

Interventional Pain Specialist Dr. Kaliq Chang with Atlantic Spine Center Describes Healing Potential of Stem Cells

Your Own Cells May Be Answer to Pain of Aging Spinal Discs

WEST ORANGE, NJ, UNITED STATES, September 22, 2022 /EINPresswire.com/ -- Use of cartilage tissue derived from human [stem cells](#) may one day prove successful in preventing pain and loss of function of aging spinal discs in both the back and neck, says interventional pain management specialist [Dr. Kaliq Chang](#), who cites findings of a study published in April 2022.

"An increasing amount of research supports the clinical application of stem cell therapy for treating a host of disorders, including back and neck pain. But this latest study may offer a breakthrough advancement in our efforts to preserve patients' spinal disc function as they age and prevent spinal deformities," says Dr. Chang, a highly specialized team member at the [Atlantic Spine Center](#) in New York and New Jersey. The study appears in the journal *Biomaterials* (10.1016/j.biomaterials.2022.121491) and represents the most recent scientific effort to find natural ways of halting progressive degeneration of spinal tissue.

Age-related deterioration of spinal discs is a frequent source of neck and back pain, which, according to a 2018 study in *Stem Cell Research & Therapy* (10.1186/s13287-018-0797-1), affects up to 80 percent of American adults at some point in their lives and accounts for more than \$86 billion in lost wages and medical costs.

To relieve the spinal pain of carefully selected patients in his own practice, Dr. Chang injects mesenchymal cells – versatile, naturally occurring adult stem cells harvested from a patient's own bone marrow in the iliac crest of the pelvis – into diagnosed problem areas of the neck or back. "Stem cell therapy is an option for patients who have failed more standard protocols. Neither minimally invasive nor surgical procedures can fully address the compromised biomechanical function of a degenerating spine nor replace the rich extracellular matrix of the



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discs,” Dr. Chang indicates.

Mesenchymal cells and other stem cells like them are undifferentiated, with regenerative capabilities enabling them to divide and renew themselves over and over again. They also have anti-inflammatory and natural healing properties and can oftentimes replace the work of specialized cells that have lost viability due to aging, injury or disease, Dr. Chang explains. Studies have shown mesenchymal cells aid repair of damaged human tissues

and can help form new blood vessels, bone, and cartilage, making them especially effective in treatment of orthopedic disorders. Their healing effects can last for lengthy periods of time.

“The intent is to restore function and flexibility to diseased spinal discs by injecting them with cells capable of assuming the characteristics of the cells that have degenerated and died,” Dr. Chang says.

Located between the spine’s vertebrae, discs are rubbery elliptical pads that serve as natural shock absorbers to protect the spine from stressors and give it flexibility. Each disc consists of a tough outer shell – the annulus fibrosus, which surrounds a soft, gel-like inner and outer center – the nucleus pulposus. As discs age, they dry out. The nucleus pulposus degenerates, weakening the disc, changing its shape, and frequently causing it to collapse.

Although the clinical effectiveness of stem cell injections is yet to be fully vetted through clinical research, the federal Food and Drug Administration considers harvesting and injection of mesenchymal cells an application that falls under the agency’s “acceptable practices of medicine,” Dr. Chang states. According to a recent online overview of current stem cell therapy research (<https://bit.ly/3QLgll5>), only 220 publications were authored between 1946 and 2020 concerning use of stem cell therapy for neck and back pain.

A review of some of these studies, published in 2018 in the journal *Spine* (10.1097/BRS.0000000000001549), determined that cell-based therapies for discogenic lower back pain seemed to provide pain relief with no adverse side effects.

Meanwhile, a number of biotech companies are investing in stem cell studies. They include Mesoblast, an Australian firm, that, in 2019, initiated a partnership with the German pharmaceutical company Grunenthal to conduct trials of an investigational stem cell product consisting of mesenchymal cells taken from healthy volunteer participants.

In the study published in *Biomaterials*, authors report that induced pluripotent human stem cells – stem cells that have been derived from basic somatic cells and genetically reprogrammed to become any type of cell required for therapy – restored functionality to the nucleus pulposus of

spinal discs in a rodent model. The finding is a major step in developing new treatments for intervertebral disc degeneration in humans, the scientists suggest.

Dr. Chang concurs. "We are still only at the cusp of understanding the full potential of stem cell therapy in the treatment of disease, especially joint and spinal disorders. Cellular replacement remains a complex process," he says. "However, this latest study represents an important advancement in regenerative medicine."

Because stem cell therapy remains such uncharted territory, Dr. Chang strongly advises back and neck pain patients to seek consultation first from interventional pain specialists and spinal surgeons who have expertise in the complexities of stem cell use before undergoing any course of treatment involving stem cells.

Of course, the best approach is to do everything possible to maintain a healthy spine despite the aging process, Dr. Chang advises. He offers these tips:

- Be active. Undertake exercises that strengthen the body's core muscles, which support the spine.
- Maintain a weight appropriate to age and height so that the spine does not become unduly stressed.
- Always maintain good posture and stay in motion. Remaining in one position too long, especially the sitting position, is hard on the spine and its discs. Standing is usually better than sitting
- Wear comfortable shoes.

Atlantic Spine Center is a nationally recognized leader for endoscopic spine surgery and pain management with several locations in NJ and NYC. www.atlanticspinecenter.com,

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