

# Efficacy Of Platelet-Rich Plasma Injection For Carpal Tunnel Syndrome: A Narrative Review Of Published Literature

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## INTRODUCTION:

Recent evidence suggests that platelet-rich plasma (PRP) injection around affected neural tissues could be a promising biologic treatment for carpal tunnel syndrome (CTS). The objective of this study is to assess the evidence of the efficacy of PRP injection in relieving symptoms of mild-to-moderate CTS.

## MATERIALS & METHODS:

Computer-aided searches of Medline, EMBASE, CINAHL, and Cochrane Central Register of Controlled Trials were conducted up to December 2017. Two reviewers independently screened abstracts for eligible studies and full texts of relevant records were reviewed.

Two randomized controlled studies, and two non-randomized studies were included in the review. The methodological quality of studies was assessed using the Cochrane risk of bias tool.

## RESULTS:

A total of 164 patients were included in this study, with longest follow-up period at 6 months. The available data could only be included as a narrative description. There was significant improvement in the PRP group at longer term follow-up in visual analogue scale, Boston carpal tunnel syndrome questionnaire scores, and Disabilities of the Arm, Shoulder and Hand Score (QuickDash).

PRP-treated group recorded significantly superior reduction of mean cross-sectional area of median nerve when compared to controlled group. No statistically significant changes in electrophysiological parameters (sensory nerve conduction velocity and distal motor latency) were observed across the studies. Ultrasound-guided injection improves precision over blind injection resulting in better outcomes.

## DISCUSSIONS:

In vitro and in vivo studies have demonstrated neurotrophic effect of PRP in peripheral nerves as PRP contains various autogeneic neurotrophic growth factors. PRP eliminates neuropathic pain primarily by platelet- and stem cell-released factors initiating the cascade of wound healing events, followed by tissue remodeling, wound repair and axon regeneration.

Another study concluded that cells of the flexor retinaculum from individuals with CTS are physiologically altered. The thickened pathologic flexor retinaculum is altered to normal through these growth factors, which are included in PRP.

## CONCLUSION:

Current evidence suggests that ultrasound-guided PRP injections may provide short-term symptomatic relief of mild-to-moderate CTS. However, lack of long-term follow-up outcome data precludes exclusion of disease recurrence.

## REFERENCES:

1. Malahias MA et. al. J Tissue Eng Regen Med 2017; 1–9.
2. Wu YT et. al. Sci Rep 2017; 7:94
3. Uzun H et. al. J Plast Surg Hand Surg 2017; 51:301-305
4. Malahias MA et. Al. Neural Regen Res 2015; 10:1856-9