論 文 要 旨

Influence of maximum bite force on jaw movement during gummy jelly mastication.

國則　貴玄

It is known that maximum bite force has various influences on chewing function; however, there have not been studies in which the relationships between maximum bite force and masticatory jaw movement have been clarified. The aim of this study was to investigate the effect of maximum bite force on masticatory jaw movement in subjects with normal occlusion. Thirty young adults (22 men and 8 women; mean age, 22.6 years) with good occlusion were divided into two groups based on whether they had a relatively high or low maximum bite force according to the median. The maximum bite force was determined according to the Dental Prescale System using pressure-sensitive sheets. Jaw movement during mastication of hard gummy jelly (each 5.5 g) on the preferred chewing side was recorded using a six degrees of freedom jaw movement recording system. The motion of the lower incisal point of the mandible was computed, and the mean values of 10 cycles (cycles 2-11) were calculated. A masticatory performance test was conducted using gummy jelly. Subjects with a lower maximum bite force showed increased maximum lateral amplitude, closing distance, width and closing angle; wider masticatory jaw movement; and significantly lower masticatory performance. However, no differences in the maximum vertical or maximum anteroposterior amplitudes were observed between the groups. Although other factors, such as individual morphology, may influence masticatory jaw movement, our results suggest that subjects with a lower maximum bite force show increased lateral jaw motion during mastication.