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Comparisons of the dental arch changes in patients with Class II, division 1 malocclusions: extraction vs nonextraction treatments

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ABSTRACT

Treatment and posttreatment changes in the dental arches of patients with Class II, division 1 malocclusions were evaluated. Half the patients (N=46) were treated with a nonextraction approach; treatment for the other half (N=45) included the extraction of four first premolars. The following parameters were measured in the maxillary and mandibular arches: arch width at the incisors, canines, second premolars and first permanent molars; anterior, posterior and total arch lengths; and total and anterior tooth size-arch length discrepancies. These parameters were measured pretreatment, immediately following orthodontic treatment and at least 2 years posttreatment.

The findings indicate that the extraction of premolars significantly improves the discrepancy between the tooth size and arch length during treatment. Posttreatment both the extraction and nonextraction groups experienced an increase in tooth size-arch length discrepancies and a reduction in arch length. Extractions did not significantly alter the direction of the overall posttreatment trends for some parameters, e.g., intercanine width and tooth size-arch length discrepancies. On the other hand, the posttreatment trends for other parameters—such as intermolar width—were significantly different between the extraction and nonextraction groups. In general, the trends in the posttreatment changes were similar in males and females as well as in the maxillary and mandibular arches.

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