

READER'S FORUM

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Mandibular arch orthodontic treatment stability using passive self-ligating and conventional systems in adults: A randomized controlled trial.

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First of all, I would like to thank the authors for carrying out such an impressive research. For an orthodontist, retention is always a troublesome and therefore interesting subject. As a reader, I would like to ask the authors the following questions.

Q1. How did the authors measure the crowding of Table 1? And during the treatment, was there any additional space gaining using interproximal reduction or skeletal anchorage?

Q2. Damon arch form has broader posterior width than Ortho Form II. Compared to the self-ligating system group (Damon arch form used), conventional system group (Ortho Form II used), showed narrower posterior width as the shape of their arch form, and also had longer arch length and depth. Because the arch dimensions of the two groups were similar before treatment, it can be interpreted that the narrower arch form used in conventional system group resulted in more proclination of the anterior teeth. In my opinion, stability differences between the two groups (although these are unlikely to be clinically significant) seem to stem from the difference in arch form used. I would like to ask the authors' opinion.

Q3. Previous study has shown that the vacuum-formed retainers are more effective than Hawley retainers at holding the correction of the anterior segments.¹ I would like to ask if there was difference in arch dimensions or incisor irregularity between the two types of retainer in this study.

Questioned by

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A1. In this study the degree of crowding for all the samples was evaluated using brass wire to measure arch length as well as digital calliper (Pro-Max Fowler) to measure mesiodistal width of tooth. The amount of crowding was calculated by measuring the mesiodistal widths of any misaligned teeth in relation to the available space in the arch.

The amount of pre-treatment crowding ranged from 0.40 to 5 mm and was similar between both groups, with a mean of 2.7 (\pm 2.3) mm for the passive self-ligating system, and 2.7 (\pm 2.0) mm for the conventional system. During the treatment, there was no additional space gaining by either using interproximal reduction or skeletal anchorage.

A2. In this study, for passive self-ligating system, Damon[®] archwire was used whereas for conventional system, Ortho Form[™] II archwire was placed during treatment. Ortho Form[™] II is a square shaped archwire from 3M Unitek[™]. Its shape is the closest match to the Damon[®] archwire. The use of arch wire was corresponded to both groups of the systems.

In addition, the used archwires identical in form and size for both systems will eliminate possible confounding factor by the wire form. Furthermore, during the final stage of levelling and alignment, the stainless steel archwires for both groups were molded according to the original arch form of the patients. By using the closest match of arch wire, it assumes the stability for both groups will not be influenced by this factor.

A3. As mentioned in the article, this randomized clinical trial was intended to compare the stability after orthodontic treatment using passive self-ligating and conventional system during six months of retention period. This study attempts to look at the effects of orthodontic bracket systems on the stability during six months retention period after non-extraction orthodontic treatment not to compare the stability between two different types of retainers.

A similar proportion of Hawley and vacuum-formed retainers were used during the retention period for both groups because they are the most commonly used retainers in this country.² Since there is no firm evidence regarding the best retainer for use after active orthodontic treatment, the use of the most popular retainers in this country allows for a better representation of an average clinical setting and removes the influence of different types of retainers on study findings.

Two retention wear regimens were used for both type of retention because it is generally recognized in the literature that there is no universal agreement regarding retention regimens³ and there was a wide variations in retention protocols among clinician.⁴ In addition, there are limited availability of prospective studies that have investigated this question and the problem of lack of scientific evidence has been highlighted in a systematic

review.³

In this study, duration of the retainer wear was standardized for each type of retainer based on the study by Destang and Kerr,⁵ and Thickett and Power.⁶ These retention regimes were followed because it was quite similar to the retention practice in this institution. An advantage of conducting a trial in this manner is that the findings should be more representative of what occurs in everyday clinical practice.

Replied by

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