

Stem cells.....myth versus truth

There is great excitement and interest about the use of stem cells to improve or reverse chronic disease. Stem cells contain anti-inflammatory chemicals that recruit healing, increase vascularity and decrease pain. These cells can fight cellular apoptosis (cellular death) and differentiate into multiple tissues, including: bone, muscle, cartilage and fat. They are capable of self-replication.

The science of stem cell use for regenerative medicine is young and still much is unknown about long term outcomes and effective applications. Due to the infancy of regenerative medicine, many providers are willing to take advantage of the potential of stem cell use and consumer enthusiasm as "the fountain of youth". Providers are willing to push the indications for the use of stem cells, consumers are ready to pay for it, but given the immaturity of the clinical science, we would like to dispel some confusion and educate our patients.

Myths about stem cells:

1- Stem cells from donor patients can be injected into recipient patients

Truth: Stem cells do not come in a bottle

The FDA has only permitted the use of live stem cells taken from a single patient's own bone marrow, to be reinjected into the same patient on the same day, with minimal manipulation. These cells cannot be frozen, stored, altered or donated. This regulation even precludes the use of one's own fat tissue being used.

Many providers are advertising "live stem cells from amniotic products". This is misinformation. These formulations contain some of the active growth factors, collagen, and elements that cause inflammation and promote healing. These products are dehydrated and processed. They come in a bottle with a shelf life of five years. There are **NO LIVE CELLS** in these products.

If you got an injection out of a bottle, make no mistake, there were no stem cells involved

2- Stem cells reverse arthritis

Truth: There is no definitive evidence that a stem cell injection will prevent progression of arthritis, change the natural history of a degenerative joint or preclude the need for joint replacement.

Before and after x-rays showing an improvement in the joint space are a gimmick.

There is some evidence that stem cells improve the health of the joint, cause hypertrophy (improved health) of the chondrocytes (cartilage cells), improve the viscoelasticity of the joint fluid (like a young healthy knee), provide an anti-inflammatory effect, fight apoptosis (cell death), provide an anti-microbial effect and improve blood flow.

Truth about stem cells:

1- Stem cells used with surgery promote healing.

A European surgeon named Hernigou showed that the application of stem cells with rotator cuff repair surgery improved healing from 67% to 100% at 6 months, and from 44% to 87% healed at 10 years.

When injected into an injured rotator cuff tendon (partial tear), the stem cells induced regeneration of the tendon defect.

Other studies showed improved healing with application of bone marrow concentrate into ACL, achilles repair or other soft tissue reconstruction.

2- Stem cell injections into degenerative joints reduce pain and improve function

115 degenerative shoulders injected with bone marrow concentrated stem cells resulted in a 44% reduction in pain for up to two years.

Similar injections into 424 arthritic knees resulted in improved knee pain and function scores

3- Stem cell treatment for cartilage injury healed the defect

Patients who had a bone marrow concentrate placed into a cartilage defect, had complete filling of the defect in 81% of patients at minimum follow up of 3 years.

This data demonstrates promise for the responsible use of bone marrow concentrate stem cells. We are also aware of the unethical and unsupported use of these and related products. It is important for the consumer to be wary of providers who are looking for an opportunity to take advantage of this enthusiasm and provide misinformation.

Here at Coral Desert Orthopedics, we are prepared to use the latest innovations in science and technology to restore joint health, promote a successful surgical outcome and to maintain a healthy, active lifestyle.

Please call and schedule an appointment to learn more about these options, 435-628-9393.