

Patellar Tendon Tear & PRP

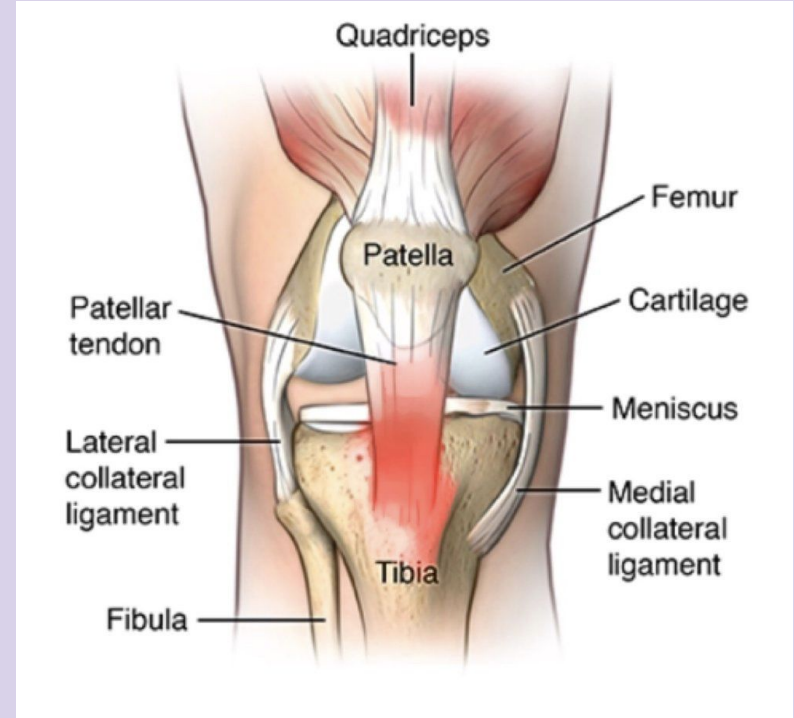


Overview:

- What is a Patellar Tendon Injury?
- Treatment For a Patellar Tendon Injury
 - PRP Injection Therapy

What is a Patellar Tendon Injury?

- Fibrous tissue that connects muscle to bone.
- Patellar Tendon works with the muscles in front of the thigh and in the knee.
- Rupture of the tendon that connects the kneecap (patella) from the shinbone (tibia).
- Patella is attached to the *quadriceps muscle* by the *quadriceps tendon*.
- When the tendon is torn it prevents the person from straightening the leg.
- Also known as the *patellar ligament*.
- A bone to bone connection is actually attached by what is called a ligament.
- Tear can be *partial* or *complete*



What causes the Injury?

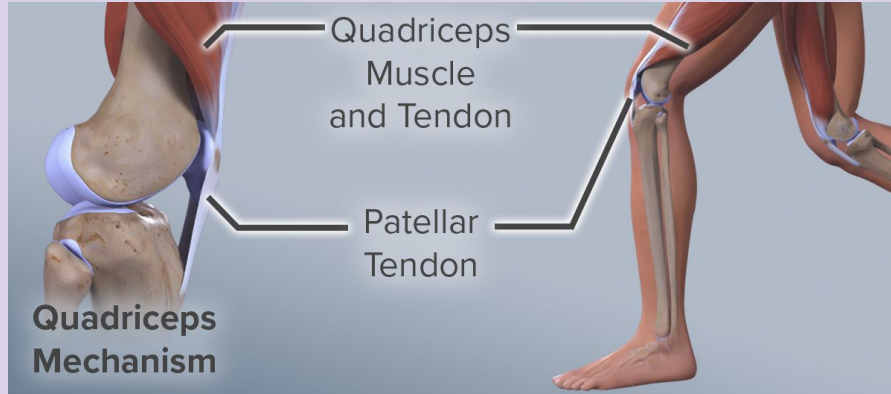
The MOI is the forces that cause injury when applied to the human body:

- Repeated stress and *trauma* to the patellar tendon (Overuse injury)
- Multiple tiny tears in the tendon try to repair themselves, which cause pain from inflammation and degeneration of the tendon.

