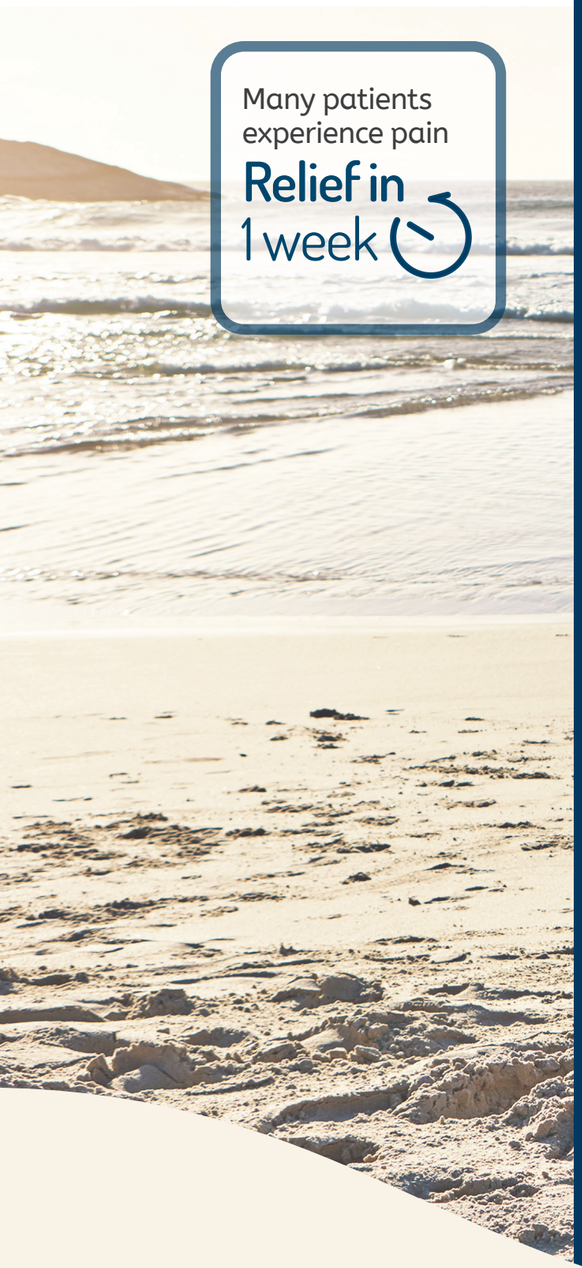


What Is the Science Behind the **IO-Core™** Procedure?

Traditionally, arthritis is considered to be a “surface problem” because it causes progressive degeneration of the surface layer of cartilage that protects joints.

But new research and studies have revealed that arthritis is a multi-faceted degenerative process that often follows this path:

- Bone pathologies like bone marrow lesions and osteonecrosis develop as a result of acute or chronic injury to a joint. Swelling and reduced oxygen reaching the bone causes progressive damage, severe pain and disability.

- These pathologic conditions progress rapidly for many of patients who develop bone marrow lesions and osteonecrosis. Over time, cartilage degradation and loss occurs.

- Left untreated, bone pathologies like bone marrow lesions and osteonecrosis may leave patients with no choice but to undergo invasive joint replacement surgery to help reduce pain and restore joint mobility.

Arthritis involves degeneration of surface cartilage along with degeneration of the underlying bone and connective tissue. Therefore, methods that only treat the surface loss of cartilage won’t likely stop the progression of disease as the underlying bone continues to weaken and degenerate. Patients will continue to suffer from severe pain and declining movement and mobility.

However, an approach like IO-Core that treats both the surface loss of cartilage and underlying bone damage may help patients reduce pain, regain mobility and prevent further progression without the need to undergo a potential of invasive surgery*. The procedure is covered by many insurance plans.

IO-CORE®

IOCoreProcedure.com

(866) 599-4184

**For more information, visit iocoreprocedure.com/io-core-publications*

The IO-Core™ Procedure

The IO-Core™ Procedure

The IO-Core technique is a proprietary sequence of procedures that combines orthopedic methods with biologics to address joint pain caused by arthritis, orthopedic injuries and other trauma.

