Electromyographic muscle EMG activity in mouth and nasal breathing children.

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Mouth breathing may cause changes in muscle activity, because an upper airway obstruction leads may cause a person to extend his/her head forward, demanding a higher inspiratory effort on the accessory muscles (sternocleidomastoids). This purpose of this study is to compare, using electromyography (EMG), the activity pattern the sternocleidomastoid and upper trapezius muscles in mouth breathing children and nasal breathing children. Forty-six children, ages 8-12 years, 33 male and 13 female were included. The selected children were divided into two groups: Group I consisted of 26 mouth breathing children, and Group II, 20 nasal breathing children. EMG recordings were made using surface electrodes bilaterally in the areas of the sternocleidomastoideus and upper trapezius muscles, while relaxed and during maximal voluntary contraction. The data were analyzed using the Kruskall-Wallis statistical test. The results indicated higher activity during relaxation and lower activity during maximal voluntary contraction in mouth breathers when compared to the nasal breathers. It is suggested that the activity pattern of the sternocleidomastoid and upper trapezius muscles differs between mouth breathing children and nasal breathing children. This may be attributed to changes in body posture which causes muscular imbalance. Because of the limitations of surface EMG, the results need to be confirmed by adding force measurements and repeating the experiments with matched subjects.

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