

INTRODUCTION

Platelet-rich fibrin (PRF) has been a topic of interest in dentistry due to its regenerative properties following various surgical procedures. PRF is an autologous fibrin matrix that consists of platelets, cells, and growth factors that help to promote healing (Al-Rihaymee, 2023). Platelet-rich fibrin for dental use was first discovered in France in 2001 by Dr. Choukroun who used PRF to improve healing following implant surgery (Sharma et al, 2023).

For periodontally involved patients, PRF has been used for osseous defects such as intrabony defects and furcation involvement, as well as the regeneration of soft tissues. Overall, PRF is a low-risk procedure with many benefits and uses that are still being explored today.

MATERIALS & METHODS

- ❖ Supplies needed to create platelet-rich fibrin are available to purchase through distributors, including pre-packaged kits. The Kit pictured includes the following supplies:
 - Horizontal Centrifuge, Tube Holder, Tray, Bowl, Scissors, Forceps, Pad, Compactors, Tourniquet, Butterfly Needles, Red Top Tubes, Blue Top Tubes



Figure 1. Products, BioPRF. (n.d.)

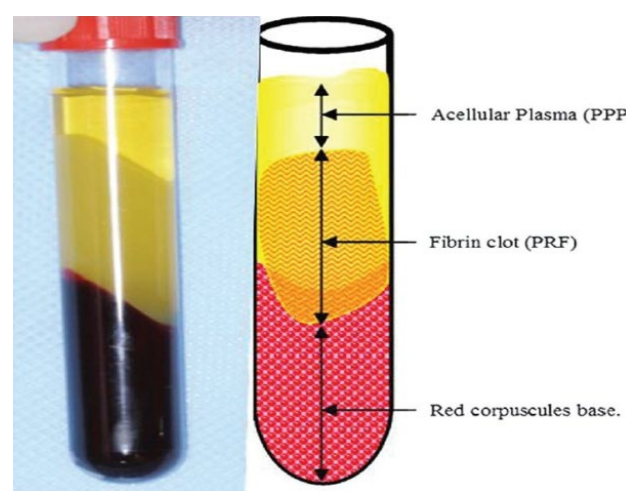


Figure 2. Balaram Naik et al, Role of platelet rich fibrin in Wound healing, 2013.

- ❖ The process of obtaining PRF is as follows:
 - A sample of blood is drawn from the patient into two tubes. One tube has a hydrophilic surface and used for solid PRF, while the other has a hydrophobic surface for liquid PRF
 - The samples must then be placed into a balanced centrifuge as soon as possible so the blood does not start to coagulate. The sample pictured was placed at 3,000 rpm for 10 minutes (Naik et al, 2013)
 - Once completed, the components of the tube separate into three layers: acellular plasma layer, fibrin clot layer, and red blood cell layer
 - The platelet-rich fibrin clot is then removed from the tube and compressed on a tray with a cover to draw out fluids; this forms a membrane rich with growth factors
 - Liquid PRF can also be used in conjunction with bone graft procedures to create a more pliable substance

ROLE OF THE DENTAL HYGIENIST

Dental hygienists can contribute to several aspects of PRF treatment. One of their roles is to educate patients about the advantages of PRF treatment and how the procedure works. A hygienist can also collect the patient's blood sample, which will be processed to obtain PRF, along with preparing the PRF by using a centrifuge to separate it from other components of the blood. After the PRF treatment, a hygienist can provide patients with post-operative care instructions and monitor their healing progress.

In summary, dental hygienists have a significant role in PRF treatment, as they may participate in various stages of the process as far as state regulations allow them.

SHOULD WE IMPLEMENT PRF?

In conclusion, the application of platelet-rich fibrin (PRF) has demonstrated remarkable potential in promoting tissue regeneration and healing. Studies have consistently shown that PRF is a safe and low-risk procedure that yields highly favorable outcomes when used after dental procedures. PRF is a valuable tool for enhancing the long-term results of periodontal therapy. Its proven efficacy and benefits in various other dental settings make it an exciting and promising avenue for improving patient outcomes.

APPLICATIONS OF PRF

PRF for Papilla Reconstruction - Measurements were taken before and after surgery at different intervals. The membrane was placed in the area between the teeth to promote tissue growth. The study found that the membrane helped to reduce the size of gaps and increased the amount of tissue growth after 12 weeks (Raval et al, 2021).

PRF for Extraction - Platelet-rich fibrin has been used following tooth extraction to mitigate pain and promote healing. A study performed on diabetic patients undergoing multiple extractions on different sides of the mouth showed improved soft and hard-tissue healing in the socket where PRF was used compared to the control, but did not show significant differences in pain levels (Asoka et al, 2022).