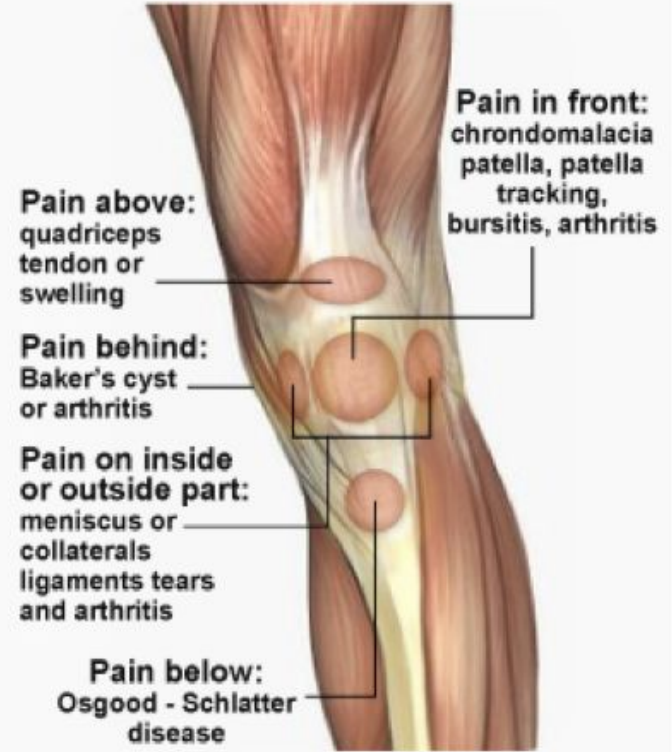
What are the effects in the body?

The Physiological Effects:

- Patellar tendonitis.
- Middle rupture in the Patellar tendon.
- Patella moves up and it easily around the knee area.
- Disrupts the Knee extension mechanism:
 - Patella, quadricep tendon, and patellar tendon.
- In the United States, quadriceps tendon ruptures tend to affect 1.3% of the population each year, whereas patellar tendon ruptures tend to affect less than 0.5% of the population each year.
- Males are more commonly affected than females.



Location of Pain



Treatment For a Patellar Tendon Injury

- The doctor will consider:
 - Type and size of the tare
 - Activity level
 - Age
- Nonsurgical treatment for very small partial tears.
 - Immobilization
 - 3-6 weeks
 - Physical therapy
 - Strengthening exercises
- Surgical repair to reattach the tendon to kneecap or sow the tendon together if it was a medial tear.
- **Platelet Rich Plasma (PRP)**

PRP

can be used along with Physical Therapy or in addition to surgery if doctors recommend surgery as treatment.

