



DIVERSIFIED
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PRP Treatment

Educational Material



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”Platelet-Rich Plasma Therapy speeds healing of musculoskeletal Injuries”

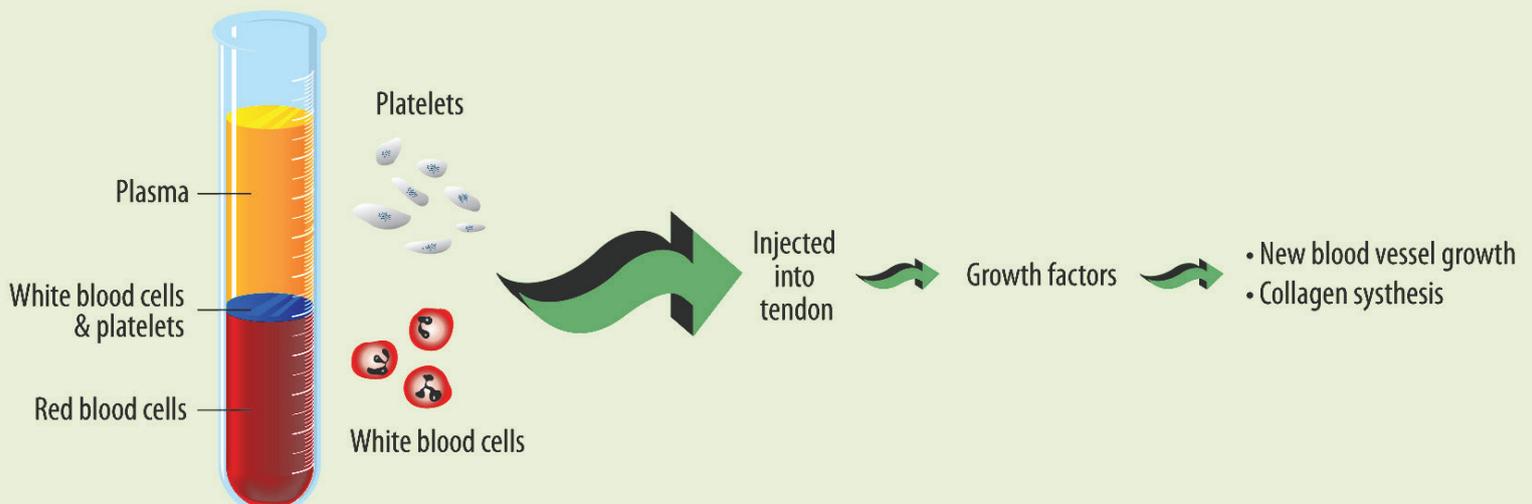
Platelet-rich plasma (PRP) therapy, a treatment for aiding the regeneration of ligament and tendon injuries, helps to shorten rehabilitation time and often eliminates the need for surgery. Platelet-rich plasma therapy is part of a relatively new field of medicine known as orthobiologics that includes the use of stem cells and emphasizes employing the latest technologies along with the body’s natural ability to heal itself. “One of our major goals is to make healing time faster for patients with soft tissue injuries,” says Christopher S. Ahmad, MD, Director, Center for Pediatric and Adolescent Sports Medicine at NewYork-Presbyterian Morgan Stanley Children’s Hospital. “For example, a patient undergoing elbow ligament reconstructive surgery, commonly referred to as Tommy John surgery, may take a year to recover. That’s a long time. Recovery time for anterior cruciate ligament [ACL] surgery is approximately six months. So while we are very good at performing surgery to correct these injuries, we’re now accelerating the healing by biologic manipulation. That’s where platelet-rich plasma comes in.”

What is Platelet-Rich Plasma?

Blood is made of red blood cells, white blood cells, plasma, and platelets. Platelet-rich plasma (PRP) is the name given to blood plasma with a high concentration of platelets that contains huge doses of bioactive proteins, such as growth factors, that are critical in the repair and regeneration of tissues.

