Moraes VY, Lenza M, et al. Platelet-rich therapies [PRT] for musculoskeletal soft tissue injuries (Review). Cochrane Database of Systematic Reviews 2013;Issue 12, Art# CD010071.

Design: Meta-analysis of randomized clinical trials

PICOS:

- Patients: people with musculoskeletal soft tissue injuries being treated either surgically or conservatively
    - Injuries were broadly grouped into acute traumatic injuries and tendinopathies (either acute or chronic)
    - Studies of osteoarthritis were excluded
- Interventions: Platelet-rich therapies (PRT), either as the only treatment or as an adjunct to other treatments
- Comparisons: placebo injection, dry needling, whole blood injection
    - Studies with active agent controls such as steroid injection were excluded
- Outcomes: functional evaluation by scales such as questionnaire-based measurements appropriate to the part of the body in which the injection is given (such as the DASH for upper extremity); pain by scales such as the VAS; local and systemic adverse effects
    - Secondary outcomes included recovery time (return to sports or return to daily activities); quality of life, recurrence of the condition, need for surgery, or patient satisfaction with treatment
- Study types: randomized trials and quasi-randomized trials (such as allocation by hospital record number or date of birth)

Study selection:

- Databases included MEDLINE, the Cochrane Register, EMBASE, and other electronic databases through March 2013
    - Reference lists of articles were searched; experts in the field were queried, and conference abstracts of several orthopedic associations were searched
- Two authors independently extracted study data and evaluated articles for inclusion, assessing bias with the Cochrane Risk of Bias tool
- Two subgroup analyses were planned: one grouping studies by condition (rotator cuff tear, Achilles tendon); one grouping studies by whether they used PRT as the main treatment for tendon disorders or whether PRT was a surgical augmentation procedure

Results:

- 39 studies were assessed for eligibility; 19 studies, with 1088 participants, were included in the analysis
- Most studies were published between 2005 and 2013
- 17 studies were randomized, and 2 were quasi-randomized (neither of them concerned with the shoulder)
- Studies of patients with sports injuries (tennis elbow, lower extremity injuries) enrolled mostly young patients; studies of degenerative conditions (rotator cuff tears and chronic impingement syndrome) were mostly older patients
- For ACL reconstruction, PRP was used as an augmentation procedure in 4 trials with 203 patients, applying PRP to the bone tunnel or the inner area of the graft or both; no difference was found for the functional scores or in the number of patients reporting good results
    - These are the studies used in the Vavken 2011 systematic review, which came to similar conclusions
- Two studies with 67 patients applied PRP to the patellar tendon graft donor site; one reported no differences in MRI parameters or functional scores at six month followup
    - The other study reported differences favoring the PRP group on the Victorian Institute Sport Assessment (VISA) score at one year followup; the VISA score was designed specifically to quantify knee function in subjects with patellar tendinopathy with a difference of 13 points on a 100 point scale assessing different knee activities
- For patellar tendinopathy, the authors had unpublished data from one trial (since published and reviewed elsewhere)
- One study of Achilles tendinopathy with 54 patients reported no differences in functional scores at 6 weeks, 6 months, or one year, with similar rates of patient satisfaction and return to sport
- One study of surgical repair of acute Achilles tendon rupture in 30 patients reported no difference between PRP and no PRP on the heel-raise index up to one year, but reported two complications in the PRP group, one re-rerupture and one deep infection, but no complications in the controls

Authors' conclusions:

- The available evidence is insufficient to support the use of PRP for treating lower extremity injuries, and there are significant methodological issues with many studies

Comments:

- Although several studies were available for augmentation of ACL reconstruction, the two studies of PRP applied to the ACL patellar tendon graft donor site were inconclusive; it is possible that PRP improves patellar tendon function when that tendon is used for the graft in ACL reconstruction

- The evidence from this review and from Vavken 2011 would appear support a statement that there is no evidence supporting PRP for augmentation of ACL reconstruction
- There is insufficient evidence regarding the use of PRP in Achilles tendon rupture

Assessment: high quality systematic review which yields insufficient evidence for or against the use of PRP in the setting of Achilles tendinopathy or application to the ACL patellar tendon donor site , and supporting a statement that there is no evidence supporting PRP for augmentation of ACL reconstruction

Reference:

Vavken P, Sadoghi P, Murray MM. The effect of platelet concentrates on graft maturation and graft-bone interface healing in ACL reconstruction in human patients: A systematic review of controlled trials. Arthroscopy. 2011; 27(11): 1573–1583.