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Morphological and functional facial asymmetry in patients with mild temporomandibular disorders: a pilot study

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Facial asymmetry is normal in humans[1]. Authors indicated that facial asymmetry could influence the shape and function of the temporomandibular joints and vice versa[2]. In this study we collected preliminary reference values for facial asymmetry in adults with temporomandibular disorders (TMD), compared to a control group, using a 3D stereophotogrammetric imaging system and electromyographic (EMG) indices. Forty subjects (22 TMD; 18 control; paired for age: 21±2y) were recruited. Five linear measurements for each hemiface and asymmetry index (AI%) were computed from stereophotogrammetric scans. Standardized EMG indices for masseter and temporal muscles were obtained during clenching and gum chewing. Means of control and TMD groups were compared by t-test. For both groups, the AI for all linear measurements ranged from -10% to +10%; there was a great variability, especially for TMD group, who showed the higher values. For EMG indices, TMD group demonstrated a tendency to a more asymmetric muscular recruitment in static activities (masseter & temporal symmetry, C 87.5±1.76%; TMD 84.6±6.2%; p=0.06) and reduced symmetry during gum chewing (C 67.1± 20.9%; TMD 55.0±18.1%; p=0.06). The presence of higher asymmetry for stereophotogrammetry and EMG analyses, as well as the presence of alterations of masticatory function for the TMD group, suggest that this relationship should be further investigated. An analysis with a larger sample and with more severe TMD patients, together with a longitudinal study, is required to understand these possible relationships between morphology and function.

References

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Temporomandibular disorders, electromyography, three-dimensional, photographs.