MaxHealth
Family & Sports Medicine

Adipose Derived Stem Cell Injections (ADSC)

A natural treatment for pain and injury

Stem cells have several unique abilities. They can transform into other cell types, such as bone, cartilage, muscle and tendon. They also serve an important part in cell signaling, recruiting other stem cells to the target area and triggering nearby cells to begin the repair process.

What conditions can be treated with stem cells?

The most common conditions treated are:

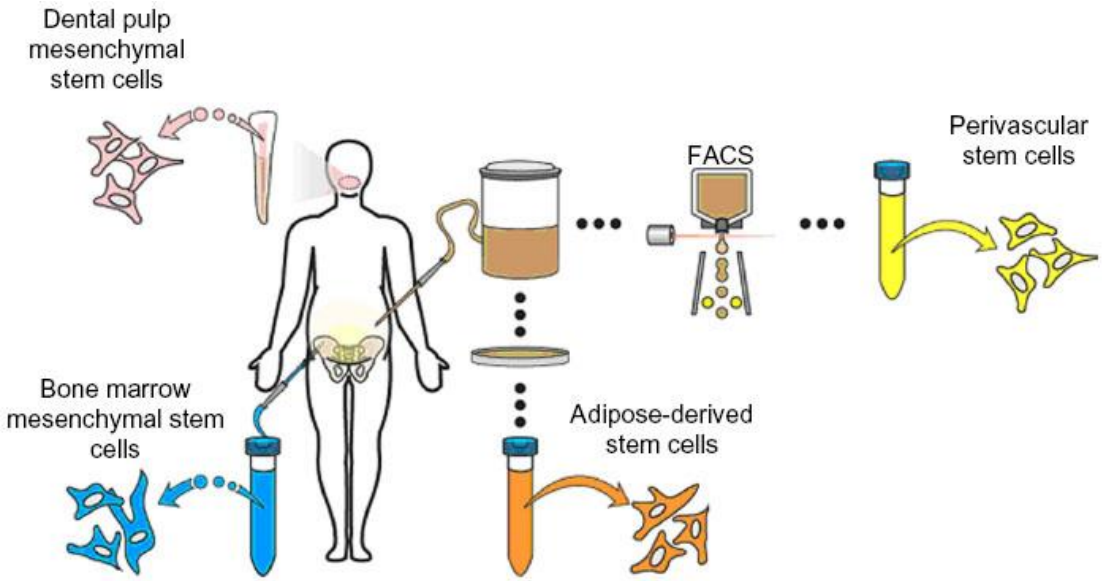
- Osteoarthritis of the joints
- Chronic partial rotator cuff tears
- Persistent partial tendon tears (ie: tennis elbow, plantar fasciitis, quadriceps and patellar tendon tears)
- Partial muscle tears
- Meniscal tears in the knee
- Chondromalacia patella (patellofemoral syndrome)

What are Stem Cells?

Stem cells are undifferentiated cells in adults that have the potential to become other, more specialized types of cells. Mesenchymal stem cells (MSCs), are multipotent stem cells that can differentiate into a variety of cell types including: osteoblasts (bone cells), chondrocytes (cartilage cells), and adipocytes (fat cells).

How is it made?

Stem cells can be obtained/harvested from the bone marrow (typically from the iliac crest of the hip) or from adipose tissue (fat). For Adipose Derived Stem Cells (ADSCs) the stem cells are obtained from the fat, typically of the lower abdomen or the upper buttock. Harvesting of these cells are performed in our office:



First, platelet rich plasma (PRP) is made by using a sample of your own blood drawn on the day of the procedure. The blood can be spun down with a special centrifuge, (hard spin) allowing the components to separate with plasma on top and red blood cells on bottom. The plasma portion is extracted and another spin cycle (soft spin) will further separate the platelet-rich plasma. This PRP will be used to activate the stem cells.

The stem cells will be harvested from your adipose tissue. Either an area on your abdomen or buttock will be marked and then anesthetized. Then a liposuction procedure (non-cosmetic, don't get your hopes up!) will be performed to obtain a sufficient amount of adipose tissue. The adipose will be then spun down in a special centrifuge to obtain the Stromal Vascular Fraction (SVF).