Minimally Invasive for Minimal Recovery

- Less than 1-inch incision
- Many patients are walking within a few hours
- Physical therapy often unnecessary
- Intended to restore motion & function

Unlike traditional arthritis treatment methods that focus on symptom reduction, the IO-Core procedure targets the root cause of joint pain. Recent research indicates that the majority of pain caused by arthritis may be attributed to bone marrow lesions that damage the underlying bone.* Bone marrow lesions are an overlooked problem in the diagnosis and clinical treatment of arthritis, because many physicians fail to identify and treat bone marrow lesions/edemas. However, failing to diagnose and treat the underlying conditions that cause joint pain may leave patients with unresolved pain, discomfort and loss of movement and mobility.*

IO-Core is designed to create the optimum healing environment in the body and treat arthritic pain from the inside out using a patient's own cells. During the process, the patient's cells are introduced into the body to promote and accelerate healing of degenerating cartilage and underlying bone damage. Additionally, damaged bone is decompressed to relieve pain and pressure and a small bone graft is placed to promote the re-growth of healthy bone in the area.

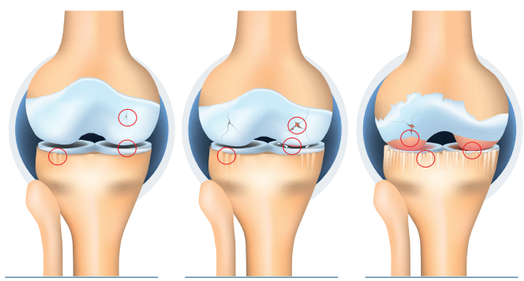
IO-Core provider clinics work to identify and treat the underlying source of joint pain in a comprehensive manner. IO-Core is minimally invasive and performed as an outpatient procedure. All procedures are performed by a board-certified medical doctor who is trained in the IO-Core approach.

In many cases, the procedure is covered by insurance.

IO-CORE®

IOCoreProcedure.com (866) 599-4184

Stages Of Knee Arthritis and Bone Lesions



Mild

Joint-space narrowing. Cartilage begins breaking down. Occurrence of bone spurs

Moderate

Moderate joint-space reduction. Gaps in cartilage can expand until they reach the bone.

Severe

Joint-space greatly reduced. 60% of cartilage is already lost. Large bone spurs

Educational info only. IO-Core is only intended to treat osteoarthritis.

**For more information, visit iocoreprocedure.com/io-core-publications*

Most IO-Core patients experience

- ✗ Minimal recovery
- ✗ Minimal to no downtime
- ✗ No hardware or implants

How the IO-Core™ Procedure Works

During the procedure, a board-certified doctor will perform the following steps to treat damaged, unhealthy bone that's causing joint pain.

1. A bone marrow aspiration and bone graft extraction is conducted using a specialized instrument. The patient's healthy bone marrow cells, bone graft, and bone tissue allograft are later placed into the area of dying, unhealthy bone. The new, healthy bone assists in supporting, re-growing and healing the damaged bone.

2. Continuous X-ray imaging is used to identify the exact location of the bone marrow lesion. Then a core decompression is performed by advancing an instrument into the damaged bone around the affected joint. Decompression relieves built-up pressure and swelling caused by bone marrow lesions.

3. Bone marrow aspirate is injected into the damaged bone and within the joint space. The aspirate is rich in growth factors, stem cells and progenitor cells that provide additional healing factors to damaged areas of the joint. A bone marrow injection sends a signal to the body to begin repairing the damaged bone and cartilage.

IO-Core is performed by board-certified surgeons in an outpatient setting

Recovery is Minimal

IO-Core is an outpatient procedure performed in a surgical center or hospital setting. From start to finish, the whole procedure takes about 45 minutes. You will be under general sedation during the treatment process.

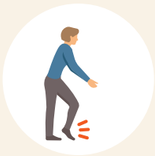
After treatment, most patients are released within a few hours. Upon discharge, you may be given pain medications and instructions to rest. Within a few days after the IO-Core procedure, many patients report significantly reduced pain and restoration in joint mobility at the treatment site.

Are You a Candidate for the IO-Core™ Procedure?

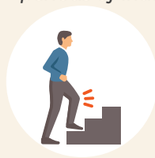
You may be a candidate for the IO-Core treatment if you have the following signs and symptoms:

Pain during or after movement

Stiffness that is more severe first thing in the morning and after long periods of inactivity



Inability to bear full weight on the affected joint(s)



Tenderness with application of light pressure on or around the affected joint(s)

Loss of flexibility and full range of motion in the affected joint(s)

A grating, popping or crackling sensation during movement of the affected joint(s)

Swelling and tissue inflammation around the affected joint(s)

You may also be a candidate for the procedure if you have the following conditions:

- A medical diagnosis of knee, hip, ankle or shoulder arthritis, bone marrow lesions, bone marrow edema or insufficiency fractures.
- Bone spurs that form around inflamed and injured joints. You may be able to feel small, hard lumps under the skin around the affected joint(s).
- A prior ACL, MCL, PCL or meniscus injury that still causes pain post treatment with physical therapy or surgical repair.