

EFFECT OF CROWDING ON FREQUENCY OF BOLTON TOOTH SIZE DISCREAPNCIES AMONG ORTHODONTIC PATIENTS

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The aim of the study was to examine the frequency of Bolton tooth size discrepancies and the effect of severity of crowding on tooth size discrepancies among orthodontic patients. A random sample of 146 orthodontic patients 74 males and 72 females who satisfied the selection criteria were selected from the records of the orthodontic patients taken up between year 1997 to 2000. Mesio distal dimensions of the teeth mesial to both maxillary and mandibular first permanent molars were measured on pre treatment study models and subjected to Bolton analysis. Both overall and anterior Bolton ratios were calculated for each case. The severity of crowding was assessed using Little's Irregularity Index.

Data analysis was done to investigate the frequency of tooth size discrepancies among both crowded and non-crowded groups and the effect of severity of crowding on tooth size discrepancies. There were 68 in crowded group and 78 in non-crowded group. 26.91% of the crowded group showed clinically significant (2SD out side of Bolton mean) anterior tooth size discrepancies which can compromise the final occlusal outcome. Mean overall ratio for non-crowded group was $90.95\% \pm 2.49\%$ and for crowded group was $90.95\% \pm 2.94\%$. Mean anterior ratio for non-crowded group was $76.41\% \pm 3.09\%$ and for crowded group was $78.10\% \pm 3.23\%$. Statistically significant difference was seen only in anterior ratios between crowded and non-crowded groups. ($P = .002$). Results of the study reveals that special emphasis should be given to the Bolton analysis of anterior ratios, during treatment planning stage of orthodontic cases with crowding in order to reduce the failure rate which can result due to tooth size discrepancies in the study population.