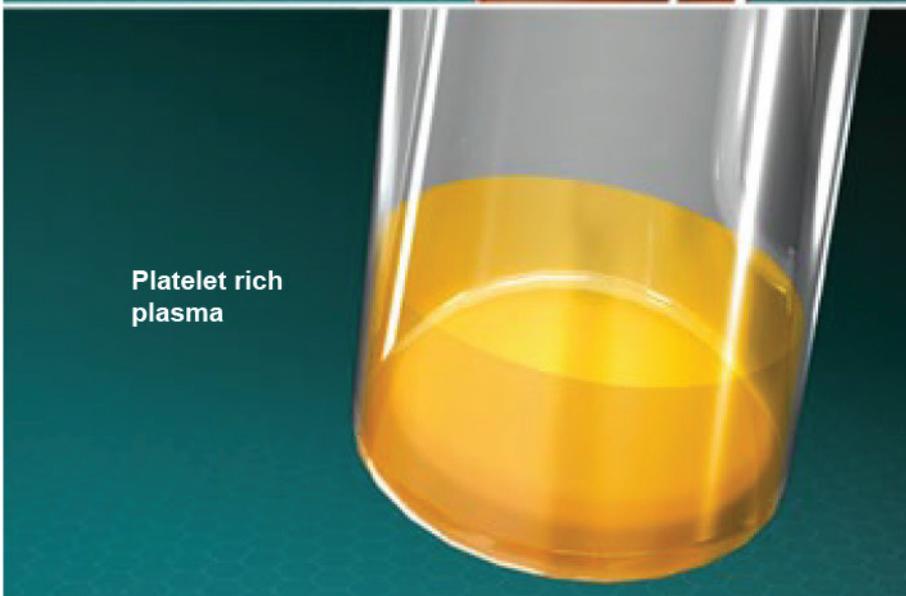
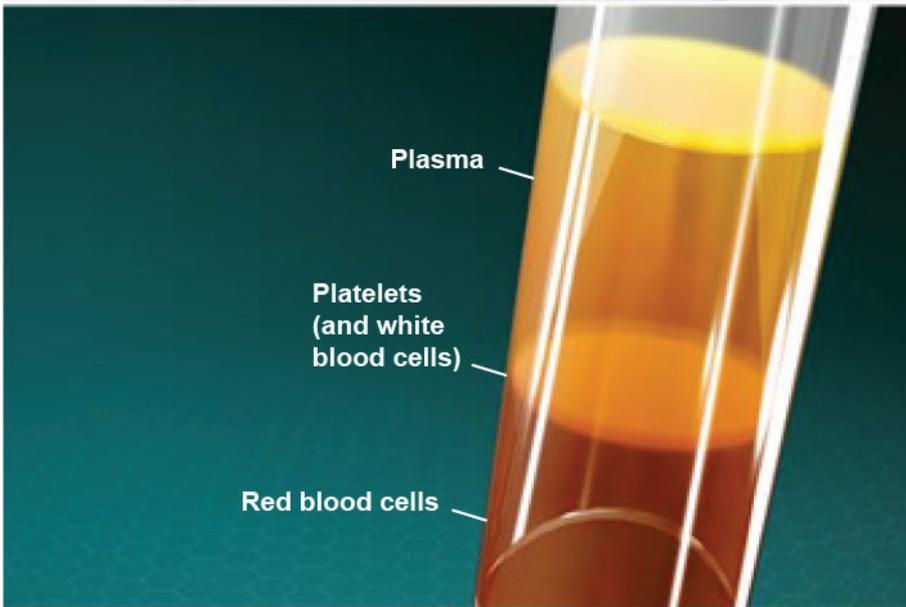
In order to extract these platelets, a small amount of blood is drawn from the patient and it immediately undergoes centrifugation, a process in which mixtures are separated using centripetal force. This process separates out red blood cells, which carry oxygen, and the platelet and the plasma. The platelets with the plasma have all of the healing agents. Once the separation is done, the platelet-rich plasma is extracted and can then be injected back into the patient’s injured area. It is their own platelet-rich plasma -- it isn’t taken from another person or derived in a laboratory.

