

Effectiveness of lingual versus labial fixed appliances in adults according to the Peer Assessment Rating index

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Introduction: The purpose of this study was to compare the effectiveness of lingual treatment and labial fixed appliances in the treatment of adult orthodontic patients. **Methods:** We conducted a retrospective study of 72 patients. The Peer Assessment Rating (PAR) index was measured at the start (T0) and end (T1) of treatment. Significant differences between treatment means were determined by means of analysis of variance with the Bonferroni correction or with the use of Fisher exact test. **Results:** The lingual group had a mean pretreatment age of 28.6 ± 6.7 years, and the labial group had a pretreatment age of 26.6 ± 9.5 years. This difference was statistically not significant. The mean pre- and posttreatment PAR scores in the labial group were 22.9 ± 6.2 and 2.1 ± 2.3 , respectively, and the mean pre- and posttreatment PAR scores in the lingual group were 26.5 ± 8.3 and 2.3 ± 2.5 . There were no significant differences between the treatment groups. **Conclusions:** Lingual and labial appliances produced similar reductions in PAR scores. There was no difference in the posttreatment PAR scores between the lingual and labial treatment groups. Further studies involving larger sample sizes and longer follow-up periods are required to confirm the results obtained. (Am J Orthod Dentofacial Orthop 2019;155:819-25)

Orthodontic treatments classically have been evaluated on a subjective basis, although they can also be analyzed objectively in a clinical setting or through state board examinations.¹ Different indices have been developed for assessing dental malocclusion and the outcomes of orthodontic treatment.¹⁻³ Clinical outcomes after orthodontic treatment are often measured with the use of occlusal indices to establish the overall standard of care. Occlusal indices are measured from study models taken before and after completion of treatment.⁴ The use of indices should ensure uniform interpretation and application of criteria. The use of precise criteria is essential, requiring a

quantitative objective method of measuring malocclusion and efficacy of treatment.⁵

The Peer Assessment Rating (PAR) index was developed to record the malocclusion at any stage of treatment. The index was formulated over a series of 6 meetings in 1987 with a group of 10 experienced orthodontists. More than 200 dental casts representing developmental as well as pretreatment and posttreatment stages were examined and discussed until agreement was reached regarding the individual features that would be assessed in obtaining an estimate of alignment of occlusion.⁵ PAR scores are measured from plaster study models taken before and after treatment to establish a mean reduction in the score; a mean improvement of $>70\%$ represents a very high standard of treatment. Ideally, the number of patients in the “worse or no improvement” category should be $<5\%$.⁴ The PAR is a very comprehensive index that measures malocclusion on all 3 spatial planes based on 8 components that are weighted to obtain the overall score.⁵ The index has been used in a number of studies⁶⁻¹¹ to assess the long-term stability of treatment⁷ and the treatment stability in patients with Class II⁶ and Class III malocclusions.¹⁰

Lingual appliances offer a more esthetic effect, because the brackets are placed on the lingual surface

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