

# Comparative evaluation of upper lip length and the commissural height in Chennai population

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## ABSTRACT

The aim of this research is to compare and evaluate the upper lip length and the commissural heights to the ideal lip line parameter in South Indian population. 80 subjects were considered for this study which includes 40 males and 40 females. Considering the ideal lip line parameter for females - posed smile (cervicoincisal length of the tooth along with the 1–2 mm of gingival exposure) and exposure of maxillary incisors in relation to smile at rest (3.4 mm). The ideal lip line parameter for males include - posed smile (cervicoincisal length of the tooth along with the interproximal gingiva) and exposure of maxillary incisors in relation to smile at rest (1.9 mm). The lip line measurements were considered as an ideal parameter to compare and evaluate the upper lip length and the commissural height for all the subjects. Photographs of the patients were taken and upper lip. Measurements of upper lip length and commissure height at rest increased with age in both male and female. Changes in upper lip length and commissure height were greater in males as compared with females of the same age groups. The concepts of smile esthetics are not new but are too often overlooked in orthodontic treatment planning. The eight components of the smile should be considered not as rigid boundaries but as artistic guidelines to help orthodontists treat individual patients who are today, more than ever, highly aware of smile esthetics.

**Keywords:** Upper lip length, commissural height, esthetics, proportion

## Introduction

The most common reason for seeking orthodontic treatment is to improve dentofacial esthetics. It is now accepted that modern orthodontic treatment requires a shift away from Angle's paradigm of achieving ideal occlusion to the more esthetically focused soft tissue paradigm that is based on the patient's overall benefit.<sup>[1,2]</sup> When developing the appropriate diagnosis and treatment plan for a patient, the hard and soft tissues should be analyzed. When orthodontic treatment is done, a balanced smile is also one of the goals to be achieved. A balanced smile includes eight parameters such as upper lip length, lip line, smile arc, upper lip curvature, lateral negative space,

smile symmetry, frontal occlusal plane, and commissure height. With time, people undergo many skeletal and soft tissue cellular changes that dramatically affect the overlying soft tissue envelope, the related muscles, and their functions.<sup>[3,4]</sup> The literature demonstrates that with age, the lips become less elastic and less mobile.<sup>[5,6]</sup> Further, oral structures such as teeth and periodontium change with age. These changes affect the smile. Appropriate knowledge of smile changes with age can help orthodontists obtain long-lasting and esthetically appealing treatment results.

## Materials and Methods

The present study was conducted on patients attending OP of Saveetha Dental College and Hospitals. 80 subjects were considered for this study which includes 40 males and 40 females and were divided into three subgroups based on their age. The subjects were divided into three age groups, namely, Group 1 (15–19 years), Group 2 (20–29 years), and Group 3 (30–39 years). Patients upper lip length and commissure height were measured using divider and scale.

Measurements used in the study measurement description as follows:

1. Upper lip length distance - measured from subnasale to the

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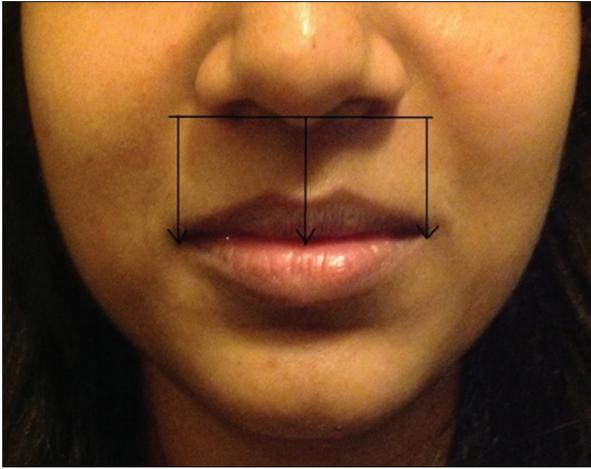
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**Figure 1:** Lip length compared to commissure height

most inferior portion of the upper lip at the midline (stomion superius) [Figure 1, center line]

2. Commissural height distance - measured from the horizontal line passing through subnasale to outer commissure (if right and left commissures were not at the same levels, average of the two measurements was used) right and left corner lines.

## Results

The average lip length at rest, as measured from subnasale to the most inferior portion of the upper lip at the midline, is about 23 mm in males and 20 mm in females. Measurements of upper lip length and commissure height at rest increased with age in both male and female. Changes in upper lip length and commissure height were greater in males as compared with females of the same age groups.

## Discussion

The upper lip length at rest increased with age in both sexes from 16 to 39 years. An increase in resting upper lip length could be attributed to the loss of resting muscle tone, increased flaccidity, and redundancy with age. The commissural height at rest gradually increased with age in both sexes. Dickens *et al.* found an increase in commissural height by 1.3 mm in males and by 1.1 mm in females from 16 to >40 years. The mean values for all age groups were greater for males as compared with females; however, there were no significant gender differences within the groups.

## Conclusion

The relationship of the upper lip to the maxillary incisors and to the commissures of the mouth is significant.<sup>[1]</sup> Lip length should be roughly equal to the commissure height, which is the vertical distance between the commissure and a horizontal line from subnasale. A short lip length relative to commissure height results in an unesthetic, reverse-resting upper lip line.<sup>[7]</sup> It is not easy to alter commissure height, but lip lengthening is possible with lip surgery, either as a single procedure or in combination with a Le Fort I osteotomy.<sup>[8-10]</sup> In adolescents, a short upper lip relative to commissure height could be considered normal because of the lip lengthening that continues even after vertical skeletal growth is complete.<sup>[11,12]</sup> It is interesting to note that a short upper lip is not always associated with a high lip line; on the contrary, the upper lip was found to be longer in a gingival display group than in a nondisplaying sample.<sup>[13]</sup>

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