Growth factors can dramatically enhance tissue recovery and the special proteins also initiate new blood vessel formation, bone regeneration and healing, connective tissue repair, and wound healing. There is little chance for rejection because the components used for treatment are extracted from a person’s own body. This makes the procedure entirely safe. The PRP injection also carries less chance for infection than an incision, with a considerably shorter recovery time than after surgery.





PRP Injection Overview



Overview

Platelet rich plasma therapy can help injured joints and other problems. It uses parts of your own blood to reduce pain and speed up healing.

Can it Help Me?

PRP may help if you have: meniscus tears in your knee. Rotator cuff tears in your shoulder. Plantar fasciitis in your foot. And injuries in your spine, hip or elbow.

Benefits of PRP

Parts of your body have a hard time healing. For example, ligaments and tendons (they connect bones and muscles) don't get much blood from the body. Sprains and strains of these tissues heal slowly. PRP uses your own blood to speed up the healing in these areas.

Creating the Mix

The process begins with a sample of your blood. It is spun around in a centrifuge. This separates it into platelets, plasma, and red and white blood cells. The platelets are then concentrated and mixed with some of the plasma. This mixture is called "platelet rich plasma." The doctor injects this into the site of your injury.

Injection

After the injection, your immune system (the system that keeps your body healthy) reacts quickly. Special white blood cells called "macrophages" rush in. They take away damaged cells. They help prep the site for healing. Then, stem cells and other cells begin to multiply. Over time, they repair and rebuild the injured tissues.

Conclusion

The PRP process is quick. You can go home the same day. It may help your injury heal faster. PRP can help treat and eliminate the cause of your pain. Some people need more than one treatment before they heal completely.



Research studies are currently being conducted to evaluate the effectiveness of PRP treatment.

Here are some studies abstracts that we encourage you to read before making any decision:

Study	Source	Pub.	Link	Conclusion
PRP in OA knee - update, current confusions and future options	Department of Orthopaedics, Post Graduate Institute of Medical Education and Research, Chandigarh 160012, India	March 2017	www.ncbi.nlm.nih.gov/pubmed/28322719	Positive results have been uniformly observed by various researchers for platelet-rich plasma (PRP) in early osteoarthritis (OA) knee in the past few years. PRP has clearly demonstrated its supremacy in comparison to hyaluronic acid (HA) and placebo in various clinical trials and is undoubtedly the best option available for symptomatic treatment in early OA.
Protective Nature of Platelet-Rich Plasma Against Chondrocyte Death When Combined With Corticosteroids or Local Anesthetics	1Department of Orthopaedic Surgery, University of Connecticut Health Center, Farmington, Connecticut, USA. 2Center for Sports Medicine, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, USA. 3Department of Orthopaedic Surgery, University of Connecticut Health Center, Farmington, Connecticut, USA	Aug 2016	www.ncbi.nlm.nih.gov/pubmed/27582279	The addition of PRP can significantly reduce the cytotoxic effects of corticosteroids and/or local anesthetics applied to chondrocytes. PRP can improve the proliferation of chondrocytes compared with corticosteroids or local anesthetics alone
Intra-Articular Injections of Platelet-Rich Plasma versus Hyaluronic Acid in the Treatment of Osteoarthritic Knee Pain: A Randomized Clinical Trial in the Context of the Spanish National Health Care System.	Department of Orthopedic Surgery and Traumatology, Virgen de la Victoria University Hospital, Malaga E-29010, Spain	June 2016	www.ncbi.nlm.nih.gov/pubmed/27384560	Both groups presented pain reduction at six months. The VAS scores for the PRP group improved by at least 50% from their initial value, particularly at three months following the final infiltration, with results resembling those of the HA group at six months. PRP was more effective in patients with lower osteoarthritis grades. Both treatments improved pain in knee osteoarthritis patients without statistically significant differences between them. However, PRP injection was proved to improve pain three months after the final infiltration and to be more effective in lower osteoarthritis grades
Efficacy of Intra-articular Platelet-Rich Plasma Injections in Knee Osteoarthritis: A Systematic Review	Department of Orthopedics and Sports Medicine, Houston Methodist Hospital, Houston, Texas, U.S.A.	March 2016	www.ncbi.nlm.nih.gov/pubmed/26432430	In patients with symptomatic knee OA, PRP injection results in significant clinical improvements up to 12 months postinjection. Clinical outcomes and WOMAC scores are significantly better after PRP versus HA at 3 to 12 months postinjection. There is limited evidence for comparing leukocyte-rich versus leukocyte-poor PRP or PRP versus steroids in this study.



