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[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(606K\)\]](#) [\[References\]](#)

Magnetic attachment for denture type appliance in pediatric patients

Aya Yamada¹⁾, Satoshi Fukumoto¹⁾, Yoko Kamasaki¹⁾, Kazumi Kubota¹⁾ and Taku Fujiwara¹⁾

1) Division of Pediatric Dentistry, Department of Developmental and Reconstructive Medicine, Nagasaki University Graduate School of Biomedical Sciences

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Abstract Several types of denture attachments are used in pediatric dentistry, however, it is difficult to obtain optimal retention using conventional clasps in young patients, because of the shape variations of primary and erupting permanent teeth. We tested application of a magnetic attachment for space maintenance with an orthodontic appliance in pediatric patients. Using a mixed dentition model, we examined the attraction force of denture materials with a magnetic attachment under several conditions, including type of anchor tooth, keeper angle for tooth axis, and direction of retraction. The optimal keeper angle for the primary first, second, and permanent first molars of the maxilla and primary first and second molars of the mandible was 10°, whereas 20° is best for the permanent first molars of the mandible. In the maxilla, a denture containing primary first and second molars as anchor teeth had relatively high retention compared to the same with permanent first molars. In clinical cases, dentures with magnetic attachments showed greater attraction force than those with Adams clasps in the maxilla, while in the mandible, retention was not significantly different between the two. These results suggest that a magnetic attachment may be useful for denture appliances in pediatric patients.

Key words Denture type appliance, Magnetic attachment, Retention force

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