Physical Therapy Exercises for Patellar Tendonitis

Quad isometric



Eccentric exercises



Knee extension

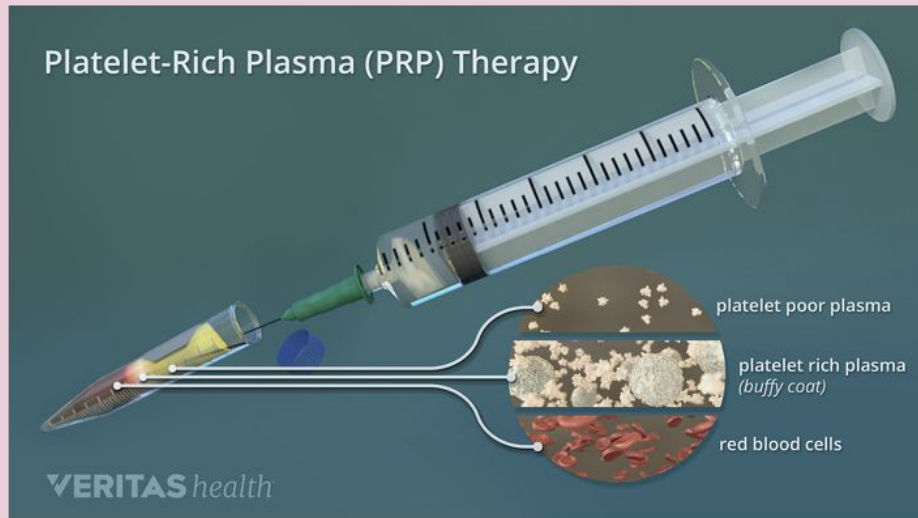


Plyometric exercises



verywell

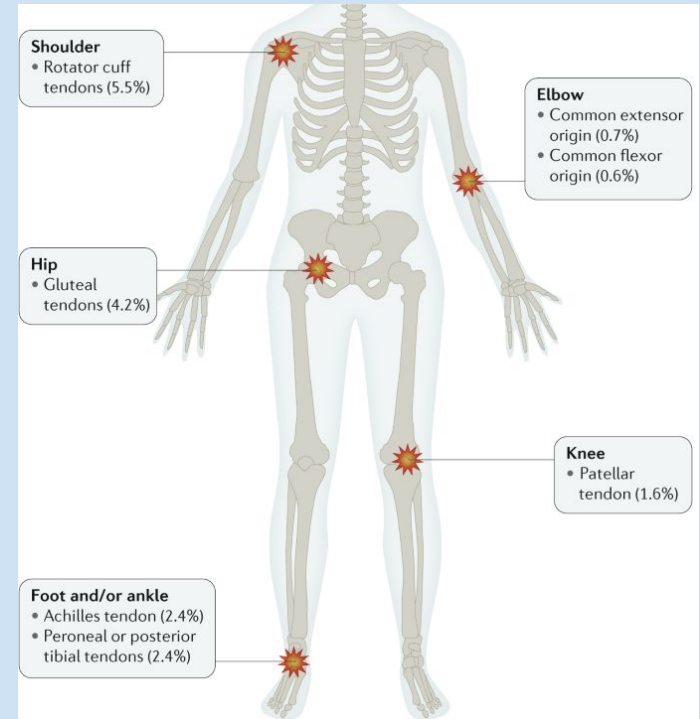




Introduction to Platelet Rich Plasma Treatment

PRP Injection Therapy

- Platelet-rich therapies are used to treat **musculoskeletal soft tissue** injuries such as ligament, muscle and tendon tears and tendinopathies.
- Therapy as principal treatment or as an augmentation procedure (application after surgical repair or reconstruction).
- Platelet-rich therapies are produced by a **centrifuge**, which separates a patient's own blood and extracting the active, platelet-rich, fraction.
- This platelet-rich fraction is applied to the injured tissue; for example, by injection.
- Platelets have the ability to produce several growth factors, so these therapies should enhance tissue healing.



Objective of PRP

- **Platelet Rich Plasma** is a concentrate of platelet-rich plasma protein derived from human blood, centrifuged to remove red blood cells and the objective of this article is to assess the effects **(benefits and harms)** of platelet-rich therapies for treating musculoskeletal soft tissue injuries.

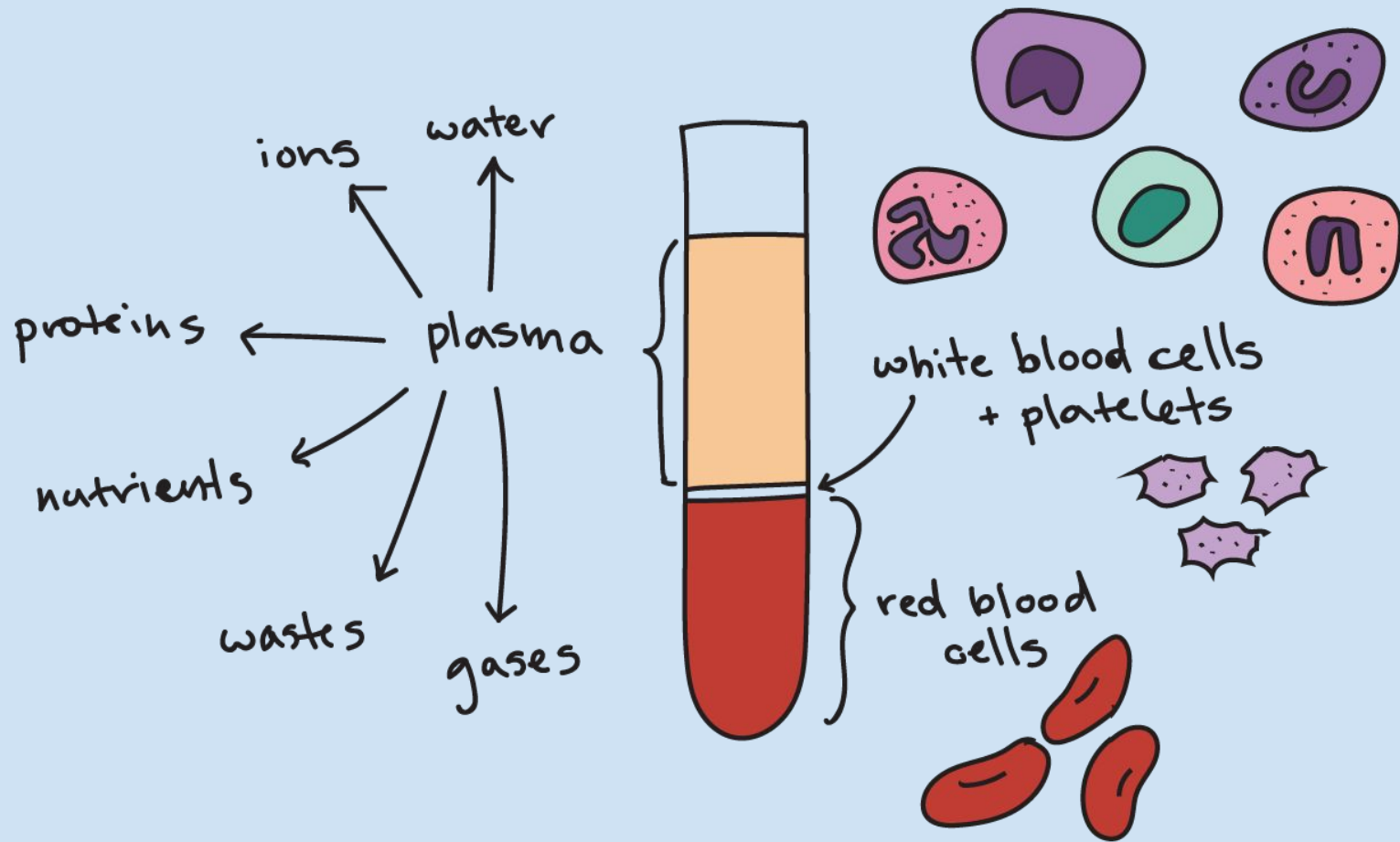
Participants:

