Original Article

The Influence of Extraction Treatment on Holdaway Soft-Tissue Measurements

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Abstract: The aims of this study were (1) to determine the changes in the soft-tissue measurements of orthodontic patients treated with four first premolar extractions as determined by the Holdaway Analysis, (2) to investigate the sexual differences between pre- and posttreatment values, and (3) to compare the Holdaway soft-tissue norms with findings in Anatolian Turkish adults. Pretreatment and posttreatment lateral cephalograms of 58 patients (26 boys and 32 girls) were evaluated. During treatment, the H angle, soft tissue subnasale to H line, and upper-lip strain decreased, and the upper-lip thickness, inferior sulcus to H line, and nose prominence increased. No statistically significant sex differences were found between the pre- and posttreatment values of the four premolar extraction cases. When the pretreatment values were compared with the Holdaway soft-tissue norms of Anatolian Turkish adults, seven variables showed statistically significant differences. When the posttreatment values were compared, six measurements showed statistically significant differences. It was determined that some measurements (H angle, inferior sulcus to H line, upper-lip thickness) moved closer to the Anatolian Turkish norms with extraction of four first premolars. However, upper-lip strain measurement changed in an undesirable direction during the treatment. In this study, the sample began treatment with greater facial imbalance, and the facial esthetics improved during treatment. It is necessary to investigate this difference in future studies using larger sample sizes. (Angle Orthod 2004;74:167–173.)

Key Words: Soft-tissue analysis; Holdaway soft-tissue analysis; Extraction treatment