

Platelet-Rich Plasma Injections: Use in Tennis Elbow

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Platelet-rich plasma's use in orthopedics is a new field of study, with the first clinical trial in this area being published in 2006, only 10 years ago. However, over the past 10 years, a multitude of clinical trials and review papers have been published on the topic. Tennis elbow is a condition which has met almost unanimously positive research on its treatment with Platelet-rich plasma (PRP). The available research is clear in support of using PRP in the treatment of tennis elbow, even suggesting a significant benefit over corticosteroid injections.

Platelets are an integral component of the healing process, acting as a reservoir for growth factors involved in the repair process. Following injury, the endogenous inflammatory response leads to platelets being activated and delivering an array of growth factors to the site of injury, including platelet-derived growth factor (PDGF), transforming growth factor-beta (TGF- β), insulin-like growth factor (IGF), epidermal growth factor (EGF), and vascular endothelial growth factor (VEGF).

It has been suggested that PRP causes an exponential increase in growth factors at the site of injection, including PDGF, TGF- β , IGF, EGF, and VEGF, and that this enrichment of growth factors stimulates healing. In-vitro studies have corroborated PRP treatment leading to an increase in growth-factor concentration, as well as an increase in angiogenesis, enhanced cell proliferation, and increased total collagen production of tenocyte cells.

The proposed proliferative and angiogenic effect of PRP makes mechanistic sense as a treatment for the typical poor vascularity and extracellular matrix breakdown involved in common extensor tendon injury. Because PRP is prepared from a patient's own blood, there are no concerns about transmissible diseases as long as proper sterile technique is followed.

Adverse effects of PRP injections have been rare but may include a short-term increase in inflammation and pain at the site of injection. Conversely, corticosteroid injections, which are a current standard of care for tennis elbow, tend to have a long-term degenerative effect on tendon integrity, encouraging "permanent adverse structural changes in the tendon.

The limited evidence that sonographically compares PRP injections to corticosteroid injections for tennis elbow has found that PRP encourages tissue healing while corticosteroid injections provided "short-term relief but resulted in tendon degeneration. Current evidence suggests that PRP treatment has a favorable long-term safety profile compared with corticosteroid injections. PRP injections are not recommended for pregnant women, those on anticoagulants, or those with active cancer, infection, or a bleeding disorder.

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