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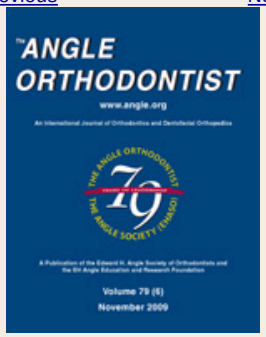

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Original Articles

Electromyographic Activity of Masseter and Temporal Muscles with Different Facial Types

Michelle Santos Vianna-Lara[a], Paulo Henrique Ferreira Caria[b], Darcyde Oliveira Tosello[b], Flávio Lara[c], and Maise Mendonça Amorim[d]

Abstract

Objectives: To compare the electromyographic (EMG) activity of the masseter and anterior portion of temporal muscles in different vertical facial types.

Materials and Methods: Clinical examination, cephalometric analysis, and electromyographic examination were performed in 44 volunteers ranging from 18 to 35 years old. The volunteers were classified on the basis of their vertical facial characteristics into three groups—brachyfacial, mesofacial, and dolicofacial—by the grouping analysis. The EMG records were obtained with three repetitions during mandibular rest, maximum voluntary contraction in intercuspidation, and simultaneous bilateral isotonic contraction. The Kolmogorov-Smirnov and Levene tests were applied to verify the normality and homogeneity of variance. Analysis of variance and the Kruskal-Wallis test identified statistical differences among groups that did not present normality and homogeneity of distribution, respectively. Significance for all statistical tests was set at $P < .05$.

Results: At rest, only the right temporal and masseter muscles presented statistically significant differences among the groups. The differences were observed between groups 1 and 2 ($P = .02$) and 1 and 3 ($P = .038$) for the right temporal muscle, and between groups 1 and 2 ($P = .029$) for the right masseter muscle. Generally, group 1 presented the lowest EMG values for the four muscles evaluated during rest. For isotonic evaluation, none of the groups of muscles presented statistically significant differences.

Conclusion: Different vertical facial types do not determine distinct patterns of EMG activity for the masseter and anterior portion of temporal muscles during rest and bilateral mastication.

Keywords: Electromyography, Masseter muscle, Temporal muscle, Morphology

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