

The Difference Between Platelet Rich Plasma Treatment and “Stem Cell” Treatment

Platelet rich plasma treatment (PRP), which we perform at Jernigan Orthopedics and OrthoBiologics, is a method of treating musculoskeletal disorders by tapping the regenerative ability of the body’s own platelets. Platelets circulate in our bloodstream as a normal component of blood. They are produced by cells called megakaryocytes located within the bone marrow. Platelets have the ability to release certain growth factors that induce the formation of new blood vessels and connective tissue, initiating a healing cascade in the body. Platelets have been found to release over 300 bioactive substances when they are triggered to induce healing. Some of these bioactive substances send a signal to stem cells to come to the area in need of healing.

But what is stem cell treatment? The term “stem cells” is a broad definition of living human cells that are part of human pain and degeneration. Stem cell treatments can include any number of different treatment modalities.

Stem cells are a fundamental building block of a healing response. They are found in high concentration in the bone marrow but live in many other locations in the human body. When a person breaks a bone, stem cells are involved in the miracle of fracture healing — the stem cells migrate from other parts of the body to the fracture site, where a trigger occurs that tells the stem cell to turn into regular bone. A cascade of healing steps then takes place, resulting in the bone becoming completely solid. A piece of the bone tissue that is newly formed as a result of the stem cell process is indistinguishable from normal bone under a regular light microscope and will test as normal bone under biologic assay testing.

A tremendous amount of information is known about stem cells, yet much about them remains unknown. Questions include: What is the best way to gather stem cells? How do we segregate the desired stem cells from undesired stem cells? How do we know that we even have stem cells? Should we get stem cells from the person, or should we collect them from other people? Are stem cells collected from deceased people functional? Is it okay to use stem cells that are collected from multiple deceased people and used “pooled stem cells?” Should we retrieve stem cells from bone marrow? Is amniotic fluid the best source? We share the scientific community’s intense curiosity and excitement as these mysteries are unraveled.

Experimental therapies at many sites around the world introduce stem cells directly into regions of musculoskeletal disorders in hopes of rebuilding healthy tissue. The results from these therapies are not as encouraging as those from platelet rich plasma treatments. Because so many questions remain about stem cells themselves and how they act, it may be that yet unknown actions of other cells and molecules in the tissue rebuilding process, which are not included in experimental stem cell therapies, limit these procedures. For these reasons, we do not currently perform stem cell treatment.

The natural cellular processes that maintain and repair our tissues are incredibly complex and multi-interdependent. Platelet rich plasma treatments apparently act to initiate these natural processes instead of attempting to recreate them with direct stem cell introductions.

At Jernigan Orthopedics and OrthoBiologics, we use platelet rich plasma treatment to help lessen the pain and stiffness of certain arthritic disorders. We also use PRP for certain tendon disorders such as tennis elbow, rotator cuff tendinopathy, partial rotator cuff tear, and plantar fasciitis. We perform PRP using a refined technique with proven safety and efficacy, including a closed sterile system that uses your own platelets and plasma, to trigger a healing cascade.