

Electromyographic parameters for discrimination between functional and parafunctional motor events

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Resume

Objectives. Interpretation of awake bruxism EMG recordings still represent a challenge to researchers. Particularly, the differentiation between clenching events and functional activities. This study aimed to explore the EMG activity of the masseter and temporalis muscles during standardized experimental functional orofacial motor events (FOME) in order to establish general parameters for future differentiation with bruxism events.

Methods. Fourteen volunteers were included. Four standardized experimental sets were implemented to simulate different FOME, such as: 1. dry swallowing, 2. water swallowing, 3. phonation and 4. Exhalation. A wireless EMG recording system (Trigno®) was used for recordings of the masseter and temporalis muscles. Outcome measures included duration (seconds) and intensity of the clenching events as a percentage of the maximum voluntary contraction (% MVC). Data analysis was performed in a mixed effects model framework using the Kenward-Rogers method.

Results. A total of 448 FOME events were recorded. The mean value of all events was 10.7 (5.9-18.9) of the MVC for the masseter muscle and 15.6 (7.2-23.8) for the temporalis muscle. The masseter muscle presented less dispersion than the temporal muscle, with an upper limit, below 30% of the MCV. The duration of the events for both muscles was less than 3 seconds in 99.6% of the data.

Conclusions. Muscle activity levels were determined for the different FOME. EMG parameters were established in order to allow the discrimination with parafunctional events. Considering the lack of scientific consensus in this area, the present results can contribute to future standardization of diagnostic criteria of awake bruxism.

Key words. Bruxism, Diagnosis.

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