

# Periodontal Regeneration

Subjects: [Dentistry](#), [Oral Surgery & Medicine](#)

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Periodontal regeneration is a technique that aims to regenerate the damaged tissue around periodontally compromised teeth. The regenerative process aims to use scaffolds, cells, and growth factors to enhance biological activity.

periodontal regeneration

GTR

biomaterials

growth factors

biologics

periodontitis

Periodontitis is a multifactorial disease characterized by microbially-associated, host-mediated inflammation that results in loss of periodontal attachment, eventually leading to tooth loss <sup>[1]</sup>. Periodontitis is the sixth most prevalent disease for mankind <sup>[2]</sup> and is a public health problem since it is so widely prevalent, causes disability <sup>[3]</sup>, and numerous clinical and experimental studies have shown the presence of an association between periodontitis and some systemic diseases, in particular cardiovascular diseases, diabetes, lung diseases, and pregnancy complications <sup>[4][5]</sup>. The goal of periodontal therapy is to arrest progressive attachment loss, through the control of infection, to prevent tooth loss <sup>[6]</sup>. Probing pocket depth reduction as a surrogate outcome variable is validated by data demonstrating lower risk for disease progression and tooth loss <sup>[7][8]</sup> associated with the absence of bleeding on probing <sup>[9][10]</sup>. Periodontal pockets related to intraosseous defects often remain after nonsurgical treatment and could increase risk of progressive periodontitis <sup>[11][12]</sup> and, as such, are often considered to require surgical intervention. Based on the studies of Melcher (1976) <sup>[13]</sup>, who developed the concept of using barrier membranes to “guide” the biological process of wound healing, in the mid-1980s clinical reports showed that intraosseous defects have potential for healing through regeneration using barrier membranes <sup>[14][15]</sup>. Today we know which bio-clinical principles regulate periodontal regeneration: wound stability, space provision, and primary intention healing <sup>[16]</sup>. Many randomized controlled trials and systematic reviews have shown that periodontal regenerative therapies can achieve better treatment outcomes compared to open flap debridement in the treatment of angular defects <sup>[17][18][19]</sup>. Several techniques and biomaterials have been studied for periodontal regeneration of intraosseous defects, but from a histological and clinical point of view, guided tissue regeneration (GTR), enamel matrix derivatives (EMD), and decalcified freeze-dried bone allograft (DFDBA) are the most effective approaches to periodontal regeneration <sup>[20][21][22][23][24]</sup>. A recent consensus report of the American Academy of Periodontology recommended surgical intervention as the treatment of choice for intraosseous defects <sup>[25]</sup>.

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