- People with musculoskeletal soft tissue injuries being treated conservatively (repair) or surgically (reconstruction):
 1. traumatic injuries, such as Achilles tendon rupture, anterior cruciate ligament (ACL) injuries, rotator cuff tears, ankle sprains, hamstring muscle tears, meniscal and labral lesions
 2. tendinopathies (acute or chronic), such as, Achilles tendonitis, lateral epicondylitis (tennis elbow), rotator cuff tendonitis, patellar tendonitis (jumper's knee).

Methods:

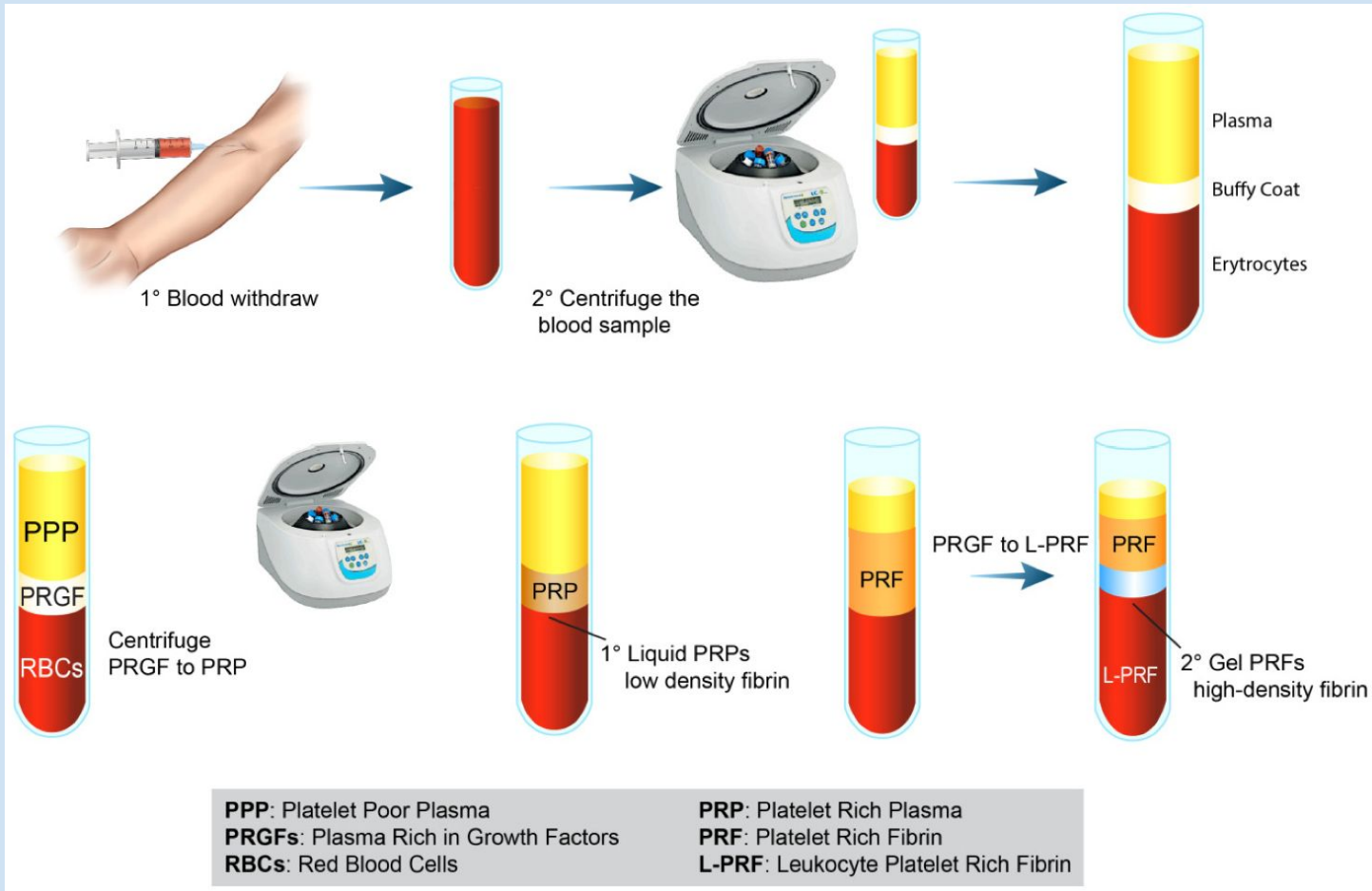
(Research method)

