

B-11 **The Responses of Gingival and Periodontal Ligament Fibroblasts to Various Dentin Conditioned Specimens in Vitro**

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More recently, periodontal therapies have been towards obtaining predictable regeneration of the periodontium. Therefore, the ultimate objective after resolution of the infectious process is regeneration of an organized, functional fibrous attachment.

Required initial events for periodontal regeneration is the attachment and subsequent proliferation of fibroblasts at the root surface. Current evidence suggests that both the gingiva^{1),2)} and periodontal ligament³⁾⁻⁶⁾ harbor a number of different cells which have a capacity to regenerate the periodontium. In addition, both fibroblasts exhibit clearly different attachment properties in vitro in response to various factors⁷⁾. Recent studies suggest that exclusion of gingival tissues, allowing only periodontal ligament cells to attach to root surfaces, favor the formation of a new connective tissue attachment^{5),6)}. Such difference between fibroblasts of gingiva and periodontal ligament may have important implications in efforts to stimulate regeneration of periodontal tissues and structures following surgical intervention.

Because the regeneration of fiber attachment to bacterial exposed root surface requires close interaction between periodontal fibroblast and root surface. But, the pathologically exposed root surface may undergo histological, physical, chemical, and immunological changes⁸⁾. Many authors have carried out studies to establish the best root condition to favor new connective tissue attachment. Modification of root surface by demineralization^{9),10)}, or physical protection of healing sites using membrane^{5),11)} have been proposed for significant increase in connective tissue attachment.

A variety of agents have been used in conjunction with root demineralization new attachment procedures. Of these, citric acid and Tetracycline - HCl have received the most attention. Several authors have proposed the use of acid for demineralization but the results have been inconclusive. The need for clarification on these points is essential. Thus, several in vitro and in vivo studies have focused on evaluating agents and treatments for their ability to enhance these cells attachment to root surface.

Demineralization has been shown to expose the collagen fibrils of root surface^{9),10)}, which promote chemotactic attraction of fibroblast^{12),13)}. This could permit the binding of newly synthesized collagen to the collagen of the tooth^{9),10)}.

In order to further understanding of the role of demineralizing surface using citric acid (CA) or tetracyclines-hydrochloride (TC-HCl) in connective tissue attachment, gingival fibroblasts(GF) and periodontal ligament fibroblasts(PF) were evaluated for cell attachment

and proliferation properties in vitro. The degree of fibroblast attachment to the dentin specimens is assessed that the attachment and proliferation of connective tissue cells is necessary for regeneration of new connective tissue attachment.

The objective of this study was to compare, by cell's attachment, the differences in attachment and proliferation properties of periodontal ligament fibroblasts with gingival fibroblast and the effect of demineralized with either citric acid or tetracycline HCl.