

PRP: THE ASIAN EXPERIENCE

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Introduction

Despite numerous prevention programs, the hamstring is still the most frequently reported muscle injury in sports. It has been estimated that in a professional football squad of 25 players, five of them will sustain a hamstring injury with an average time to return to play of approximately 4 weeks.

There is increasing interest in the sports medicine and athletic community about providing endogenous growth factors directly to the injury site to potentially facilitate healing and earlier return to sport after musculoskeletal injury.

Probably the most popular and innovative therapy is the injection of Platelet Rich Plasma (PRP).

PRP is derived from centrifuging whole blood with separation of the platelets. The platelet concentration in PRP is dependent on the separation technique 2 till 6 times higher than that of the whole blood. PRP is the cellular component of plasma that settles after centrifugation, and contains numerous growth factors. The growth factors release from the α -granules of platelets is assumed to provide the regenerative benefits of PRP.

Anecdotal and low-level evidence suggests that PRP got the potentiality to facilitate healing and 50% earlier return to sport after muscles injuries. Although it is questionable if the time to return to sports can be halved, even a quarter decrease will have an enormous effect for the professional players and huge financial effects for the clubs. It might implies for an individual player to return to play two or three games earlier, might potentially be the difference between winning and losing the game and might lead to be second or live long recognised champion.

Two recently published RCTs – one double blinded and one non-blinded - show conflicting results.

Purpose

To evaluate the impact of a single intra-muscular injection of PRP on the time to return to play following an Magnetic Resonance Imaging (MRI) positive hamstring muscle strain.

Methods

Ninety professional or semi-professional athletes who attended our facility within 5 days of sustaining an MRI positive injury to the hamstring muscle group were recruited into the study.

Athletes were randomly allocated to one of three interventions:

1. Ultrasound led 3 mL injection of Platelet Rich Plasma (PRP - Biomet GPS) into the area of injury
2. Ultrasound led 3 mL injection of Platelet Poor Plasma (PPP - Biomet GPS) into the area of injury
3. No injection (NI).

Athletes were subsequently managed with a standardized, progressive rehabilitation programme within our facility, by experienced physiotherapists, blinded to the intervention.

All athletes were evaluated by an experienced sports medicine physician, blinded to the intervention, on a weekly basis until cleared for return to sport.

The time to return to full training and game participation and re-injuries were noted.

Results

Return To Play (RTP) time was:

22.0 days (Unadjusted 95%CI: 17.8-24.1) for PRP,

27.7 days (Unadjusted 95%CI: 20.6-33.5) for PPP,

24.9 days (Unadjusted 95%CI: 21.5-28.5) for physiotherapy only.

There was a difference in RTP time PRP vs PPP ($P=0.01$): mean difference 5 days (adj 95%CI -10.1 to -1.4) while there was no difference PRP vs Physiotherapy and Physiotherapy vs PPP.

There was no difference in re-injury rate and in MRI measures between the groups.

Conclusions

Our results show that the addition of PRP to rehabilitation in hamstrings strains (grade I and II) does not provide benefit in term of return to play time and re-injury rate.

Further studies are warrant to confirm these findings.