- Searched the Cochrane Bone, Joint and Muscle Trauma Group Specialized Register (25 March 2013)
- Cochrane Central Register of Controlled Trials (CENTRAL 2013 Issue 2)
- MEDLINE (1946 to March 2013)
- EMBASE (1980 to 2013 Week 12)
- LILACS (1982 to March 2012).
- Also searched trial registers (to Week 2 2013) and conference abstracts (2005 to March 2012).



Making PRP and Procedures

- Centrifuge device to separate whole blood and plasma.
- Included data from 19 small single centre trials (17 randomised and two quasi-randomised; **1088 participants**).
- **8 clinical condition trials:**
 - 6 trials of rotator cuff tears (arthroscopic repair)
 - 1 of shoulder impingement syndrome surgery
 - 3 of elbow epicondylitis
 - 4 Anterior cruciate ligament (ACL) reconstruction
 - 2 ACL reconstruction (donor graft site application)
 - 1 patellar tendinopathy
 - 1 Achilles tendinopathy
 - 1 acute Achilles rupture surgical repair
- 5 trials into 'tendinopathies' where platelet-rich therapy (**PRT**) injections were the **main treatment**.
- 14 surgical augmentation procedures where **PRT was applied during surgery**.



Results and Discussion

- Categorized in 3, short term (12 weeks), medium (12 weeks and a year) and long term (more than a year):
 - Functional evaluation
 - Pain
 - Local and systemic effects of platelet-rich therapy administration
 - Recovery time
 - Non-return to activities
 - Quality of life
 - Condition recurrence
 - Consider a secondary treatment procedure (surgery)
 - Satisfaction of the subject
- Pool data for our primary outcomes (function, pain, adverse events) for a maximum of 11 trials and 45% of participants. **The evidence for all primary outcomes was judged as being of very low quality.**
- The review aimed to evaluate the use of PRT as a treatment option for musculoskeletal soft tissue injuries. From the clinical perspective, there are **questions regarding its clinical effectiveness** and the possibility of harmful effects.

Conclusion

Bottom Line

In conclusion, the evidence is **insufficient** to support the use of PRT for treating musculoskeletal soft tissue injuries or show if the effects of PRT vary according to the type of injury. Any future research in this area should bear in mind the several studies currently going on and should consider the need for standardisation of the **PRP preparation**. These therapies have led to a growing number of clinical studies testing **properties and effectiveness of PRP** for musculoskeletal injuries.
