

# 齒顎矯正疼痛對咬肌活動性之影響 - 齒顎矯正初期平齊化

## 過程咬肌活動性變化與矯正疼痛之關係

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### Abstract

This study was conducted to investigate changes in masseter muscle activity and their correlations with orthodontic pain produced by tooth movement during orthodontic treatment. Six volunteers participated in this study. Data were collected using a portable electromyogram system, and bursts of bilateral masseter muscle activity were counted over 12-hour periods before and during the 1<sup>st</sup>~6<sup>th</sup>, 15<sup>th</sup> and 29<sup>th</sup> days of orthodontic treatment in order to investigate changes in masseter muscle activity. The pain response was assessed using a visual analog scale (VAS) in order to investigate the influence of orthodontic pain on masseter muscle activity. In a comparison of masseter muscle activity during a loading test before and after orthodontic treatment, the maximal discharge voltage of maximal clenching showed a rapid decrease then a slow recovery to the original pretreatment level. This similar to the response of the chewing frequency of chewing gum, but the chewing cycle of chewing gum showed a rapid increase then a slow recovery to the original pretreatment level. As to the long-term EMG recording, burst durations showed a rapid decrease then a slow recovery to original pretreatment levels during the initial orthodontic leveling. During the initial orthodontic leveling, burst numbers also showed a rapid decrease then a slow recovery to original pretreatment levels. According to the "Wilcoxon matched pairs test", both the short-term and long-term masseter muscle activities before and after initial leveling showed significant differences ( $p < 0.05$ ). In addition, the influence of long-term masseter muscle activity due to initial orthodontic leveling tended to be great during daytime > meals > whole day > sleep period, and greatest influence was on low-amplitude bursts. We concluded that initial orthodontic leveling reduced masseter muscle activity for 5~6 days, after which time it gradually recovered. The portable EMG system used in this study, regardless of whether gathering short-term or long-term EMG data, was able to efficiently reveal changes in masseter muscle activity.