Study	Source	Pub.	Link	Conclusion
Ultrasound guided platelet-rich plasma injection for the treatment of rotator cuff tendinopathy.	1Department of Orthopedic, Kashani Hospital, Isfahan University of Medical Sciences, Isfahan, Iran. 2Department of Physical Medicine and Rehabilitation, University of Medical Sciences, Shiraz, Iran. 3Department of Orthopedic, University of Medical Sciences, Isfahan, Iran;	Dec 2016	www.ncbi.nlm.nih.gov/pubmed/26033459	Single injection of PRP is effective to reduce pain and improve range of motion in patients with bursal side partial tearing of RC who failed to respond to conservative treatments.
Case series of ultrasound-guided platelet-rich plasma injections for sacroiliac joint dysfunction	1Department of Medicine, Division of Physiatry, Sunnybrook Health Sciences Centre and the Canadian 2Faculty of Medicine, University of Ottawa, Toronto, Canada. 3Canadian Memorial Chiropractic College and the Canadian Centre for Integrative Medicine, Toronto, Canada.	June 2016	www.ncbi.nlm.nih.gov/pubmed/28217638	Platelet-rich plasma therapy exhibits clinical usefulness in both pain reduction and for functional improvement in patients with chronic SI joint pain. The improvement in joint stability and low back pain was maintained at 1- and 4-years post-treatment.
Successful treatment of athletic pubalgia in a lacrosse player with ultrasound-guided needle tenotomy and platelet-rich plasma injection: a case report	1Department of Rehabilitation Medicine, New York-Presbyterian Hospital-Columbia and Cornell, Harkness Pavilion 1st Floor, Rm 180, 180 Fort Washington Ave, New York, NY 10032*. Electronic address: paul.scholten@gmail.com. 2Department of Physiatry, Hospital for Special Surgery, 75th Street Campus, New York, NY(†). 3Department of Athletics, St. John's University, Queens, NY(‡).	Jan 2015	www.ncbi.nlm.nih.gov/pubmed/25134854	Athletic pubalgia is a syndrome of persistent groin pain due to chronic repetitive trauma or stress involving the pelvic joints and many musculotendinous structures that cross the anterior pelvis. As a result, the differential diagnosis can be complex, but insertional tendinopathies are the most common. This case report describes a novel approach to the treatment of distal rectus abdominis tendinopathies with ultrasound-guided needle tenotomy and platelet-rich plasma (PRP) injection. After injection, the patient returned to pain-free play at his previous level of intensity. This suggests that PRP may be a useful treatment for this diagnosis.
Subacromial injection of autologous platelet-rich plasma versus corticosteroid for the treatment of symptomatic	1Orthopedic Surgery, Menofiya University, Al Minufya, Egypt. 2Pediatric Orthopedics, Tanta University, 13 Omar Zafan St., 6th Floor., Tanta, Gharbia, 3111, Egypt	Aug 2016	www.ncbi.nlm.nih.gov/pubmed/27544678	PRP injections showed earlier better results as compared to corticosteroid injections, although statistically significant better results after 6 months could not be found.
Leukocyte-poor platelet-rich plasma is more effective than the conventional therapy with acetaminophen for the treatment of early knee osteoarthritis	1Department of Biochemistry and Molecular Medicine, Faculty of Medicine, Autonomous University of Nuevo León (UANL), Ave Francisco I. Madero and Eduardo Aguirre Pequeño S/N, Colonia Mitras Centro, C.P. 64460, Monterrey, NL, México. 2Department of Orthopaedics and Traumatology, University Hospital, UANL, Monterrey, NL, México	Aug 2016	www.ncbi.nlm.nih.gov/pubmed/27506585	Treatment with LP-PRP injections resulted in a significantly better clinical outcome than did treatment with acetaminophen, with sustained lower EVA and WOMAC scores and improvement in quality-of-life (higher SF-12 score). Therapy with LP-PRP may positively modify the inflammatory joint environment by counteracting IL-1 β action



