

***Enhancement of Bone Ingrowth into Collagen/HA Composite Implants  
Using e-PTFE Membranes***

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## Abstract

**Purpose:** The objective of this investigation was to study the effectiveness of expanded polytetrafluoroethylene (e-PTFE) membranes for enhancement of bone ingrowth through subperiosteally implanted collagen/HA composite blocks.

**Materials & Methods:** Twelve rabbits aged 12-15 months served as the experimental animals in this study. Two compressed Collagen/HA composite blocks in the shape of two attached cylinders of different diameters were inserted into two defects of each rabbit calvarium, the smaller cylinder being intrabony, the larger subperiosteal in location. One of the two implants was covered with non-resorbable e-PTFE membrane, the other implant was left uncovered. Specimens were obtained at 4,8 and 12 weeks.

**Results:** While the implant specimens on the membrane side showed progressive bone formation between and around the HA particles at the subperiosteal extrabony locations, the HA particles on the non-membrane side were surrounded and separated by dense fibrous tissue. At intraosseous sites, HA particles were surrounded by new bone throughout the defect on the membrane side, but new bone formation occurred only along the periphery on the nonmembrane side.

**Conclusion:**  
**it appears that guided tissue regeneration may be used to enhance new bone formation**