Three-dimensional analysis of mandibular border movements in fully dentate participants

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Abstract
The temporomandibular joints and associated muscles allow the mandible to move in the three planes (sagittal, frontal and horizontal), in this way the jaw can perform complex mandibular movements. For several decades, mandibular border movements have been studied. However, studies were initially carried out in two dimensions (2D). At the present time, it is possible to analyze mandibular kinematics in three dimensions (3D), with the 3D electromagnetic articulograph (EMA). The objective of the study is to evaluate the mandibular border movements (sagittal, frontal and horizontal), using 3D electromagnetic articulation. In this analysis, 11 subjects 31.9 ± 5.7 years of age on average, participated (women 30.2 ± 2.9 and men 34.0 ± 7.8) completely dentate patients, from first to first molar, with no temporomandibular disorders or orthodontic pretreatment. Files were processed using scripts, developed in MATLAB®. Among the most relevant results, a statistical difference was found between men and women in relation to the Frontal area of Posselt polygon, and results of the sagittal polygon area of all the participants were greater than those reported in previous studies.

Author keywords
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