Human masticatory muscle activity and jaw position under experimental stress.

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Abstract

The purpose of the present study was to determine whether stress induced a consistent pattern of increased electromyographic (EMG) activity in different masticatory muscles, and whether stress produced changes in jaw position. Thirty-five dental students at Taipei Medical College volunteered for this study. Mental arithmetic was used to create a stress condition and relaxation instruction was used to help relax the subjects. Subjects were asked to evaluate the stress they felt under each experimental condition with a visual analogue scale (VAS). Surface electrodes were used to monitor the EMG activities of the right masseter, right posterior temporalis and suprahyoid muscles. A kinesiograph was used to observe the jaw position. Data collected before mental arithmetic or relaxation monitored the baseline level. The VAS means were significantly increased during the stress condition and significantly decreased following relaxation, compared with the baseline. There was also a significant increase in EMG activity of all three muscles during mental arithmetic compared with baseline; different patterns of increased EMG activity were noticed in the three muscles under a continuous stress condition. Under stress, the incidence of tooth contact at intercuspal position was also increased.