# EFFECT OF TREATMENT WITH FIXED IMPLANT-SUPPORTED PROSTHESES IN PATIENTS WITH A SHORTENED DENTAL ARCH

## Abstract

### Purpose

The purpose of this study was to investigate the impact of treatment with fixed implant-supported prostheses on oral health-related quality of life (OHRQoL), masticatory performance, and bite force in patients with a shortened dental arch.

### Materials and methods

Forty patients who had unilaterally lost either the second molar or both the first and second molars on one of their jaws and were seeking treatment with fixed implant-supported prostheses were included in this study. The patients were divided into three groups based on the number of missing teeth and implant-supported prostheses (Fig. 1, Groups 1–3). The Japanese version of the Oral Health Impact Profile (OHIP-J) was used to assess the impairment of OHRQoL, whose dimension scores were calculated for oral function, orofacial pain, orofacial appearance, and psychosocial impact. Masticatory performance was determined by the gummy jelly method, and bite force was measured using pressure-sensitive films. Evaluations were performed before the implant surgery (T1) and one month after the delivery of the final prostheses (T2), and changes in T1 to T2 were calculated. The Kruskal-Wallis test was used for between-group comparisons, while the Mann-Whitney $U$ test was used for within-group comparisons. The significance level was set at 0.05.

### Results

No significant differences were found in between-group comparisons. Within-group comparisons showed statistically significant improvements after treatment in several OHIP-J items for Groups 1 and 3: oral function ($p = 0.007$); orofacial appearance ($p = 0.006$); and orofacial pain ($p = 0.046$) in Group 1, and oral function ($p = 0.039$) in Group 3.

### Conclusions

Within the framework of this study, treatment with fixed implant-supported prostheses for patients with a shortened dental arch may lead to better patient-reported outcomes; however, the impact of the number of missing teeth and implant-supported prostheses may be minimal in cases with one or two missing teeth.
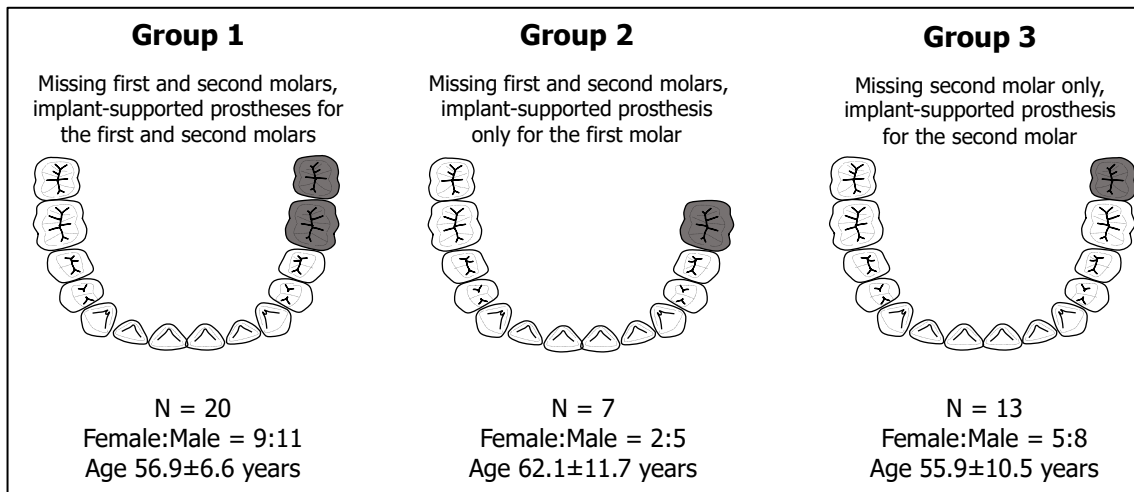
Fig.1 Grouping by the number of missing teeth and implant-supported prostheses