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Denture status is related to chewing difficulty and bite force, though not BMI in elderly Thai adults

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Oral processing of food is often affected due to limiting oro-muscular capabilities associated with aging[1]. Particularly loss of teeth, reduced salivary flow rate, and declines in oro-masticatory muscle performance result in chewing difficulties and, consequently, malnutrition[2]. However, the quantitative relationship between chewing difficulty with foods of varying textures and instrumentally measured oro-muscular forces and denture status remains rarely investigated.

Aims: To explore the associations of denture status and objectively assessed biting force ability with self- perceived chewing difficulties and nutritional status of community-dwelling older adults in Thailand.

A total of 148 older adult participants aged 64 to 90 years old (mean: 71.9 ± 6.0 years) within the Bangkok Metropolitan Region and Chonburi Province completed a self-assessment of chewing ability by rating the chewing difficulty of 20 common food items (5 difficulty grades of texture) using a 3-point Likert scale. The maximum biting force of posterior teeth, as the objective assessment, was measured from both sides, and denture status was recorded. Nutritional status was assessed based on the body mass index of the participants with their food intake obtained by the 24-hour dietary recall.

Results show that participants who did not wear dentures and had more than 11 teeth rated their chewing ability significantly higher than those without dentures but had less than 11 teeth ($p < 0.001$) and those with complete dentures ($p < 0.001$) with differences especially seen in food items with a difficulty grade higher than 3. Correspondingly, the maximum biting force was also significantly lower in these groups ($p < 0.05$) than in those with more than 11 teeth, implants, and partial dentures. Nonetheless, nutritional status was not significantly associated with denture status, biting force, or chewing difficulty.

The findings suggest that dentures status is associated with self-perceived mastication ability, and reduced maximum biting force may limit the consumption of food groups with certain textures and affect the variety of the nutrient intake in the vulnerable group.

References

1. Sarkar A (2019) *PNS* **78**(3), 329–39.
2. Xu F, Laguna L, Sarkar A (2019) *J Texture Stud* **50**, 27–35.