How is it administered?

Stem cell, PRP, and prolotherapy are administered as an injection, typically under ultrasound guidance. The skin is numbed with a small amount of lidocaine to minimize or negate any pain during the procedure.

Typically, we prefer to perform a prolotherapy treatment first, about a week before the stem

cell procedure. This helps prepare the joint biologically for the healing process generated by the stem cells. Then, about one month after the stem cell procedure, a PRP injection is commonly given. This helps keeps the stem cells active.

Here's an analogy

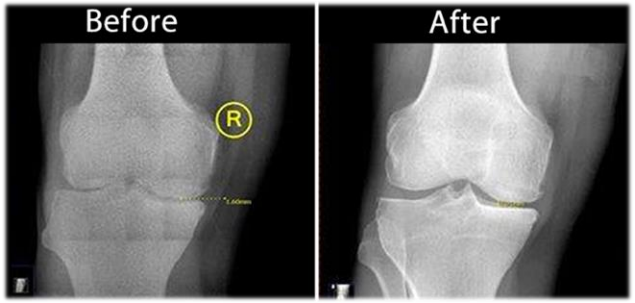
If you are going to plant a garden, you cannot simply throw down seeds and expect them to blossom into healthy plants. Rather, you must prepare the soil and make sure it is rich in nutrients and able to support the seeds. Then you can plant the seeds and provide water and sunlight allowing the plants to grow. You must periodically tend to your garden to ensure that your plants are growing properly.

Your arthritic joint or chronic area of injury is like a garden. You need to create a hospitable environment for the stem cells to grow/differentiate into healthy bone, tendon, ligament, cartilage, and/or muscle.

By performing prolotherapy a week prior to the stem cell procedure you are "prepping the soil." On the day of the procedure the ADSCs are harvested, "the seeds", and the PRP is used to activate the stem cells, "the water and sunlight." Around 3-6 weeks after the stem cell procedure it is recommended to have a repeat PRP injection to the area to ensure the "plants" are still being maintained. Thereafter, a PRP injection every 1-2 years may be needed to maintain your "garden."

What are the risks?

All injection procedures are potentially at-risk for causing soreness, infection, bleeding, and nerve damage. Risks will also vary depending on the structure(s) being injected. However, because we are using your own cells, you cannot be allergic to the treatment! Also, because the injections are done under ultrasound guidance, the risks of damaging surrounding structures or injecting the wrong location, are almost completely eliminated. Your doctor will review the risks of the treatment with you. The risks and side effects of ADSC treatment are extremely low.



What is the evidence?

Studies suggest an improvement rate as high as 80-85%, though some arthritic joints, namely the hip, do not respond as well. Some patients experience complete relief of their pain. In the case of tendon and ligament injuries the results are generally permanent. In the case of joint arthritis, how long the treatment lasts depend partly on the severity of the condition. Mild arthritis may not need another round of treatments. More advanced arthritis, on the other hand, typically requires a repeat course of treatment, usually in 1-3 years.

How to prepare for the procedure:

Do not take any anti-inflammatory medicine 7 days before or 10 days after. It is recommended to take Arnica orally 10-14 days before and use topical Arnica 5 days after to reduce bruising and post-procedural pain. Drink 64 oz of water per day for 1-2 days before your procedure.

How much does it cost?

Stem cells have not been approved by the FDA and is not typically covered by insurance. The total cost for the procedure is $5000 (for a joint) and $4000 for a tendon/ligament or other soft tissue. For joints the cost breakdown is:

Prolotherapy first (one week before): $300
ADSC + PRP: $4000
Repeat PRP (3-6 weeks later): $700
Total: $5000

You are able to use your medical flexible spending accounts to pay for this procedure.

What happens after the stem cell procedure?

Your physician may temporarily place you in a sling (for upper extremity procedures) or a boot, brace, and/or crutches (for lower extremity procedures). A rehabilitation program will be designed specifically for your condition.

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