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## Masticatory muscle pain before, during, and after treatment with orthopedic protraction headgear: A pilot study

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### ABSTRACT

Protraction headgear has been used in conjunction with a palatal expansion appliance to correct Class III malocclusion with maxillary deficiency and/or mandibular prognathism. In general, 800 gm of orthopedic force is used to protract the maxilla, and 75% of this force is transmitted to the temporomandibular joint (TMJ) area via the mandible. The effect of this heavy intermittent force on the TMJ has not been reported in the literature. The objectives of this study were to determine the level of masticatory muscle pain and EMG activity in patients treated with maxillary protraction headgear. Ten patients with skeletal Class III malocclusion whose treatment plan called for maxillary protraction headgear treatment participated in this study. Nocturnal masticatory muscle activity was determined using a portable electromyographic (EMG) recording device. Subjects wore the EMG device 14 nights before treatment, 14 nights during treatment, and 14 nights 1 month after active treatment. Masticatory muscle pain level was determined by muscle palpation, scored on a scale of 0 to 3 each period, according to the method of Gross and Gale. The examiner followed a sequence outlined by Burch to examine the masticatory muscles. Results showed no significant differences for masticatory muscle activities before, during, and after treatment. Only a few patients experienced level 1 masticatory pain during treatment. None of the patients experienced masticatory muscle pain 1 month after treatment. These results demonstrate no significant increase in masticatory muscle activity or muscle pain associated with orthopedic treatment using maxillary protraction headgear.

**KEY WORDS:** Class III malocclusion, Functional orthopedics, Muscle pain, Electromyography.

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