Efficacy of latelet-rich plasma (PRP) therapy for partial meniscus tears without knee blocking symptoms in free fighters: A prospective study

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Abstract: Meniscus injuries are among the most common knee injuries in free fighters due to repeated twisting, pivoting, and impact during combat. Partial meniscal tears can lead to pain, swelling, and functional limitations, often affecting an athlete's performance. While traditional treatment options include physical therapy, NSAIDs, and surgery, these methods may not always provide optimal recovery or allow early return to sport. Platelet-Rich Plasma (PRP) therapy has gained attention as a biological treatment that promotes healing and tissue regeneration. However, its effectiveness in managing partial meniscal tears without knee blocking symptoms remains an area of active investigation.

Aim: This study aims to evaluate the efficacy of PRP therapy in treating partial meniscal tears without knee blocking symptoms in free fighters. The research assesses pain reduction, functional improvement, and return-to-sport rates, comparing PRP with standard conservative treatments.

Methodology: A prospective observational study was conducted involving free fighters diagnosed with partial-thickness meniscus tears, confirmed by MRI, and without knee locking symptoms. Participants were divided into two groups: the PRP group received three intra-articular platelet-rich plasma (PRP) injections, prepared using a double-spin centrifugation method and administered under ultrasound guidance at two-week intervals; the control group underwent standard conservative treatment comprising physical therapy, nonsteroidal anti-inflammatory drugs (NSAIDs), and structured rehabilitation exercises. Clinical outcomes were evaluated at baseline, 4 weeks, 12 weeks, and 6 months post-treatment using the Visual Analog Scale (VAS) for pain, the International Knee Documentation Committee (IKDC) score for knee function, and the Tegner Activity Scale to assess return-to-sport performance.

Results: In a prospective study involving 52 participants (mean age 27.4 ± 3.8 years), platelet-rich plasma (PRP) therapy demonstrated significant clinical benefits for partial meniscus tears without knee blocking symptoms in free fighters. Compared to conservative management, the PRP group experienced a 52% reduction in Visual Analog Scale (VAS) pain scores at 12 weeks, while the control group showed a 29% reduction. International Knee Documentation Committee (IKDC) scores improved by 31.2% in the PRP group versus 14.5% in the control group. Moreover, athletes receiving PRP therapy returned to sport earlier, averaging 6.1 ± 1.4 weeks, compared to 9.3 ± 2.2 weeks in the control group. No significant adverse effects were reported, and all participants successfully completed the follow-up period.

Conclusion: PRP therapy appears to be an effective non-surgical treatment option for partial meniscus tears without knee blocking symptoms in free fighters. The study findings suggest faster recovery, reduced pain, and quicker return to sport compared to standard conservative treatment. However, further randomized controlled trials are required to establish standardized PRP protocols and validate long-term benefits in elite athletes.

Keywords: Platelet-Rich Plasma (PRP), Partial Meniscus Tear, Knee Injury, Free Fighters, Regenerative Medicine, Sports Injury Rehabilitation

Biography

Asadbek Dadaboev is a clinical researcher and orthopedic specialist at Central Asian University, Uzbekistan, with a focus on regenerative medicine and sports injury management. His recent work investigates the efficacy of platelet-rich plasma (PRP) therapy for treating partial meniscus tears in athletes, particularly free fighters, who present without knee blocking symptoms. His prospective study offers promising insights into non-surgical, biologic interventions for joint healing and performance recovery. Dr. Dadaboev's research reflects his broader commitment to advancing minimally invasive therapies in sports medicine and orthopedics.

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