

An In Vitro and In Vivo Evaluation of Autologous Platelet Concentrate in Oral Reconstruction.

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Abstract:

A platelet concentrate, when combined with calcified thrombin, produces a platelet gel that has been used to achieve hemostasis and modulate bone growth and wound healing. The recovery of high concentrations of viable platelets and their resulting growth factor levels represents the most important factor in the clinical utility of a platelet concentrate because only functional platelets can release the growth factors that are necessary to induce tissue growth and bone regeneration. The SmartPReP system's efficiency in recovery of platelets from a sample of whole blood averaged 70.6%, almost twice that of various manual techniques using laboratory centrifuges. Platelet concentrates prepared by the SmartPReP system had a viability equal to platelet concentrates prepared for transfusion as measured by hypotonic stress, platelet aggregation, and p-selectin. A series of clinical case studies demonstrates the use of autologous platelet gel in oral surgery.