

*Short Communication*

**Wilckodontics**

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The conventional view of orthodontic tooth movement is that of a cell-mediated process orchestrated predominantly within the periodontal ligament (PDL). Sustained force on a tooth translates into a PDL cell population shift where in pleomorphic fibroblasts are converted to osteoblasts, and osteoclasts are derived from the influx of blood borne monocytic precursors. With time, the lamina dura undergoes osteoclasts in the area of PDL “pressure,” and bone apposition occurs in the areas of PDL “tension”.<sup>1</sup>

It is well known that massive cell death and hyalinization occur within the PDL during routine orthodontic tooth movement but can be minimized by judicious application of light forces. It typically takes from 3 to 5 weeks for this zone of sterile necrotic tissue to be eliminated and repaired, during which time tooth movement by frontal resorption is virtually at a standstill. <sup>1</sup> Moreover there is an association between orthodontic root resorption and the presence and removal of necrotic hyalinized PDL tissue.<sup>2</sup>

The two most important aspects of orthodontic treatment to patients are probably esthetics and speed. Lingual brackets and clear brackets have helped with the esthetic demands, And while new wire and bracket technologies have reduced treatment times, many patients would like to have treatment be faster yet.<sup>3</sup>

An increasing number of adult patients are seeking orthodontic treatment <sup>4</sup>. There are several

psychological, biological and clinical differences between the orthodontic treatment of adults and adolescents. Adults have more specific objectives and concerns related to facial and dental aesthetics, the type of orthodontic appliance and the duration of treatment. Growth is an almost insignificant factor in adults compared to children, and there is increasing chance that hyalinization will occur during treatment.<sup>5</sup> In addition, cell mobilization and conversion of collagen fibers is much slower in adults than in children. Finally, adult patients are more prone to periodontal complications since their teeth are confined in non-flexible alveolar bone.<sup>5</sup> These considerations make orthodontic treatment of adults different and challenging as well as necessitate special concepts and procedures, such as the use of invisible appliances, shorter periods of treatment, the use of lighter forces and more precise tooth movements.<sup>6</sup>

The nature of orthodontic tooth movement when revisited in light of research and development, a new treatment method combining selective alveolar decorticating, alveolar augmentation, and orthodontic treatment was introduced by Dr. William Wilcko (Orthodontist) and Dr. Tom Wilcko (Periodontist).<sup>1</sup> It is patented as Wilckodontics and named the orthodontic and periodontal aspects of this procedure the accelerated osteogenic orthodontics (AOO) technique and, more recently, the PAOO surgical technique, respectively. This procedure is theoretically based on the bone healing pattern

known as the regional acceleratory phenomenon (RAP).<sup>7</sup> With this technique, one is no longer at the mercy of the preexisting alveolar volume, and teeth can be moved 2 to 3 times further in [1/3] to [1/4] the time required for traditional orthodontic therapy.<sup>1</sup> It can be used to treat moderate to severe malocclusions in both adolescents and adults and can reduce the need for extractions. Except for severe Class III skeletal dysplasia, PAOO can replace some orthognathic surgery, and because of the low morbidity, patients 11 to 78 years old have been treated with marked biologic impunity.

PAOO results in an increase in alveolar bone width,<sup>8</sup> shorter treatment time,<sup>9</sup> increased post treatment stability<sup>10</sup>, and decreased amount of apical root resorption.<sup>11</sup>

Periodontally accelerated osteogenic orthodontics (PAOO) is a relatively new clinical procedure and the literature available is very scarce. Hence the aim of this library dissertation is to give a detailed description available on this topic till date.

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