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A new concept in orthodontics: faster and healthier tooth movement by regularly consuming xylitol chewing gum

Abstract

Xylitol was first discovered in the 19th century, it wasn’t until the 1960’s that commercial production was first implemented. Recent studies showed that xylitol chewing gum is beneficial for preventing caries and periodontal disease. Therefore, it is also advantageous for orthodontic treatment, especially the fixed orthodontics patients who have difficulties in acquiring optimal oral health, particularly periodontal health which important in remodeling. However, how consuming xylitol chewing gum may stimulate tooth movement and preventing root resorption is still unclear. It is suggested that chewing activities may stimulate tooth movement, since jaw hypofunction leads to lower mineral apposition and bone function; and narrow periodontal ligament (PDL). These conditions may lead to impaired remodeling process, and increases the susceptibility of root resorption during orthodontic tooth movement. Moreover, since stimulation of the PDL could be mechanoreceptive (i.e. chewing action) or nociceptive (i.e. painful stimulation), periodontal nerve fibers are supposed to play an important role in bone remodeling. It is supported by a study which revealed that during tooth movement, the galanin-containing immunoreactive nerve fibers, a part of primary sensory neurons in the PDL is increasing. Galanin is able to induce osteoclast differentiation that needed for bone resorption in orthodontic treatment. The objective of this study is to elucidate a new concept in using xylitol chewing gum as an excellent media to have a faster and healthier orthodontic movement. Since continuous chewing stimulates the PDL which enhances tooth movement, improves oral health, and prevents root resorption; it is concluded that this concept is possible.

Keyword : xylitol, chewing, gum, orthodontic, treatment, ,

Daftar Pustaka :