Orthocare Health

Dear Elbow Owner,

In our practice, we always strive to provide the best evidence-based treatments for our patients. Platelet rich plasma (PRP) injections have been shown in many studies to be effective. However, there have also been conflicting studies. We have done our best to provide a summary of the most comprehensive studies to date. Most of these studies are meta-analyses, which are a type of study that pools data from multiple high quality scientific papers. This allows us to glean the best information from the entire body of medical literature. We have included all the links to the citations in case you want to read the studies yourself. We hope this is helpful as you consider whether PRP may be a useful treatment for your elbow pain.

Sincerely,

Roger C. Sohn, MD
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Platelet Rich Plasma Effectiveness

A 2022 study from the Journal of Clinical Medicine compared PRP injections to physical therapy. They found that PRP lowered pain scores and increased elbow function significantly. The authors conclude: "Patients who underwent PRP injections for elbow epicondylitis resulted in better pain and functional outcomes compared to physiotherapy, and this improvement lasted at least 24 months. They required fewer surgical procedures and achieved faster recovery than the physical therapy group. We recommend PRP for chronic epicondylitis of the elbow before considering surgery when other treatments have failed."
https://pubmed.ncbi.nlm.nih.gov/36614903/

A 2022 study examined the effectiveness of PRP for elbow tendinopathy. They found that PRP was effective and that the concentration of the platelets and healing factors such as epidermal growth factor (EGF) were correlated with success of treatment. 83% of patients had improvement of function 3 months after their injection with 67% exceeding the minimal clinically important difference in function. The authors state: "The concentration of EGF in the PRP significantly correlated with an improvement in grip strength, strength of wrist extensors, and the size of functional improvement measured by the PRTEE".
https://pubmed.ncbi.nlm.nih.gov/35806972/

A 2022 systematic review and meta-analysis examined 26 studies on PRP for elbow tendinopathy. They found that PRP treated patients rated their results significantly better using validated patient rated outcomes measures.
https://pubmed.ncbi.nlm.nih.gov/35415041/

A 2021 systematic review by the Cochrane Library examined the literature for studies with low risk of bias. They examined whether autologous whole blood injection or PRP improved lateral epicondylitis. They concluded that "We are uncertain whether autologous blood or PRP injection is associated with a higher proportion of people reporting treatment success…". It should be pointed out that the report looked at the use of whole blood as well as PRP with a variety of concentration strengths. It has been shown that the level of concentration matters for success. The use of autologous whole blood is a fairly antiquated method which we do not use today.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010951.pub2/full

A 2018 systematic review and meta-analysis of high quality studies, published in the American Journal of Sports Medicine found that PRP was beneficial for treatment of lateral epicondylitis as well as rotator cuff pathology. They pooled data from 37 studies which included 1031 participants. The study results showed that "Patients treated with PRP for rotator cuff injuries and lateral epicondylitis reported significantly less pain in the long term."
https://pubmed.ncbi.nlm.nih.gov/29268037/

Conclusion: The majority of published studies show that PRP is effective as a treatment for tennis or golfer's elbow. There are some studies showing uncertainty of effects. However, the evidence seems to support PRP use. It also appears that stronger concentrations of platelets are important in achieving success.

Platelet Rich Plasma vs. Steroids

PRP has been compared to cortisone injections in multiple studies. Cortisone injections have previously been thought to be a treatment for epicondylitis. Now that we understand that this is not an inflammatory condition, it makes less sense to treat this condition with anti-inflammatory medications like cortisone.

A 2022 Study published in the Journal of Shoulder and Elbow Surgery compared PRP to cortisone injections to see which was more cost effective. This study looked at quality of life scores vs treatment costs over the episode of illness. They concluded that PRP injections were more cost effective. The authors conclude that compared to cortisone injections, "... PRP injections were the dominant treatment, with the greatest net monetary benefit for recalcitrant lateral epicondylitis over the time horizon of 5 years."
https://pubmed.ncbi.nlm.nih.gov/35031496/

A 2021 "systematic review of systematic reviews" comparing PRP to cortisone injections showed that PRP injections were a more effective long-term solution for elbow tendinopathy. This level 1 evidence (the highest level) study found yet again that PRP is superior for long term relief of tennis or golfer's elbow.
https://pubmed.ncbi.nlm.nih.gov/34123513/

