

Relationship between the inclination of lower incisors and human masseter muscle activity

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Abstract

Tweed reported the presently well-known diagnostic triangle in 1954. He thought that the triangle formed by the incisor axis, mandibular plane and Frankfort-horizontal plane should be the basis of making clinical treatment plans, i.e., the angle formed by the lower incisor axis and mandibular plane (IMPA) must be a right angle. This norm is still used at present by many orthodontists. His main idea was to establish normal references chosen by facial esthetics. But whether this right angle functions properly or not needs to be proven. The aim of this study was to investigate the influence of the IMPA on human masseter muscle activity. By observing changes in electromyographic (EMG) data, we were able to determine whether or not the lower incisor being upright or proclined influences masseter muscle activity. The main observation in this study was the EMG maximum clenching value (amplitude) when the overall and anterior teeth were in contact with the custom-made bite registration material. We found that the EMG amplitude in the IMPA upright group and proclination group showed no statistical differences. The results of this study suggest that masseter muscle function is not influenced by whether the IMPA angle is upright or not.