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Texture-dependent mastication behaviors of the elderly with a different dental status

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Masticatory characteristics of the differently textured food(jelly-type and radish Kimchi) in the elderly group(32 female participants, 65-85 yrs) were collected using by electromyography(EMG). Mastication parameters such as chewing time, number of chewing, magnitude of each chew and the chewing patterns were analysed with age- and denture-dependency. Further, tongue pressure was recorded using by IOPI equipment, and then the magnitudes of tongue pressure were compared under the dental status. Results show that chewing number and chewing time increased depends on the hardness of the samples. However, the slope of linearity in hardness is dependent on the intrinsic food structure, indicating impacts of food structural and textural characteristics on the chewing properties. In addition, the muscles both masseter and temporalis were not activated on jelly sample at any level of hardness, but significantly activated on radish Kimchi, showing that hard-type radish Kimchi can be texturally modified and served to the elderly with different dental status. The chewing patterns in EMG burst duration, peak shape, chewing rhythm and on-set latency during mastication of the jelly and radish Kimchi are different between the natural teeth and denture wearers. Tongue pressure also depends on both the age and the dental condition and especially the whole denturers have much lower tongue power than the others.