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## Anthropometric measurement of lips in adults of MP India

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### Abstract

Lips are important for facial expression, speech, smiling, eating and for aesthetic purpose. Anatomy and dimensions of or official structures are considered as useful criteria for surgeons undertaking repair and reconstruction of facial deformities. The aim of study was to obtain various data related to lip morphology. For this we took anthropometric measurement of lips of 152 individuals of M.P. region of India out of which 75 were females and 77 were males from different landmark around lip by digital vernier calliper. Results of study showed higher value of philtrum length and width in men than women. Vermilion height of lower lip was higher in both sexes. These data will be helpful in cosmetics purpose, lip reconstructive surgery like labiaplasty, lip enhancement surgeries & orthodontic treatment.

**Keywords:** Anthropometry, lips, Philtrum, vermilion, length

### 1. Introduction

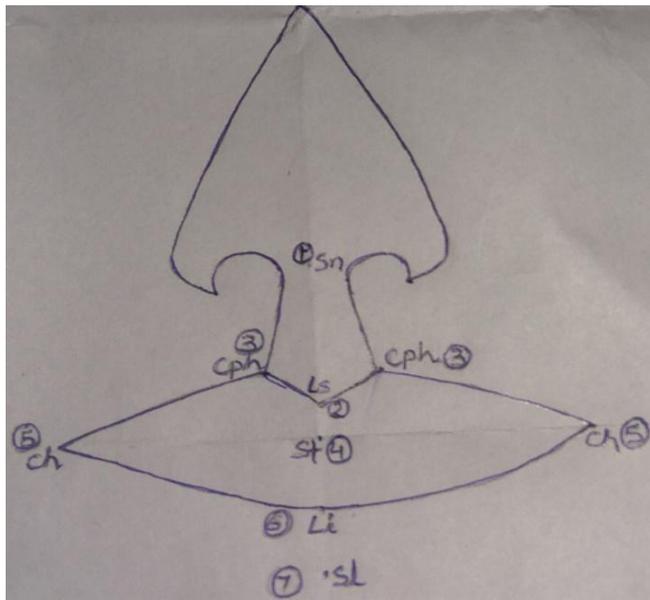
The physical appearance is closely related to an individual's own personality as well as its social acceptance and facial appearance plays important role in it. Facial form is a simple method to distinguish between people <sup>[1]</sup>. The lips comprise the key esthetic feature of the lower third of the face <sup>[2]</sup>. Anthropometry (in Greek means "measurement of humans") refers to the measurement of the human body. It is done for the purpose of understanding human physical variation. Anatomy and dimensions of facial structures are considered as useful criteria for surgeons undertaking repair and reconstruction of facial deformities to maintain optimal relationships among facial structures <sup>[3, 5]</sup>. A deep knowledge on the relationships among the facial structures will allow correct diagnosis and treatment of individuals <sup>[6]</sup>. Lip anthropometric parameters are affected by various factors including age, sex, ethnicity, socioeconomic status, environment and region <sup>[7]</sup>. The size and curvature of the exposed red lip surface is subject to considerable individual, sex and ethnic variation <sup>[8]</sup>. The orolabial region frequently undergoes significant changes following trauma, orthognathic surgery or orthodontics. Ethnicity, age and gender specific normative data are needed during the planning phase before surgical interventions in this region <sup>[9]</sup>. Fuller lips have been reported as a hallmark of beauty and fertility <sup>[10, 12]</sup>. The lip region has also been the subject of various rejuvenation procedures including augmentation cheiloplasty, soft tissue fillers, laser assisted and chemical peeling <sup>[13, 14]</sup>. Present study aim to obtain various data related to lip morphology which may be useful to various lip reconstructive procedure.

### 2. Material and Methods

It is an observational study. The study group consisted of 152 individuals of M.P. region of India (age range: 18–45 years) out of which 75 were females and 77 were males. The subjects with previous history of developmental and neurological defects of facial region, cosmetic treatment of mouth and lip region, cranio-facial trauma, facial surgery and bi-racial ethnic origins were excluded in this study. The anthropometric landmarks were identified on the subjects carefully and marked on subject face by blue pen. These landmarks are

1. **sn** - midpoint at the union of the lower border of the nasal septum and the upper lip
2. **ls** - midpoint of the vermilion line of the upper lip
3. **st** -midpoint of the horizontal labial fissure

4. **li** - midpoint of the vermilion line of the lower lip
5. **sl** - In the midline of the nasolabial sulcus
6. **ch** - labial commissura
7. **cph**- crista philtrum



**Fig 1:** Landmarks around lip region.

Subjects were asked to sit in an upright relaxed position on erect posture of head and shoulders, the measurements were taken up carefully on subject by stainless steel digital

vernier caliper with LCD screen. All measurement taken up in mm.



