

Can Stem Cell Therapy Help My Joint Pain?

Osteoarthritis is a chronic disease that may impact multiple joints with varying degrees of severity. It impacts over 25 million people with nearly \$90 billion spent annually for treatment in the United States.

Modern medicine offers the ability to treat the associated symptoms of osteoarthritis – like pain and stiffness – without impacting the progression of the underlying disease. Recently, there has been an increase in the number of “injection centers” around the country offering alternative injections including viscosupplementation, platelet-rich protein (PRP) and **stem cell therapy**.

While it often sounds appealing, stem cell therapy is a new treatment that is poorly understood. There are many websites and advertisements for “curing” osteoarthritis; however, **there are no proven uses of pain medications or therapies that can delay or reverse the progressive joint destruction that occurs with osteoarthritis**. These are temporary fixes.

What are stem cells?

Mesenchymal stem cells (MSCs), or what we commonly call “stem cells,” are precursor cells that haven’t decided yet what they are going to be in the body. They can differentiate into multiple forms including bone, cartilage, fat and other connective tissues. They play a significant role in the reparative processes throughout the human body.

How are stem cells collected?

They may be harnessed from fat tissue, bone marrow, synovial tissue or umbilical cord tissue.

Why are stem cells thought to ease osteoarthritis?

MSCs have several actions including the following properties:

- Anti-inflammatory
- Anti-apoptotic (decrease cell death)
- Anti-fibrotic (decrease fibrous tissue formation)

These precursor cells can mature into **cartilage and bone**. Their reparative nature has led to the hope that such cells may modify the destructive processes associated with osteoarthritis.

What have studies shown about the use of stem cells to treat osteoarthritis?

In several studies combining arthroscopic techniques and combined injections (MSCs combined with the platelet-rich plasma of hyaluronic acid), there has been a hint of regenerative capacity of these MSCs. It is difficult to tell whether this is truly a reparative process versus just the effects of the MSCs’ anti-inflammatory properties.

Limited studies have reported pain relief for up to a year utilizing combined adipose derived stromal cell (ADSC) and PRP injections. A recent meta-analysis of 18 studies* found MSC injections were effective in the knee for **up**

to 24 months when done with an arthroscopic debridement to remove damaged tissue, or if the osteoarthritis changes in the knee were mild.

Is there a downside to stem cell injections?

The current downsides include pain from the donor site of the cells, prohibitive cost and the potential for adverse effects. Such adverse effects include infection, death and malignancy; although, there have been no such clinical cases documented at this time. Based on the current research, MSC injections appear to be safe with the hope of developing advanced carriers for the cells to improve their efficacy and diminish any potential adverse effects.

While stem cell therapy is a promising technology, there is much we are still learning about the causes and pathways that lead to symptomatic osteoarthritis. We have not optimized the factors found in stem cell therapies to be sure only the “good” cells and growth factors are injected into a specific joint. Further research is necessary before this technology becomes widely adopted and routinely used to manage osteoarthritis.

If you are interested in alternative ways to treat your joint pain, please refer to our article, “Relieving Hip and Knee Pain without Surgery” and consult with your orthopaedic surgeon on the best treatment path for you.

*The referenced study carried a low level of evidence.

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