Before receiving the PRP therapy, you will have to sign the Injection Informed Consent provided by your physician.
Please read it carefully and never hesitate to ask more questions and seek a second opinion from another physician.



INJECTION CONSENT FORM

<p>Patient information:</p> <p>Name: EMR: D.O.B:</p>
<p>Name of proposed procedure: (Including side)</p>
<p>Fee for the proposed procedure:</p>
<p>Statement of health professional: (to be filled in by health professional with appropriate knowledge of proposed procedure)</p> <p>I have explained the procedure to the patient. In particular.</p> <p>The intended benefits:</p> <p><u>The side effects may include:</u> Headache, no decrease in pain, worsening of pain, fluid retention/swelling/increased blood pressure, increased blood sugars (if diabetic), mood changes, lowered resistance to infection, menstrual irregularities (for women) and facial flushing.</p> <p><u>Rare but serious side effects may include:</u> 1:7000 chance including but not limited to allergy, infection, bleeding and nerve injury.</p> <p>I have confirmed with the patient that he/she has no further questions and wishes the procedure to go ahead.</p> <p>If having radio frequency denervation, I have checked that the patient does not have a pacemaker or an artificial hip.</p> <p>SIGNATURE OF HEALTH PROFESSIONAL:</p> <p>PRINT NAME: Dr Arthur Williams JOB TITLE: Family Medicine Specialist DATE: TIME:</p>
<p>Statement of patient:</p> <p>Please read this form carefully. If your treatment has been planned in advance, you should already have a leaflet which describes the benefits and risks of the proposed treatment. If not you will be offered a copy and a copy of this consent form now. If you have any further questions, do ask. You have the right to change your mind at any time, including after you have signed this form.</p> <p>For self-paying clients I understand the cost of my treatment today is UAE</p> <p>I understand my diagnosis which has been explained to me.</p> <p>I agree to the procedure or course of treatment described on this form.</p> <p>I agree that information and/or surgical images kept in my records may be used anonymously for education, audit and research approved by an ethics committee, to improve the quality of patient care.</p> <p>I understand that the person performing the procedure has the appropriate experience or is training under direct supervision.</p> <p>I understand that any procedure in addition to those described on this form will only be carried out if it is necessary to save my life or to prevent serious harm to my health.</p> <p>I understand the alternatives to the procedure to be: medication, physical therapy or do nothing.</p> <p>I agree that I have had a chance to ask appropriate questions.</p> <p>I agree to the contents of this form and I agree to receive the treatment.</p> <p>SIGNATURE OF PATIENT:.....PRINT NAME:</p> <p>DATE: TIME:</p> <p>A witness should sign below if the patient is unable to sign but has indicated his or her consent. Young people (under 18 years of age) and children should also have a parent sign here.</p> <p>SIGNATURE OF WITNESS/PARENT OR GUARDIAN :.....PRINT NAME:.....</p> <p>DATE: TIME: RELATIONSHIP TO PATIENT:</p>