**Fig 2:** Digital Vernier caliper

**3. Result & Observation**

Following linear measurement of lips are taken up (in mm)

1. Width of philtrum (cph-cph)
2. Length of philtrum (sn-ls)
3. Vermilion height of the upper lip (ls-st)
4. Vermilion height of the lower lip (st-li)
5. Total vermilion height (ls-li)
6. Total lips height (sn-sl)

**Table 1** showing diff. linear measurement of lips.

S. No	Diff. Measurement (in mm)	Male(N=77)		Female(N=77)		P-value
		Mean	SD	Mean	SD	
1.	Width of Philtrum (cph-cph)	13.98	2.02	13.11	3.46	0.081
2.	length of philtrum (sn-ls)	13.39	2.02	12.32	2.75	0.019
3.	Vermilion height of the upper lip (ls-st)	8.55	1.59	7.71	1.24	0.007
4.	Vermilion height of the lower lip (st-li)	10.26	1.49	9.62	1.24	0.012
5.	Total vermilion height (ls-li)	18.47	3.21	17.05	2.54	0.006
6.	Total lips height (sn-sl)	35.38	3.74	33.97	3.91	0.019

**4. Discussion**

The distances and divisions in the lower third of the face are one of the most important in the evaluation of facial beauty, given the fact that the lips and the chin highly determinate women beauty [15]. On comparing data of the present study with other studies showed variations and similarities in the lips measurement. In the present study mean length of philtrum in man was 13.39 & in female it was 12.32 while in another study by Goel *et al.* [16] it was 12.53mm in male & 11.18 mm in female. In study by Khanderkar *et al.* [17], it was 16.2mm in male & 14.2 mm in female. It was 12.9mm in male & 11.1 mm in female. In astudy done by Ngeow & Alijunid [18], on Malaysian Indian. In an another study done by Farkas *et al.* [19], it was 16.7mm in male & 13.3 mm in female. Upadhyay *et al.* [20], done a study in which It was 14.94mm in male & 13.68 mm in female

In the present study vermilion hight of upper lip in man was 8.55mm & in female it was 7.71mm while in another study by Goel *et al.* [16]. It was 8.85mm in male & 8.06 mm in female. In study by Jagadish Chandra *et al.* [21], it was 8.31mm in male & 7.8 mm in female. It was 9.2 mm in male & 8.6 mm in female. In astudy done by Ngeow & Alijunid [19], on Malaysian Indian. In another study done by Farkas *et al.* [20], it was 7.4 mm in male & 7.7 mm in female.

Vermilion height of upper lip in our study was 10.26 mm in man & 9.62 mm in female while in another study by Goel *et al.*,it was 9.7mm in male & 9.15 mm in female. In a study by Jagadish Chandra *et al.* [21] it was 11.3mm in male & 12.14 mm in female. It was 9.2 mm in male & 8.6 mm in female. In astudy done by Ngeow & Alijunid, on Malaysian Indian. In an another study done by Farkas *et al.*, it was 12 mm in male & 10.9 mm in female.

Mean of Total vermilion height (ls-li) in our study was 18.47mm in male 17.5mm in female. While in a study by Chakravarthy *et al.* [22]. It was 19.9mm in male and 18.6mm in female. In another study by Goel *et al.*,[16]it was 19.5mm in male & 18.15 mm in female. Mean of Total lip height in our study was 35.4mm in male & 33.97 in female. In another study by chakravarthy *et al.* [22]. It was 43.45mm in male & 38.2 mm in female.

**5. Conclusion**

The results of the present study give data of human lip morphology of subjects of the mp region of India. The lip anthropometric measurements of men showed higher value when compared to women. On comparing. the lower lip height was higher when compared to upper lip height. The vermilion height of the lower lip was higher in compared to

vermilion height of the upper lip. These data will be helpful in cosmetics purpose, lip reconstructive surgery like labiaplasty, lip enhancement surgeries & orthodontic treatment.

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