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Changes in masseter muscle activity during orthodontic treatment evaluated by a 24-hour EMG system

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ABSTRACT

This study was conducted to investigate changes in masseter muscle activity during orthodontic treatment. Data was collected using a 24-hour electromyogram (EMG) system. Bursts of masseter muscle activity were counted over 24-hour periods approximately weekly before, during, and after an 18-month period of active orthodontic treatment. The patient, a 25-year-old male, was treated with a multibracket appliance. The number of bursts decreased substantially during the initial leveling period when the archwires were adjusted and then recovered to near the original preactivation level. No remarkable changes in masseter muscle activity were recorded during the latter half of treatment, although masseter muscle activity fell again when the appliance was removed. Six months after the end of treatment, relatively stable masseter muscle activity—similar to that recorded before treatment—was maintained. These changes in masseter muscle activity during orthodontic treatment were probably due to discomfort or pain or to changes in the occlusal relationship between the maxillary and mandibular dentitions produced by tooth movement or by the orthodontic appliance itself.

KEY WORDS: Masseter muscle activity, 24-hour EMG system, Electromyography, Orthodontic tooth movement, Multibracket appliance.

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