

# Rapid Recovery Hyperbarics

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## ***Stimulation of early bone formation by the combination of an osteopromotive membrane technique and hyperbaric oxygen.***

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Large bone defects often heal incompletely as a result of ingrowth of connective tissue. By using a mechanical hindrance, a porous expanded polytetrafluoroethylene (e-PTFE) membrane, it is possible to prevent fibroblasts and other soft connective tissue cells from entering the defect, thereby allowing osteogenesis to occur unhindered. As evidenced in several investigations, this osteopromotive membrane technique causes a strongly improved bone regeneration of well defined osseous lesions. Hyperbaric oxygen treatment has also been shown to accelerate bone healing. In this study the value of combining the two techniques was investigated. Through-and-through bone defects, 5 mm in diameter, were produced unilaterally in the angular region of the mandibles of adult rats (n = 60); the defects in half the number of animals were covered lingually and buccally with membranes. The animals were then divided into four groups: treatment with membrane alone, treatment with hyperbaric oxygen alone, combined treatment, and no treatment. Histological examination of the defects after 14 days showed that the combination of techniques had resulted in significant improvement in bone healing, compared with hyperbaric oxygen or the membrane technique alone. Synergistic effects can thus be achieved by the use of membranes and stimulatory factors for bone regeneration.

Major Subject Heading(s)	Minor Subject Heading(s)	CAS Registry / EC Numbers
<ul style="list-style-type: none"><li>• Bone Regeneration [physiology]</li><li>• <b>Hyperbaric</b> Oxygenation</li><li>• Mandibular Injuries [therapy]</li><li>• Membranes, Artificial</li><li>• Polytetrafluoroethylene</li><li>• Wound Healing [physiology]</li></ul>	<ul style="list-style-type: none"><li>• Mandibular Injuries [physiopathology]</li><li>• Rats, Sprague-Dawley</li><li>• Rats</li><li>• Time Factors</li></ul>	

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