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## Platelet Rich Plasma Injection

### “The new injection for sports injuries and tendonitis”

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#### About PRP Therapy

Platelet Rich Plasma Injection (PRP) therapy offers a promising solution to accelerate healing of tendon injuries and osteoarthritis naturally without subjecting the patient to significant risk. PRP is an emerging treatment in a new health sector known as "Orthobiologics." The philosophy is to merge cutting edge bio-technology with the body's natural ability to heal itself.

Blood is made of RBC (Red Blood Cells), WBC (White Blood Cells), Plasma, and Platelets. When in their resting state, platelets look like sea sponges and when activated form branches. Platelets were initially known to be responsible for blood clotting. In the last 20 years we have learned that when activated in the body, platelets release healing proteins called growth factors. There are many growth factors with varying responsibilities, however cumulatively they accelerate tissue and wound healing. Therefore after increasing the concentration of these platelets into a small injection, we are able to deliver a powerful cocktail of growth factors that can dramatically enhance tissue recovery.

Three commonly utilised techniques for delivery of the PRP are known as platelet-rich plasma, autologous blood injections and autologous conditioned serum. Each of these techniques has been studied clinically in humans to a limited degree in respect of the healing of tendon and ligamentous injuries. The results are promising in terms of earlier return to play following muscle and particularly tendon injury.

The following growth factors can be found in the environment of a blood clot:

- transforming growth factor beta (TGF-b)
- platelet-derived growth factor (PDGF)
- insulin-like growth factor (IGF)

- vascular endothelial growth factors (VEGF)
- epidermal growth factor (EGF)
- fibroblast growth factor-2 (FGF-2)

### Clinical use of platelet-rich plasma in orthopaedics

The increasing use of platelet-rich plasma (PRP) in orthopaedics presents significant opportunities—as well as significant questions—about appropriate clinical applications for this developing therapy. PRP was initially developed in the 1970s; recent technologic advances have enabled the administration of PRP to move from the hospital setting into outpatient and ambulatory surgical centers...even into physicians' offices. PRF has been referred to as a second-generation platelet concentrate. PRF has been shown to have various advantages over traditionally prepared PRP. Its chief advantages include ease of preparation, the lack of biochemical handling of blood, and a prolonged release of local growth hormones.

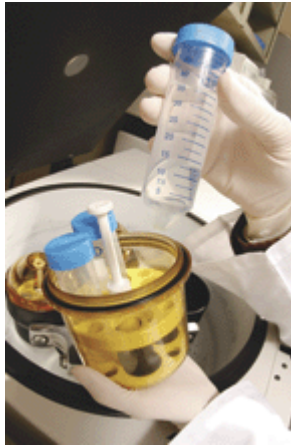
Although PRP / PRF therapy seems quite promising in several areas, it is not appropriate in all cases. A clear understanding of the repair response, the development of PRP / PRF therapy, and the variables that may affect the effectiveness of PRP / PRF therapy is necessary to make informed clinical judgments on its use.

### Clinical Preparation of PRP injection

First, a small amount of blood is drawn from the patient's arm. The blood is then placed in a centrifuge that spins the blood for approximately 15 minutes. This step removes the unwanted components of blood that are not primarily responsible for healing including: plasma, WBC's and RBC's. What remains is an increased concentration of up to ten times the concentration of platelets, which are rich in the desired growth factors to potentiate enhanced healing. During this time, the patient receives a local anesthetic injection.



The blood is injected into a separation chamber for centrifugation and separation of the platelet rich plasma.



*A centrifuge is used to isolate the platelets, which are rich in growth factors.*

### **PRP Injection**

A clinical diagnosis must first be made with the assistance of investigations such as haematological tests, MRI scans, X-rays or ultrasound. Only if the injury or problem area is suitable for PRP / PRF therapy is treatment undertaken. Conditions suitable include:

- 1 Acute or chronic soft tissue injuries
- 2 Acute and chronic ligamentous injuries
- 3 Tendonitis
- 4 Tennis elbow
- 5 De Quervains syndroms
- 6 Achilles tendonitis
- 7 Plantar fasciitis
- 8 Patellar tendonitis

The area of injury is properly identified and marked. The injection is performed by a simple percutaneous injection. The patient rests afterwards for 5-10 minutes and is discharged home with post procedure instructions. Increased pain may result for approximately 7 days following the injection which is not uncommon. This represents part of the healing process.

### **Follow Up**

Follow up is usually in 4 weeks, when clinical examination or clinical ultrasound will be performed to reassess the area of injury. At that time if symptoms persist then a second injection is required. For most cases between 1-3 injections is required at 4 week intervals. However for osteoarthritis injections a three-injection series is required at 4 week intervals. Patients are encouraged to participate in physical therapy following the injection which enhances recovery.

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