

**Alveolar base and dental arch
widths with segmental arch
measurements in different classes of
malocclusions**

(A comparative study)

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Abstract

The size and shape of the arches have considerable implications in orthodontic diagnosis and treatment planning, affecting the space available, dental aesthetics, and stability of the dentition.

This study was designed to evaluate and compare dental arches, alveolar bases and segmental arch dimensions of class II division 1, class III malocclusion groups with normal occlusion subjects and to check gender differences and difference between maxillary and mandibular arch widths.

Measurements were made on dental casts of 62 subjects aged between 18-28 years, equally divided between males & females, consisting of 26 normal occlusion, 22 Class II division 1, and 14 Class III malocclusion subjects.

Eleven liner measurements were utilized for each dental arch and the following results were obtained:

- All measured dimensions were greater in males than in females except for mandibular inter alveolar premolar width and maxillary left canine molar distance in class III malocclusion group.
- All measured dimensions were greater in maxilla than in mandible except inter molar width in class II and class III malocclusion groups and alveolar base dimensions in class III malocclusion groups.
- When we compare between groups
 - ✓ Class I normal group was wider than class II division 1 group.
 - ✓ Class III samples was wider than class I in all mandibular alveolar base dimensions and mandibular inter premolar width.
 - ✓ Class III malocclusions group showed greater values in all maxillary dental arch widths, all mandibular alveolar base dimensions and mandibular inter canine and premolar widths than class II division 1 malocclusion group.

In conclusion, maxillary molar teeth in subjects with Class II division 1 malocclusions tend to incline buccally to compensate the insufficient alveolar

base, while subjects with Class III malocclusion the maxillary posterior teeth tend to incline lingually and mandibular posterior teeth inclined buccally due to the restriction in maxillary arch.