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Effects of experimental nasal obstruction on human masseter and suprahyoid muscle activities during sleep.

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The effect of nasal obstruction on nocturnal masseter and suprahyoid muscle activities using a newly developed portable electromyogram (EMG)-recording unit was examined. Ten healthy Japanese males participated in this study. EMG activities of both the right masseter and bilateral suprahyoid muscles were recorded with a portable EMG-recording unit. At midnight, the subject was asked to lie on a bed after complete preparation with surface electrodes. After maximal clenching and jaw-opening effort (100% maximum voluntary contribution), the subject was allowed to fall asleep. In the first half of the night, EMG activities were recorded for about three hours of sleep without nasal obstruction. In the second half of the night, EMG activities were recorded for about three hours of sleep with nasal obstruction. In both muscles, there were no significant changes in either the maximal EMG activities or the number of events beyond 40% MVC with nasal obstruction. But in an evaluation based on the distribution of muscle activities, the EMG activity of the masseter muscle tended to decrease ($P = .07$) and that of the suprahyoid muscles increased significantly ($P = .02$) with nasal obstruction. These results suggest that nasal obstruction could modulate the activities of the masseter and suprahyoid muscles during sleep.

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