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# Platelet-Rich Plasma in Tendon Healing: A Systematic Review of Basic Science Literature

**Nikolas Baksh, BS, USA**
Charles P. Hannon, BS, USA
Christopher D. Murawski, BS, USA
Niall A. Smyth, MD, USA
John G. Kennedy, MD, FRCS, USA

Hospital for Special Surgery
New York, NY, USA

**Summary**:
Establishing proof of concept for PRP may lead to further high quality clinical studies where the appropriate indications can be defined.

**Abstract**:
PURPOSE:
To perform a systematic review of the basic science literature on the use of platelet rich plasma on tendon healing.

METHODS:
The PubMed/Medline and EMBASE databases were searching using the parameters ((tenocytes OR tendon OR tendinitis OR tendinosis OR tendinopathy) AND (platelet rich plasma OR PRP OR autologous conditioned plasma OR ACP)) in June 2012. The inclusion criteria for full text review were in vivo and in vitro studies examining the effects of PRP on tendons and/or tenocytes. Clinical studies were excluded. Only studies published in peer-reviewed journals that compared PRP directly to a control were included. Data were extracted based on a pre-defined data sheet, which included information on PRP preparation, study methods, and results. Studies were analyzed for trends, comparing and contrasting the reported effects of PRP.

RESULTS:
The search yielded 31 articles for full text review. Twenty two (71%) of the studies reported platelet concentrations in the PRP; six (19%) reported cytology. Eight in vivo studies found decreased tendon repair time, increased fiber organization, or both with PRP treatment. Eight in vitro studies reported that PRP treatment increased cell proliferation; 7 reported an increase in growth factor expression. Three in vivo studies found increased vascularity, and 4 found increased tensile strength with PRP treatment.

CONCLUSION:
In the basic science studies evaluated, it appears that PRP confers several effects on tendon healing compared with a control. However, the literature is inconsistent in regards to reporting the methods of preparation of PRP, and in reporting platelet concentrations and cytology. The biology of PRP is complex, but continued research and adequate reporting of outcome data is a good start in improving our understanding.

CLINICAL RELEVANCE:
Establishing proof of concept for PRP may lead to further high quality clinical studies where the appropriate indications can be defined.