# Maxillary constriction: Are there differences between anterior and posterior regions?

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**Objective:** To evaluate the transverse atresia of the maxilla in both anterior and posterior regions, using Korkhaus Analysis and to check whether there were any statistically significant differences within its values.

**Method:** The sample comprised 341 study models. The study models were randomly selected from previous cases, without gender, age and malocclusion restrictions. The models were submitted to Korkhaus Analysis. Data from these models were subjected to statistical analyzes in order to evaluate differences in anterior and posterior regions.

**Results:** The transverse discrepancies were statistically significant (p<0.001) with a greater atresia in the anterior region, mean -2,84 mm.

**Conclusion:** The results showed that the differential diagnosis is very important and the treatment plan may be adapted to specific therapy focusing in a greater expansion in the anterior region.

**Keywords:** Maxilla. Dental casts. Treatment results.

original article

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## Editor's summary

The maxillary deficiency in the transverse plane is called maxillary constriction. The main etiologic factors of this deficiency are mouth breathing, harmful habits, like thumb sucking and / or pacifiers, speech dysfunction and infantile swallowing. The maxillary constriction affects most of our orthodontic patients and is one of the most prevalent malocclusions in orthodontic practice. The aim of this study was to determine whether maxillary constriction is different in anterior and posterior region in a Brazilian population.

The study sample consisted of 341 initial orthodontic study models from a private practice. These were randomly selected from number 1,500 to number 2,100, with no restriction in relation to malocclusion, age and gender. The Korkhaus analysis[1] was used in each cast models for evaluating the transversal discrepancy between the maxilla and the mandible in the anterior and posterior regions (Fig 1).

The interpretations of Korkhaus analysis perform the subtraction of the maxillary value (anterior and posterior) with the mandible value. When the value is negative, there is a maxillary constriction; when the value is positive, the maxilla is greater than the mandible or there is a mandible constriction. When the value corresponds to zero, there is a normal transversal relations between the upper and the lower arches. Anterior constriction was considered when the values of the difference between the anterior and the posterior regions showed more than 2 mm (negative value). Equivalent constriction was considered when both values (anterior and posterior) were equal or their difference lower than -2.0 mm.

According to the methods used, 231 patients were considered as "equivalent constriction" and 110 patients were considered as "anterior constriction". The conclusion was that 32.3% of the evaluated patients presented with a greater atresia in the anterior region.
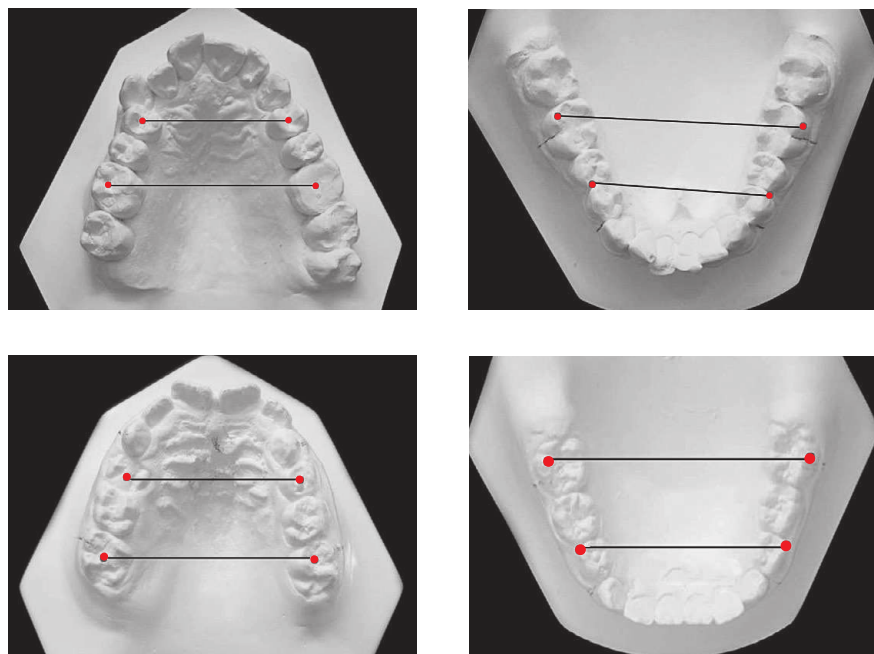


**Figure 1** - Occlusal view of the casts, with lines representing the width measurements in the mixed and permanent dentition.

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