun down in a centrifuge to concentrate the stem cells. These cells are then injected into a lumbar disc utilizing x-ray technology to guide the injection.

The physicians at Southwest Spine & Sports are all well-qualified, fellowship trained experts on disc disorders, and have the experience to complete this stem cell transfer into degenerated discs. In fact, our team is at the beginning stage of initiating a research study for stem cell treatments into lumbar discs, the first of its kind ever in Arizona and one of only a handful in the entire United States.



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