

## FOX VALLEY ORTHOPEDICS



### Stem Cell use in Orthopedics: Regenerative Medicine

Biologic agents, such as stem cells, are receiving increasing attention for their use in augmenting healing of muscles, tendons, ligaments, cartilage and bone. Stem cell therapies for the regeneration or repair of tissues represent a promising technology going forward for numerous diseases.

#### What are stem cells?

Stem cells are cells that have a capacity for self-renewal, giving rise to more stem cells. They have the ability to differentiate into a variety of tissues under appropriate conditions. Stem cells are the basis for the specific cell types that make up each organ in the body.

#### What are some examples of musculoskeletal treatments using stem cells?

Stem cell procedures are being used to treat bone fractures and nonunions, regenerate articular cartilage in arthritic joints, and heal ligaments or tendons. Research is ongoing with regards to stem cell use for these conditions:

**Articular cartilage:** The lining of joints is called the articular cartilage. Damage to the articular cartilage can frequently lead to degeneration of the joint and painful arthritis. Current techniques to treat articular cartilage damage use grafting and transplantation of cartilage to fill the defects. It is hoped, and studies are promising, that stem cells will create growth of primary hyaline cartilage to restore the normal joint surface.

**Ligaments and tendons:** Mesenchymal stem cells may also develop into cells that are specific for connective tissue. This would allow faster healing of ligament and tendon injuries, such as quadriceps or Achilles tendon ruptures. In this instance, stem cells would be included as part of a primary repair process.

**Bone fractures and nonunions:** Stem cells may stimulate bone growth and promote healing of injured bone. Traditionally, bone defects have been treated with solid bone graft material placed at the site of the fracture or nonunion. Stem cells and progenitor cells are now placed along with the bone graft to stimulate and speed the healing.

The future lies in regenerative medicine, with the potential to grow new tissues and to replace damaged or diseased tissues by utilizing stem cells.

At **Fox Valley Orthopedics**, we offer **amniotic derived stem cells** for injection.

Amniotic stem cell injections may be used to treat the following conditions:

- Arthritis (knee, shoulder, hip)
- Sports Related Injuries
- Cartilage Defects
- Tendonitis
- Ligament Injuries

Insurance does not cover these injections.

You may schedule an appointment to discuss whether a stem cell injection would be beneficial. We can discuss cost/financial details at this office visit.

Generally, the out of pocket cost for a stem cell injection is \$5,000

Please call (630) 584-1400 to make an appointment or visit [www.fvortho.com](http://www.fvortho.com) to request an appointment

At **Fox Valley Orthopedics**, we are not currently harvesting adult stem cells (autograft) by liposuction or iliac crest harvest. All stem cell therapy is allograft (from donor tissue).

**More information about amniotic derived stem cells** - Amniotic cells come from a donor, they are not your own stem cells.

During pregnancy, the amniotic fluid protects the fetus and it feeds it with the necessary supplements needed to sustain life and development. At birth, this fluid is normally discarded. But, once researchers gained an understanding of its stem cell benefits, it was determined that amniotic fluid can be collected and processed.

Amniotic derived stem cell fluid comes from consenting donors and is processed at an FDA regulated lab. It is checked for diseases prior to being accepted for use in others.

## Sources

The role of stem cells and tissue engineering in orthopaedic sports medicine: current evidence and future directions. *Arthroscopy*. 2015;31(5):1017-1021

Stem Cells in Orthopedics: A Comprehensive Guide for the General Orthopedist  
*Am J Orthop*. 2016 July;45(5):280-288, 326 Author(s): Saltzman BM Kuhns BD Weber AE Yanke A Nho SJ

The bone and joint journal . E. H. Lee, J. H. P. Hui The potential of stem cells in orthopedic surgery DOI: 10.1302/0301-620X.88B7.17305 Published 23 June 2006

American Academy of Orthopedic Surgeons (AAOS) website Stem Cells and Orthopedics

<http://journals.sagepub.com/doi/abs/10.1177/0363546513508744?sid=bdaa51d6-f114-4c5d-9792-f5f59539d85c>

[http://www.espn.com/espn/story/\\_/id/7058209/peyton-manning-last-star-linked-stem-cell-therapy-espn-magazine](http://www.espn.com/espn/story/_/id/7058209/peyton-manning-last-star-linked-stem-cell-therapy-espn-magazine)