

### **How It Works**

Until now, the use of PRP had been confined to the hospital setting mainly due to the cost of separating the platelets from the blood and the amount of blood needed to obtain a sufficient amount of platelets. New technology has allowed the doctor to harvest and produce a suitable quantity of platelets from as few as 20 cc of blood drawn from the patient while they are having outpatient surgery, such as extractions and dental implant placement or bone grafting.



Once the blood is drawn, it is placed into a sterile container which is set in the SmartPReP<sup>™</sup> platelet separator developed by Harvest Technologies. The blood is then centrifuged to separate the plasma from the red blood cells.



The PRP is extracted from the rest of the plasma with a sterile syringe and is ready for use in the clinical setting. When applied, the PRP is mixed with a combination of calcium chloride and thrombin that transforms the PRP into a 'sticky' gel-like form. This gel allows the surgeon to obtain and shape the appropriate amount of PRP necessary for each particular application.

#### **Process** Does it work?

Clinical studies have shown a significant increase in healing with patients who have used PRP in their treatment than compared with control patients. Patients using PRP have also showed a decrease in swelling and have expressed fewer levels of post-operative pain or discomfort.

### **Safety** Is PRP safe?

Since PRP is extracted from your own blood, there is no risk for a negative reaction. In fact, since PRP increases the healing process, it decreases the risk of infection at the surgical site. The amount of blood drawn is small, so there is little risk of feeling light headed or dizzy. PRP has also been used clinically for over a decade.

### Side Effects

### Are there side effects?

Some patients may experience slight swelling or discoloration at the donor site similar to what is commonly found when donating blood. This may also be accompanied with some tenderness. However, the effect is no greater than that seen when giving blood or undergoing routine "blood work."

# **Concerns** Are there any contraindications to PRP?

There are very few cases where PRP should not be exercised. Patients with bleeding disorders or hematologic diseases do not qualify for this in-office procedure. Be sure to check with your surgeon or primary care physician to determine if PRP is right for you.

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An Accelerated Approach to Healing: Autologous Platelet Rich Plasma (PRP)



# **Featured Inside:**

- What is PRP?
- The Benefits
- Why it works
- The Process



### **Benefits of PRP**

- ♦ Accelerates Healing
- ♦ Reduces Swelling
- Reduces Post-operative bleeding
- Autogenous, meaning no risk of rejection by the body or disease transmission
- Decreases the degree of bruising at the surgical site
- Decreases the risk of infection at the surgical site

### **Current uses of PRP at PI**

Patients who receive the following treatment benefit greatly from PRP:

- Implant reconstruction from single tooth to full arch or total mouth.
  - Teeth in a Day™
  - Traditional 2-stage protocol
- ♦ Bone grafts
- ♦ Sinus lifts
- Extensive tooth extractions

# What is Platelet Rich Plasma (PRP)?

Platelet Rich Plasma (PRP) is precisely what its name implies. The substance is a by-product of blood that is rich in platelets. Platelets are irregularly-shaped, colorless bodies that are present in blood. Their sticky surface lets them, along with other substances, form clots to stop bleeding. They also contain growth factors (GFs), which serve as potent inducers of normal tissue repair.



## Why All the Excitement over PRP?

PRP allows the body to take advantage of the normal healing pathways at a highly accelerated rate. During the healing process, the body rushes many cells, including platelets, to the wound in order to initiate the healing process. Platelets perform many functions; one of which is the release of GFs into the wound. These GFs function to aid the body in repairing itself by stimulating mesenchymal stem cells (MSCs) to regenerate new tissue. The more GFs sequestered into the wound, the more MSCs are stimulated to produce new host tissue. Simply, PRP permits the body to heal faster and more efficiently.



Research

# Research

Platelets contain a cocktail of growth factors, each of which has an important role in the wound healing process. Numerous studies have been conducted isolating individual growth factors to identify the role each performs. Some GFs have a proliferative role, which increases the number of MSCs. Some have a chemotactic effect, meaning they are responsible for recruiting MSCs and migrating them to the site of healing. Others play a role in differentiation. Stem cells need to be shown direction and certain growth factors will persuade the MSCs to differentiate into certain tissue types; furthermore, the environment will help dictate the direction of the MSCs as well.

Applications

# **Applications at PI**

PRP accelerates two main processes that interest both the doctor and the patient: osteogenesis and vasculogenesis. Osteogenesis is simply the process of bone cell formation. Vasculogenesis creates the primary network of vascular endothelial cells that will become major blood vessels. Here at PI, we are interested in accelerating the bone healing process in the jaws, along with accelerating the healing response in the soft tissues, such as the gums around the bone. Using PRP and the GFs that are accompanied with it, the healing response can be shortened dramatically.