**Investigating the impact of Platelet-Rich Plasma Infusion**

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**ABSTRACT**

**Objective:** To investigate the impact of Platelet-rich plasma infusion on performance enhancing growth factors and find molecular markers to distinguish athletes treated with such infusions.

**Study Design:** Prospective, Double-blind, Randomized controlled study.

**Place and Duration:**  Department of Dental Education and Research, Altamash Institute of Dental Medicine, Karachi from 15th January 2022 to 20th June, 2022.

**Methodology:** The ergogenic growth factors FGF-2 that are basal fibroblast growth factor, vascular endothelial growth factor, IGF-1 (insulin-like growth factor), IGFBP-3 (insulin-like growth factor binding protein-3), and platelet-derived growth factor-BB (PDGF-BB) WADA are tracked that were measured in 25 patients before (baseline) and 0.25, 3, 24, 48, 72, and 97 hours after the test. Patients under observation were prohibited from any movement or any food intake three hours prior to the exam. The change from each participant's baseline was calculated using an enzyme-linked immunosorbent assay to assess growth factors.

**Results:** Total sample size was 23. Platelet-Rich Plasma had considerably higher levels of PDGF-BB (67% higher than standard 392 pg/ml), vascular endothelial growth factor (6.04% higher than standard 236 pg/ml), and bFGF (45% higher than standard 5 pg/ml), than serum, while IGF-1 and hGH levels were unchanged. IGF-1, bFGF, and vascular endothelial growth factor serum levels all significantly rose 24 and 48 hours after Platelet-Rich Plasma injection, as well as 3, 24, 48, 72, and 96 hours afterwards. Additionally, all 23 patients who had Platelet-Rich Plasma therapy had higher levels of vascular endothelial growth factor and success rate is 100% luckily.

**Conclusion:** Serum levels of PDGF-BB, vascular endothelial growth factor, and bFGF significantly increase after Platelet-Rich Plasma injection, suggesting that Platelet-Rich Plasma have ergogenic effects. Following Platelet-Rich Plasma, the IGFBP-3 3 IGF-1 product, an indirect biomarker of hGH doping, significantly rose. All Platelet-Rich Plasma patients exhibited elevated vascular endothelial growth factor.

**Keywords:** PRP Injection, Platelet-Rich Plasma, Human Growth Hormone, Growth Factors, Ergogenic Growth Factors, Insulin Growth Factor, Vascular Endothelial Growth Factor

**How to Cite This:**

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