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# Vivostat PRF<sup>®</sup> (Platelet Rich Fibrin)

In orthopaedic and sports medicine

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Bleeding and damaged tissue are frequent challenges in orthopaedic and sports medicine. Different surgical techniques have been used to address these challenges. Now one product is available proposing a solution to both bleeding and tissue repair - Vivostat PRF<sup>®</sup> (Platelet Rich Fibrin)

# Vivostat PRF® (Platelet Rich Fibrin)

In orthopaedic and sports medicine

Vivostat PRF® is a unique combination of platelets and fibrin that serves multiple purposes in orthopaedic and sports medicine

Frequent challenges in orthopaedic and sports medicine are bleeding and regeneration of tissue. Vivostat PRF® addresses these challenges not only by minimizing bleeding and reducing the need for blood transfusions, but also by stimulating the regeneration of damaged tissue (tendons, ligaments and muscles). Successfully handling these challenges can have a positive effect on complications and re-operations, leading to faster rehabilitation, shorter hospital stay and lower overall procedure costs.

Multiple studies have shown the positive effects of fibrin and platelets<sup>1,2</sup> when used in the following indications:

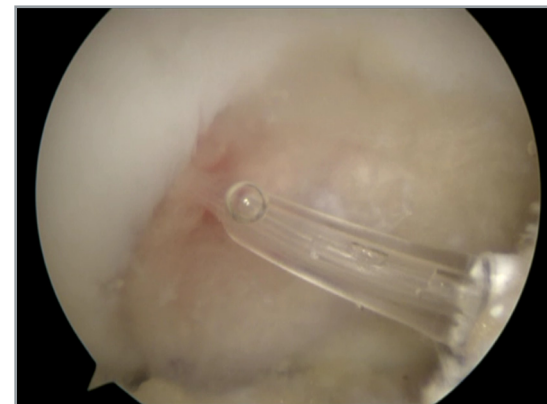
- Joint replacements
- Connective tissue repair
- Bone Repair

Vivostat PRF® is a product that combines the positive effects of both fibrin and platelets. Fibrin in Vivostat PRF® provides haemostasis, and the growth factors found in the platelets stimulate tissue regeneration and wound healing.

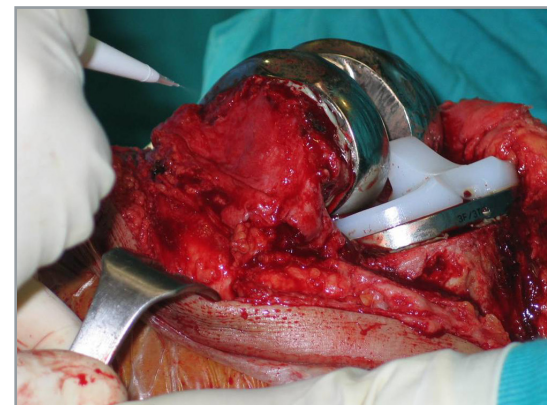
The fibrin matrix in Vivostat PRF® acts as a carrier of these growth factors and protects them from proteolytic degradation. After application, the fibrin matrix in Vivostat PRF® will release growth factors over time providing a sustained stimulation of cell proliferation<sup>3</sup>. The platelet concentration in Vivostat PRF® is approx. 7 times baseline level of the donor's own blood and the fibrin concentration is on average 18.01mg/mL<sup>4</sup> (approx. 6 times baseline).

A major concern in orthopaedic and sports medicine is infections. Research within this area shows that platelets have an antibacterial effect<sup>5</sup>, and in-vitro experience indicates that Vivostat PRF® possesses similar characteristics and the ability to reduce infections<sup>6</sup>.

Vivostat PRF® may be applied using a number of different application devices; all developed to serve the specific needs of the surgeon. The Vivostat PRF® solution is applied using one of several different Vivostat® application devices. All application devices deliver the Vivostat PRF® solution in a precise and controlled manner. The Vivostat PRF® solution can be applied intermittently throughout the entire procedure without experiencing blockage. With Vivostat® Co-Delivery it is possible to deliver cells or drugs together with the Vivostat PRF® solution.



Vivostat PRF® used for cartilage repair in the knee (In the picture used together with a graft)



Vivostat PRF® and knee replacement

1: The biology of platelet-rich plasma and its application in trauma and orthopaedic surgery - Alsousou J et al. - J Bone Joint S. 2009;91-B:987-96

2: Fibrin sealant use for minimising peri-operative allogeneic blood transfusion - Carless P et al. - Cochrane Database of Systematic Reviews - July 2009

3: Vivostat Technical Report No. 1005 - Data on file at Vivostat A/S

4: Bioactivity and stability of endogenous fibrogenic factors in platelet-rich fibrin - Lundquist R. et al. - Wound Repair and Regeneration 2008; 16(3): 356-365

5: Antibacterial effect of autologous platelet gel enriched with growth factors and other active substances: an in vitro study - Bielecki TM. et al. - J Bone Joint Surg Br. 2007 Mar; 89(3): 417-20

6: Vivostat Technical Report No. 861 - Data on file at Vivostat A/S