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General Principles

- The physician will follow the below guidelines and advice if PRP will be of benefit to your healing and reduction of symptoms
- Once the 1st PRP infiltration is completed (2-3 min), the area will be covered with a small plaster
- Pain in the first 24-48 hours will cause discomfort and a feeling like “bruising” and heat in the treated area.
- You are not supposed to feel any other symptoms like numbness, heat, redness or skin reaction. Should you, you must contact the doctor
- You must follow the regime below, and will start feeling better 48 hours after the 1st treatment.
- As with any other treatment, there is always a small group of patients that do not respond according what we expect. Should your pain not improve within the first 5 days, please contact the doctor

RICE - Rest, Ice, Compression, and Elevation

Rest

Rest and protect the injured or sore area. Stop, change, or take a break from any activity that may be causing your pain or soreness.

Ice

Cold will reduce pain and swelling. Apply an ice or cold pack right away to prevent or minimize swelling. Apply the ice or cold pack for 10 to 20 minutes, 3 or more times a day. After 48 to 72 hours, if swelling is gone, apply heat to the area that hurts. Do not apply ice or heat directly to the skin. Place a towel over the cold or heat pack before applying it to the skin.

Compression

Compression, or wrapping the injured or sore area with an elastic bandage (such as an Ace wrap), will help decrease swelling. Don't wrap it too tightly, because this can cause more swelling below the affected area. Loosen the bandage if it gets too tight. Signs that the bandage is too tight include numbness, tingling, increased pain, coolness, or swelling in the area below the bandage. Talk to your doctor if you think you need to use a wrap for longer than 48 to 72 hours; a more serious problem may be present.

Elevation

Elevate the injured or sore area on pillows while applying ice and anytime you are sitting or lying down. Try to keep the area at or above the level of your heart to help minimize swelling.



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The following rehabilitation protocol is applicable to acute injuries, chronic injuries and trigger point areas (myofascial syndrome). This guideline may vary according to the degree of pathology, patient response and advice from the physician or therapist.

Day after treatment	Acute injuries	Chronic injuries	Myofascial Syndrome (Trigger point)
Same day after procedure (1st PRP)	RICE regime - Rest, Ice, Compression and elevation is important - Ice on treated area 20 minute of each hour every 2 hours for first 12 hours - No active movement or exercises. Normally painful at end of day.		
Day 2 (48 hours post procedure)	Start with passive stretching, light massage and range of movement exercises. Bruised feeling will be subsided to a lower grade. Ice at end of the day.		
Day 3-4	Passive stretches, light exercises, start using the joint/muscle at 20-30% of normal use. You may start normal exercise within pain limits. Bruised feeling at injected area will be between 1-3/10. See physio/ chiropractor or sports therapist on Day 3 or Day 4.		
Day 5 -6	Active stretches or moderate exercise at 50% of normal use or within pain free range. During exercise, the treated area will have 0-1/10 pain but will still feel weak due to the lack of training in that area.		
Day 7	2nd PRP + RICE Regime	Follow up with physician	
Day 8	RICE regime, no local or deep tissue treatment	Slowly increase activity according to advice from Physician	
Day 9-10	Start exercises where ended on Day 6, bruise feeling will decrease to 0-1/10, Weakness will improve	Focus on strengthening the structure that was treated. Increase training volume.	
Day 11-13	Slowly increase activity according to advice from Physician. See physio/ chiropractor and sports therapist on Day 3 or Day 4.	It is important to monitor the response of your injury the day after the last training - Do not train the treated area into pain or to stiffness. See physio/ chiropractor or sports therapist on Day 11 or Day 13.	
Day 14	3rd PRP if needed and repeat RICE regime	2nd PRP for chronic injury	2nd PRP only if needed
Day 15 and after	RICE regime if PRP was done	RICE regime	RICE regime if PRP was done
	See physio/ chiropractor and sports therapist on Day 18 onwards for final stage rehabilitation and full return to training.		
Notes		Activities that were the main cause of the original problem will have to be reduced or avoided.	
Day 28		3rd PRP maybe required according to Physician advice	

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