

Platelet-Rich Plasma

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We have seen many innovations in the field of Medicine for the aging athlete and the last two decades has bought the preparation of the platelet-rich plasma in the treatment of athletic injuries. Many well-known golfers or tennis players have received such injection in order to improve their conditions with other mean of treatment like the use of medication or physical therapy.

It is well known that Rafael Nadal had an adult form of avascular necrosis of the tarsal navicular bone (Mueller-Weiss syndrome) for which he has undergone all type of treatment and multiple surgical operations which forced him to a premature retirement. He did like Tiger Woods benefited from multiple injections of "PRP" for various problems like sprained knees, and chronic tendons injuries to the shoulder, wrist, ankles etc.

Tigger Woods also has experienced such injections to many parts of his body to ease his low back and joint problems. He still participates in tournaments. Such athletes have found relief with the platelet-rich plasma injections but not a cure. Much have been written on the preparation of the platelet rich plasma (PRP) and its potential effectiveness in treatment injuries, with their potential return to an active competition. There are still lingering questions on the healing properties of such injections.

Platelet-rich plasma (PRP) is made of the plasma but also contains red blood cells, white cells and platelets giving the component the possibility in forming blood clotting and proteins able to produce quantity of growth factors in the hope of bringing a healing touch to the injured area. To develop such PRP preparation, blood sample from a patient is drawn and the platelets are separated from other blood cells through a processus called centrifugation. A concentrate of platelets is obtained and prepared for its injection into the injured site.

Nobody knows for sure how such platelets-rich plasma works, but it is believed that the high concentration of growth factors in the preparation to be injected, carry the potential to speed up the healing process. One can inject an inflamed area in the Achilles tendon, treating a tendonitis in a runner or a tennis player or the heel cord itself. The injection can be mixed with a local anesthetic to potentiate the concentrate. The pain generally subsides at the site of the injection and can be repeated in one or two weeks and even more times. Such concentrate can also supplement the beneficial effect of a surgical treatment after the repair of the tendon itself.

The effectiveness of the PRP injections treatment is still being investigated after so many years, and studies have demonstrated that some tendons problems can improve better than others with injections but it is in the area of degenerative joint disease that it seems to show more hope, especially in the degenerative process, with moderate knee arthritis.

The patient overall health must be assessed and determination to treat a patient for an acute or a chronic injury must be considered. Let us review some pathologies to treat with PRP injections.

- 1- In chronic tendons injuries, PRP injections are effective especially with tennis elbow (lateral epicondylitis), a condition where an individual experiences pain at the elbow. The pain feels worse with range of motion especially when any action requiring strength by twisting the forearm or extending the wrist can increase the symptoms. The pain can follow an excess strain injury following repetitive use of the extremity. In fact, there is no clear cause found in most cases. You will find people claiming pain at the elbow while using their extremity and pointing the lateral aspect of the elbow. MRI studies may show chronic tear in the substance of the common extensors of the wrist at their insertion over the lateral epicondyle of the humerus. We may use terms as “repetitive strain” or “over use syndrome” to qualify such injury. By far, the most common cause of Tennis Elbow is seen when constant motion is accompanied with strength but tendonitis, degenerative arthritis, or torn soft tissue can easily demonstrate as much pain and discomfort and enter in the diagnosis of Tennis elbow. It can be used in patellar tendonitis (bumper nee)



Treating “Tennis Elbow” with an injection of PRP

- 2- Many have also investigated the PRP injections in the treatment of acute sport injuries (ligaments or muscles) notably knee sprain or hamstring injuries.
- 3- I have already pointed that many orthopedic surgeons are using the PRP as an adjunct to certain type of injury in order to enhance the healing process. In the exploration and repair of the rotator cuff, it has been used with little benefit. It has been tried also in knee surgery to facilitate the healing of a meniscus after surgical repair or partial meniscectomy. We are waiting for definite results from the sport specialist involved in trial study. It has been also tried in the management of anterior cruciate ligaments (ACL) but we are still hoping that conclusive results will encourage many to use this adjunct.
- 4- The last five years have seen more and more researches centered on the use of PRP in the treatment of moderate grade osteoarthritis of the knee. Some experts

in the field are hoping to be able of delaying degenerative joint disease when it is approached soon enough. Leucocytes rich PRP vs Leucocyte poor PRP have not been determined but studies are on-going.

- 5- Finally, attempts at using PRP injection in the treatment of acute fracture management has failed to produce results.

To conclude, as the expression always claims, there is hope at the end of the tunnel and Injections with PRP could hold promise. However, if current research studies seem to back up that PRP injections do appear to be effective in the treatment of certain chronic tendon injuries, ligaments and muscle injuries, as well as low- to moderate-grade knee osteoarthritis, we will need more scientific data to back up the claims. Even, more recently, studies have started looking at treatments for small joints troubles as well as recent use of the PRP injections in the treatment of chronic bladder problems or complications of COVID due to chronic loss of smell.

More is even done in the field of Cosmesis, because, dermatologists and their assistants are treating hair loss (alopecia) for men and women. They have even expanded PRP injections to their facial routine techniques for wrinkles and sagging skin (Vampire fascies) and some claim already satisfactory results...

In anyway, there are little risks in performing such injections except for a painful site of inoculation, similar to any other type of injections performed in the orthopedic field. I would give it a try, knowing it may be helpful to relieving symptoms of pain. Certainly, data have already demonstrated that the PRP injections were superior to the “gel shots” of hyaluronic acid injection (viscosupplementation). Nevertheless, one will have to keep in mind that, side effects of PRP injections are almost inexistant since the solute is created from your own blood. However, keep in mind that many studies performed since 2021 have already shown that PRP injections work no better than a placebo. Give it a try...

It may be necessary to take some medication like aspirin or ibuprofen to thin the blood prior to giving a specimen for the preparation of the PRP injection. Perhaps also, staying away from certain vitamins or fatty acids like omega-3 fatty acids can be beneficial. I would let you keep a frank discussion with your primary care physician to decide what kind of medication will benefit you at the time of the procedure.

To collect plasma, your physician will need blood using a machine called a “Centrifugal machine”, capable of separating the platelet rich plasma from the whole blood. The injection can be performed once the area to be injected is anesthetized and prepped. Then, depending on the physician, he may use an ultrasound machine to localize well the involved area. The subtract is then injected slowly. Once the platelets penetrate the area (joint), they break down and release growth factors which will participate in the repair process

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