PRF for Intrabony Defects - Fourteen participants with intrabony defects were divided into two groups - the control group receiving bovine porous bone mineral (BPBM) and guided tissue regeneration (GTR), while the other received BPBM, GTR, and PRF. The bone graft material was combined with the PRF to make a BPBM-PRF complex. After 24 months, results showed probing depths were decreased in the test group (Liu et al, 2021).

PRF for Scaling and Root Planing - Periodontitis patients with 4-6mm pockets were given non-surgical PRF in conjunction with scaling and root planing and the level of periostin, a marker for tissue regeneration, and gingival crevicular fluid (GCF) was compared to the control group. Results showed a greater attachment gain, pocket depth reduction, and greater levels of periostin in patients given PRF when compared to the control (Al-Rihaymee, 2023).

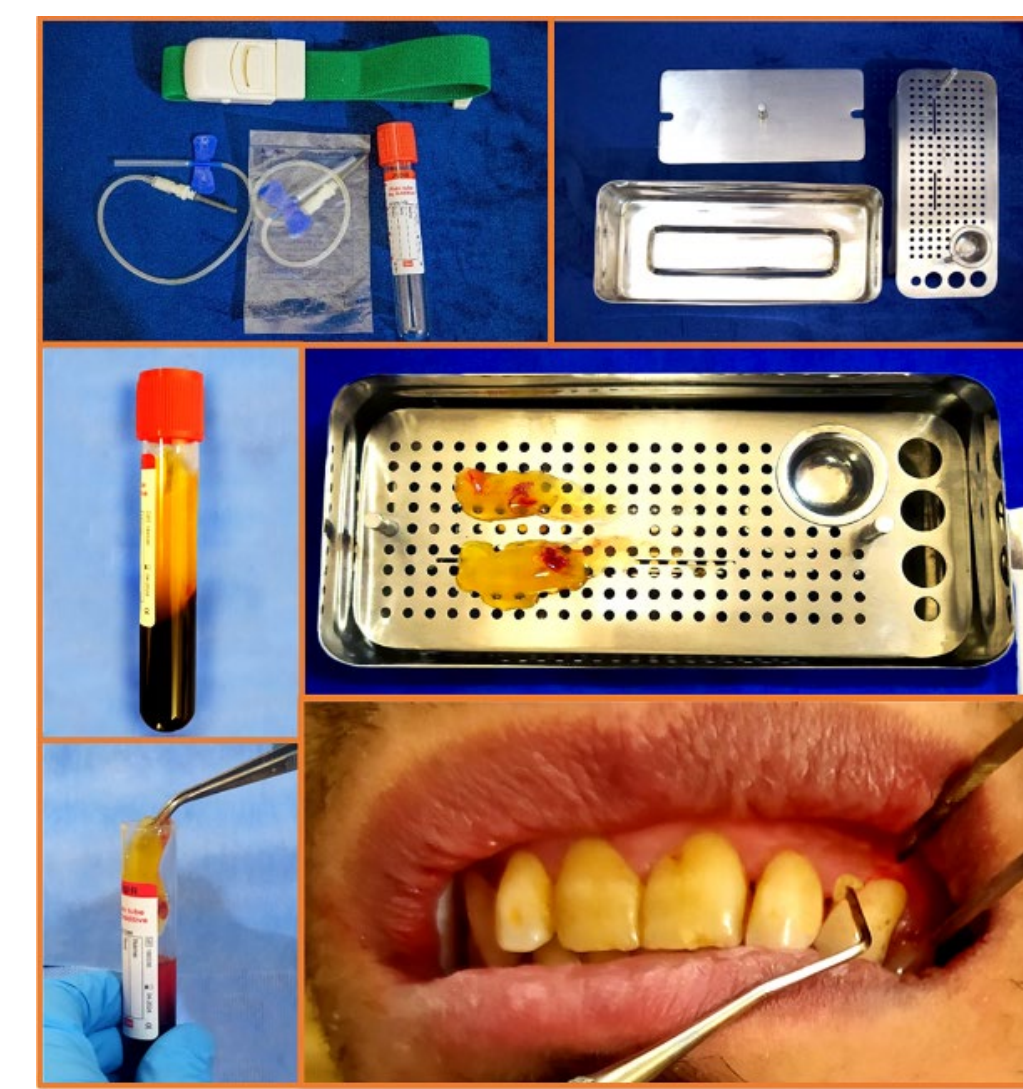


Figure 3. Sarah Al-Rihaymee, The efficacy of non-surgical platelet-rich fibrin application on clinical periodontal parameters and periostin level in periodontitis: Clinical trial, 2023



Figure 4. Yesha Raval, Evaluation of efficacy of platelet-rich fibrin for papilla reconstruction, 2021

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