Association Of Mandibular Movement Velocity And Dentofacial Morphology Of Young Adults In Taiwan

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Abstract

The relationship between morphologic characteristics of the facial skeleton and the function of the masticatory system has been extensively studied. Mandibular movement velocity is one of the parameters used to evaluate mandibular function. However, the interaction between dentofacial morphology and mandibular movement velocity is unclear. The aim of this study was to investigate the mandibular movement velocity with different dentofacial morphologies in young adults and determine the correlation between different characteristics of dentofacial morphology and the velocity of mandibular movement. One hundred twenty-seven young adults (84 males, 43 females, with ages ranging from 21 to 26 years) were observed using a Myotronics kinesiograph K-6 model for the measurement of jaw motion velocity. Each subject was instructed to open and close the mouth as wide and as fast as possible. Five consecutive open-close strokes were recorded and processed to evaluate the following parameters: (1) the maximal opening and closing velocities, (2) the average opening and closing velocities, and (3) the maximal velocity of terminal tooth contact. Dentofacial morphology was evaluated with conventional lateral cephalometric radiographs. Analysis of data indicated that large interindividual variations and gender differences existed in the velocity of mandibular movement. The maximum and average closing velocities of male subjects had a significant association with the angulation and overbite of the upper incisors ($p<0.05$). The terminal tooth contact velocity was significantly associated with facial diversity in females and with overbite in males. But none of the correlation coefficients was high ($r<0.4$). We conclude that a weak correlation exists between the velocity of mandibular movement and dentofacial morphology.