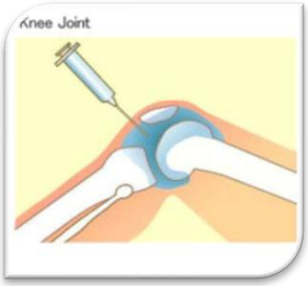
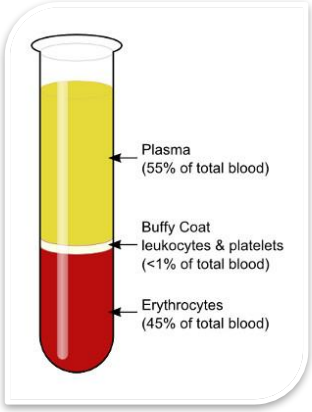
Orthobiologics & Regenerative Medicine Injection Options - 2018



Hyaluronic Acid (HA) Injections:

These injections are used to treat knee osteoarthritis. Hyaluronic acid is naturally found in your body as a part of healthy synovial fluid (the substance that lubricates joints). Injecting HA into the knees of patients with osteoarthritis is thought to help lubricate the joint, which reduces catching and grinding. Research suggests that HA injections may also help reduce inflammation. Treatment is often offered in a series of three to five injections one week apart, but some brands only require one injection.

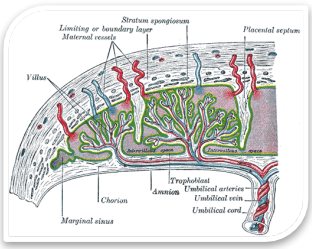
There are 9 types of HA injections that have been FDA-approved to treat knee osteoarthritis in the United States: Hyalgan®, Supartz®, Orthovisc®, Monovisc®, GEL-SYN®, Synvisc(-One)®, Euflexxa®, Gel-One®, and GenVisc 850®. No HA product has been proven to work better than the others. However, each person is different and some patients respond better to a particular type of HA injection. Most insurance plans will cover one of the preceding HA treatments (single injection or multiple injections, depending on the brand) every six months.



Platelet-Rich Plasma (PRP)

Platelet-Rich Plasma is a product that is believed to have very strong anti-inflammatory properties. Studies have shown that PRP is most effective at treating tendonitis, including Achilles tendonitis, lateral epicondylitis (tennis elbow), and medial epicondylitis (golfer's elbow). PRP has also seen some scientific success treating knee arthritis.

There are several commercial devices that create different PRP mixtures, but the basic method for making PRP is the same for every device. Your own blood is drawn into a tube. That tube is then centrifuged, which is a process that separates blood contents into visible layers. The top layer is the plasma, the middle layer (buffy coat) contains white blood cells (as well as anti-inflammatory and growth factors), and the bottom layer contains red blood cells. The plasma portion is removed and then the buffy coat is drawn into another tube and injected right away. PRP's results are variable, especially in arthritis. PRP injections are not covered by insurance or Medicare.



Placenta-Derived Products

Numerous products exist that utilize placental tissue that would be otherwise discarded. These products are primarily delivered via injection. Placenta-derived tissues include: the amniotic membrane, the chorionic membrane, the amniotic fluid, the umbilical cord, and the blood from the umbilical cord. Placenta-derived products are composed of one or more of these tissue types and/or the matrix secreted by any of these cells. Placenta-derived products have commonly been used in ligament and tendon injuries of the foot and ankle, but they have also been used for conditions like knee osteoarthritis. They are thought to have regenerative properties, though this has yet to be proven. Placenta-derived products are not covered by insurance or Medicare.

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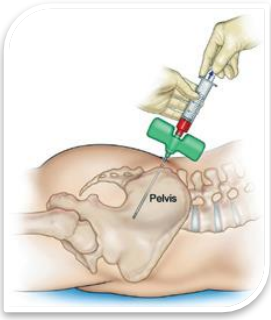
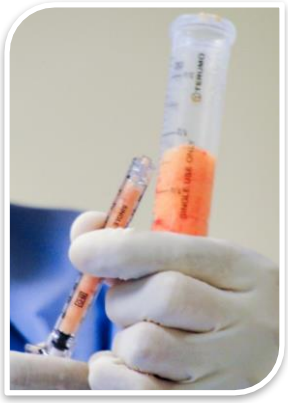


Bone Marrow Aspirate Concentrate (BMA/BMAC)

Bone marrow aspirate concentrate (BMA/BMAC) is perhaps the most popular “stem cell injection” available today. The treatment involves injecting the patient’s own bone marrow cells into the injured area with the hope that it will help regrow tissue or reduce inflammation. The procedure involves two steps: (1) patients are lightly anesthetized and bone marrow is removed through a needle from the bone, most commonly the iliac crest of the patient’s hip, and then (2) the bone marrow is processed to concentrate the cells. After the bone marrow has been centrifuged (spun in a circle to separate the various blood contents), the BMA/BMAC is put into a syringe and injected into the affected body part.

Bone marrow contains progenitor cells, which are cells that have been “primed” to become specific cells. A small fraction of these cells (about 1% of the total cells in bone marrow) are mesenchymal stem cells, which can become cartilage, bone, and tendon cells. It is thought that these mesenchymal progenitor cells release chemicals that decrease inflammation and help regenerate tissue and other structures in degenerative conditions like knee osteoarthritis and rotator cuff tears.

Studies have shown that BMA/BMAC injections may be successful in relieving pain and improving function for various orthopaedic conditions, including osteoarthritis, tendon injuries and certain spine conditions. We still do not know exactly how these cells function after being injected into the body. BMA/BMAC injections are not covered by insurance or Medicare.



Adipose Tissue (Fat):

Recently, adipose tissue injections have become more popular because harvesting fat is safer and less painful than harvesting bone marrow. Additionally, adipose tissue has a higher concentration of stem cells (≈20% vs. 1% in BMA/BMAC). Like BMA/BMAC, this treatment involves injecting the patient’s own cells into the injured area to decrease inflammation and help regrow damaged tissue. Fat is removed from the patient using a needle (usually from the abdominal area) and can be processed within the hour. While the FDA does not allow cells to be processed (digested) enzymatically, injections of mechanically emulsified fat in saline are permitted. Some claim that mechanical processing helps stimulate stem cells.

Adipose cell injections are used to treat knee arthritis, rotator cuff pathology and degenerative spine conditions. We do not know exactly how adipose stem cells function once inside the body, and insurance companies and Medicare do not pay for these injections. Like PRP, placenta products and BMA/BMAC, there is no strong clinical data on the efficacy of adipose tissue injections.

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