A 2019 analysis of high quality studies showed that PRP was more effective than cortisone injections for treating epicondylitis. This study used the Cochrane Collaboration's tool to screen for bias risks. Although cortisone had a short term pain relieving effect, after 8 weeks, it was found to be the inferior treatment. PRP had long lasting benefits at 24 weeks and beyond.
https://pubmed.ncbi.nlm.nih.gov/31860992/

Another 2019 review of overlapping meta-analysis compared PRP against steroids as well as whole blood injections. They also concluded that cortisone injections gave short term relief but that PRP and blood injections gave longer term relief.
https://pubmed.ncbi.nlm.nih.gov/30899764/

A 2016 meta-analysis of high quality studies compared PRP to cortisone injections. They found PRP to be superior to cortisone. Interestingly, they also found injection of whole blood to be effective but with a higher risk of complications.
https://pubmed.ncbi.nlm.nih.gov/26362783/

Conclusion: Based on these high quality studies and others like them, we strongly recommend against using cortisone injections for elbow tendon disease. PRP is superior in head to head comparisons with cortisone.

Platelet Rich Plasma vs. Surgery

A 2022 systematic review and meta-analysis published in the Journal of Shoulder and Elbow Surgery found that there was no difference in pain ratings at any point from 2 months to 12 months after either PRP injection or surgery. The authors conclude that "Local platelet-rich plasma injections and surgical treatment produced equivalent pain scores and functional outcomes in patients with lateral elbow tendinosis. Thus, platelet-rich plasma injections may represent a reasonable alternative treatment for patients who are apprehensive to proceed with surgery or for poor surgical candidates."
https://pubmed.ncbi.nlm.nih.gov/34656779/

A 2021 study from the Arthroscopy Journal reviewed the literature comparing PRP to surgery for epicondylitis. They found in the short and medium term that PRP injections were similar to surgery in relieving elbow pain. 1 study showed that surgery had better long term effects.
https://pubmed.ncbi.nlm.nih.gov/33957212/

A 2019 study from the Journal of Shoulder and Elbow Surgery compared PRP injections to the Tenex surgical procedure. This is a minimally invasive type of surgical treatment that we have used on patients in the past. The authors found that both types of treatments were effective at treating tendinopathy at the elbow. There were no significant differences between the two treatment groups.
https://pubmed.ncbi.nlm.nih.gov/30551782/

A 2019 study from the Journal of Orthopaedic Surgery Research examined the effect of PRP injections when given at the same time as a percutaneous needle tenotomy surgery. They did not find any benefit of adding PRP in this setting. The study called for 2 separate tenotomy procedures to be done on each patient. However, they found that in several subjects, they could not tolerate the pain of the tenotomy surgery and did not have the second treatment. The patients in both groups improved with no difference between the groups. This study likely highlights the benefit of surgery. These benefits were not overshadowed by adding PRP to the treatment.
https://pubmed.ncbi.nlm.nih.gov/31014382/

Conclusion: In general, PRP is as effective as surgery. However, in our injection protocol, we combine some of the aspects of surgery by using an ultrasound guided needling and disruption of the damaged tissue as we inject the PRP. This tends to give our patients the best of both worlds. In some cases, where PRP and other treatments have failed, surgery can be successful as an alternate treatment.

Leukocyte Rich or Leukocyte Poor PRP

Some authors have taken a look at the nuances of PRP formulation. There has been some question about whether leukocyte-rich (LR) or leukocyte-poor (LP) PRP worked better.

A 2022 article from the Journal of Shoulder and Elbow Surgery evaluated data from 33 studies that compared leukocyte-rich to leukocyte-poor PRP. They found that both types of PRP yielded the same benefits. The Leukocyte rich PRP group had more pain after the injection. This is similar to other studies looking at leukocyte rich or poor PRP preparations for arthritis.
https://pubmed.ncbi.nlm.nih.gov/35337955/

In 2021, a systematic review and meta-analysis of randomized controlled trials also examined leukocyte rich vs poor PRP. Both types of PRP produced benefits. The authors found no differences between the two types of PRP preparations.
https://pubmed.ncbi.nlm.nih.gov/34046304/

Conclusion: Since there are no real differences in the types of PRP and LR-PRP may cause more pain symptoms, LP-PRP appears to be the better formulation.

Summary

The growing body of evidence appears to give strong support to the use of PRP for these and other conditions. It is superior to cortisone treatments. It appears to give similar results to surgery. Please let us know if we can answer more questions about PRP and your elbow condition.

Sincerely,

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