Less side effects when compared to steroid injection or surgery

- Reservoir of stem cells
- Regenerative properties
- Accelerates and promotes healing

What our patients are saying

T. Parker: "After both the right (in 2020) and the left (in 2023) Reverse Total Shoulder replacement surgeries done with stem cells by Dr. James Guerra, I can honestly say they were both "a piece of cake"! NO PAIN (nothing but Tylenol), no swelling, and nearly instant healing!"

"**H. Wagle:** "My knee replacement with stem cells has been way better/less painful than I ever imagined it could be. Of all the people I've spoken to, I have had the best experience with a difficult surgery. Excellent surgeon. Great staff. Great result!"

S. Harris: "I chose to pay to have my own stem cells injected into my shoulder, and I'm glad I did. No pain after day two. I traveled from Punta Gorda to have Dr. Guerra perform a reverse shoulder replacement. He is the best!"

R. Millet: "My left knee replacement with BMAC was 100 times easier than my right without. Pain levels, range of motion, and therapy all were improved. The difference of adding BMAC was really seen during therapy, it came easier and faster to recover."

James J. Guerra, MD, FAAOS
Brett A. Wilhoit, MD

Team Physicians:

Florida Gulf Coast University (FGCU)

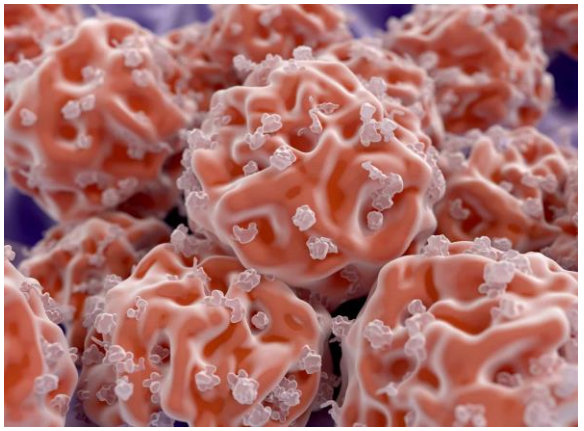
Community School of Naples

First Baptist Academy

COLLIER SPORTS MEDICINE AND ORTHOPAEDIC CENTER

1706 Medical Blvd., Suite 201,
Naples, FL 34110
239-593-3500

www.colliersportsmedicine.com



Bone Marrow Aspirate Concentrate

BMAC

A PATIENT'S GUIDE TO BONE MARROW ASPIRATE CONCENTRATE

A new approach to treating chronic injuries

No longer reserved for professional athletes **Bone Marrow Aspirate Concentrate (BMAC)** is quickly becoming the treatment of choice for everyone.

What is bone marrow?

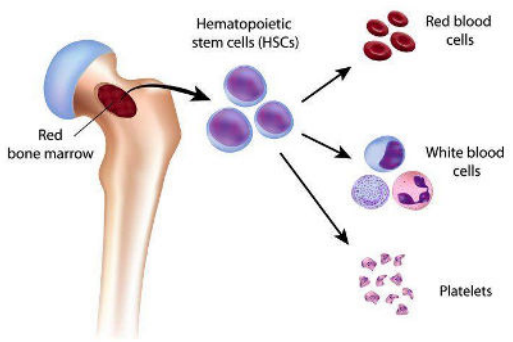
Bone marrow is the soft spongy tissue that is found in the center canal of your large bones. In adults, bone marrow is the production center of your blood components: red blood cells, white blood cells, and plasma. Also found in bone marrow are the immature forms of your blood component cells, called stem cells.

What are bone marrow stem cells?

The immature stem cells found inside the bone marrow have the potential to develop into various mature cells such as muscle cells, the cells of a vessel, cells of cartilage or even bone cells.
Two of the main stem cells found in bone marrow include hematopoietic stem cells and mesenchymal stem cells.

Hematopoietic Stem Cells give rise to the three classes of blood cells that are found in the circulation: white blood cells, red blood cells, and platelets. These cells drive tissue regeneration and create supportive circulation.

Mesenchymal Stem Cells are also known as Marrow Stromal Cells. These cells have the ability to form osteoblasts (bone structure), chondrocytes (cartilage), and myocytes (muscles).



Is the process experimental or new?

Bone marrow extractions have been conducted for several years and are commonly used in the oncology and hematology fields. Stem cells were initially used for transplantation in patients with immune deficiencies, such as cancers or disorders caused by your own blood. Using your own bone marrow to extract stem cells prevents any rejection or allergic reactions; both the donor and recipient of this treatment are you!

Are there any risks?

Bone marrow extractions are safe procedures when conducted by a trained professional in a sterile environment. Complications are rare but can include:
• Bleeding, particularly in patients with a low platelet count or clotting disorder.
• Infection, especially in patients with weakened immune systems. Antibiotics can be given post-extraction to prevent infection.

How long is the healing process?

Bone marrow stem cells are the regenerative cells responsible for repairing and rebuilding damaged tissue. The concentrated cells accelerate the healing process, promote strength, offer pain relief, and improve overall function. The healing cascade occurs over a 4–6-week period. A follow-up PRP procedure may be recommended if the desired level of relief is not obtained.

How long is the procedure?

The procedure can be performed in the office setting or in conjunction with surgery. The actual extraction can take up to ten minutes, but the concentrating process can take up to one hour, during which the patient will be waiting or having their surgical procedure performed.

What to expect?

The area of extraction is locally numbed, so no pain is felt. Bone marrow is extracted from the back of a patient's pelvis or hip bone from an area called the **posterior iliac crest.**

A suctioned syringe attached to a long needle is used to reach the posterior aspect of the bone, during which minimal discomfort is felt due to local anesthetic.
The collected bone marrow is then filtered and spun in a centrifuge. Spinning the sample at a high speed separates the platelets and stem cells from the bone marrow. The combination of stem cells and healing components, collectively known as the bone marrow aspirate concentrate (BMAC), is reintroduced to the injured area via injection.

What should I do or not do?

There are a few recommendations, such as drinking plenty of fluids and eating a good meal. Please consult with your physician about medications or prior history of blood disorders. Pain control, if needed, will be given.

How long is the recovery time?

Most patients can return to their daily activities within 1-2 days, but some pain may be felt for up to one week.