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### **Educational Effect of Edentulous Model of Hard and Soft Tissues**

M. Ryu, M. Ohta, T. Saito, T. Ueda

Department of Removable Prosthodontics and Gerodontology, Tokyo Dental College, Tokyo, Japan

**Objectives** When educating dental students on prosthetic treatment of edentulous patients, anatomical structure of hard and soft tissues in the oral cavity must be understood. However, learning the submucosal structures using commercially available edentulous models is challenging, making them inadequate as educational tools. Therefore, we developed a novel edentulous model that combined hard and soft tissues, which allowed students to remove the mucosa to visualize the submucosal structures. This study aimed to clarify the educational effects of the new edentulous model.

**Methods** In total, 137 dental students (76 males, 61 females) were randomly divided into two groups: 68 and 69 students using the new model (group N) and conventional model (group C), respectively. Following a pretest, a lecture about the structure of the edentulous mucosa and submucosa using the assigned model was conducted; a post-test followed. The students also evaluated the effectiveness of the models in understanding the structure of the mucosa and submucosa using a 10-point scale. Student's t-test was performed to compare the students' evaluation scores between the two groups ( $\alpha = 0.05$ ). This study was approved by the Ethics Committee of Tokyo Dental College (#1014).

**Results** The average correct answer rates of pre- and post-test of group N were  $57.4\% \pm 22.2\%$  and  $85.4\% \pm 21.7\%$ , respectively, and those of group C were  $54.2\% \pm 23.4\%$  and  $79.7\% \pm 25.2\%$ , respectively. After the lecture, the average correct answer rate of the submucosa structures and students' evaluation score in group N were  $85.9\% \pm 7.0\%$  and  $9.3 \pm 1.4$  points, respectively, and in group C, the values were  $72.3\% \pm 7.2\%$  and  $8.5 \pm 1.9$  points, respectively. The students' evaluation scores were significantly different between the two groups ( $P = 0.008$ ).

**Conclusions** These findings suggest that the new model is suitable for teaching mucosal and submucosal structures.