



## MORPHOMETRIC ANALYSIS OF LOWER LIP IN NORMAL YOUNG ADULTS OF NORTH INDIA

### Anatomy

**Dr Nowsheeba Khurshid**

Senior Resident Dept. Of Anatomy SKIMS Medical College Bemina

**Dr. Nidhi Puri\***

Professor and HOD Dept. of Anatomy , MMIMSR \*Corresponding Author

**Dr Archana Goel**

Associate Professor, MMIMSR

### ABSTRACT

**Introduction:** The study comprises lower lip morphometry of 300 North Indian Adults (150 males and 150 females).

**Aims and Objectives :** To create a baseline data of various linear & vertical measurements of upper lip ,this standard serves as a guideline for sexual dimorphism, racial dimorphism as well as restoration or enhancement of esthetic and plastic surgeries of lips .

**Materials and Method :** Digital Vernial Calliper was used . Rt cheilion-Labiale inferior (chr-li), Lt cheilion-Labiale inferior (chl-li), Vertical height of cutaneous lower lip (sl-li), height of upper vermilion (li-sto). The measurements were statistically analysed using 't test' by SPSS.

**Results :** All the lower lip parameters showed sexual dimorphism and were higher in males. Height of cutaneous lower lip is less than the height of lower vermilion.

**Conclusion:** The analysis shows sexual dimorphism in most of the parameters of lower lips being greater in males .Racial dimorphism was seen.

### KEYWORDS

North Indian , lower Lip , Sexual Dimorphism

### INTRODUCTION

Lips are aesthetically focal points of beauty and functionally they help in speech and also exhibit various human emotions<sup>1,2</sup>. The lip anthropometry could be useful in forensic sciences for personal identification ,it is impossible to specify any distinct feature belongs exclusively to a particular race but if we carefully examine the physical, skeletal and dental structure , all of them collectively may support the racial identity of an individual.

Age related changes are seen in orolabial region, lip attain full peak at around 18 years of age , as the age progress thinning and ptosis of lips occur ,which lead to patients to opt for lip augmentation procedures . Racial differences are seen in different ethnic groups.

### MATERIAL AND METHOD:

The present study was conducted in MMIMSR, Mullana (Ambala) on 300 subjects [150 females and 150 males] aged 18 to 30 year from North India, on simple random basis with prior informed consent. Apparently healthy individuals without any Lip Abnormalities, Surgical Scars were included. The present study will be modelled upon the methods of Singh and Bhasin (1968).

### SOMATOMETERIC LANDMARK

**LABIALE INFERIOR (li)-** It is the point on the lower margin of lower lip in the mid sagittal plane.

**STOMION (sto)-** It is the point where the slit of mouth with close lips cut the mid sagittal plane.

**SUBLABIALE (sl)-** Mid point of horizontal labiomental skin ridge the division between lower lip and chin is evident. If the chin contour is flattened ,the sub labiale can be identified by inserting a spatula to the bottom of the vestibule and gently elevating the skin surface.

**CHEILION(ch)-** It is the point on the mouth opening where the lateral margins of upper and lower lips meet i.e. corners of lips.

### SOMATOMETERIC MEASUREMENTS

1. Mouth width (chr-chl) : It measures the straight distance between the cheilion i.e. corners of mouth .
2. Rt. Cheilion-Labialeinferius (chr-li): It measures the distance between Right cheilion to labialeinferius .
3. Lt. Cheilion-Labialeinferius (chl-li): It measures the distance between Left cheilion to labialeinferius .
4. Medial vertical height of cutaneous lower lip (li-sl): It measures the straight distance between Labiale inferior and sublabiale .
5. Height of lower vermilion (li-sto): It measures the straight distance between stomion and labiale inferior.

### RESULTS & OBSERVATIONS:

**Table 1:VARIOUS LOWER LIP PARAMETERS OF LIP MORPHOMETRY**

S.No	Parameters	Female(n=150) Mean (cm)±S.D	Male(n=150) Mean (cm)±S.D	p-Value
1	chr-li	2.55 ± 0.22	2.7 ± 0.24	<0.0001***
2	chl-li	2.58 ± 0.21	2.73 ± 0.22	<0.0001***
3	li-sto	0.9 ± 0.15	0.96 ± 0.15	0.0006***
4	li-sl	0.72 ± 0.71	0.79 ± 0.23	0.25 (insignificant)

Table 1 shows mean of 4 lower lip parameters of lip morphometry i.e Right cheilion- Labiale Inferior, Left cheilion- Labiale Inferior , Vertical height of lower vermilion lip ,Vertical height of cutaneous lower lip . All parameters are higher in males than females and the differences are statistically significant , except medial vertical height of lower lip in which the values higher in males but the difference is insignificant .

### Discussion:

**Table.2-COMPARISON OF LOWER LIP PARAMETERS OF MALES OF PRESENT STUDY WITH PREVIOUS STUDIES**

S. No	Parameters	Population	No. of subjects	Mean (cm)±S.D	p-Value
1	li-sl	Present Study	150	0.79±0.23	
		American	50	1.19±0.22	<0.0001***
		Chinese	51	1.11±0.26	<0.0001***
		North Indian	300	0.79±0.21	Insignificant
		Indian Americans	100	1.06±0.28	<0.0001***
2	li-sto	Present Study	150	0.96±0.15	
		American	50	0.88±0.2	0.003**
		Malay	50	1.2±0.16	<0.0001***
		Malaysian Indian	50	1.15±0.16	<0.0001***
		Chinese	51	1.09±0.15	<0.0001***
		North Indian	300	0.97±0.16	Insignificant
		Indian Americans	100	1.21±0.21	<0.0001***

**Table.3-COMPARISON OF LOWER LIP PARAMETERS OF FEMALES OF PRESENT STUDY WITH PREVIOUS STUDIES**

S. No	Parameter	Population	No. of subject	Mean (cm)±S.D	p-Value
1	li-sl	Present Study	150	0.72±0.71	
		American	39	0.99±0.24	0.02*
		Chinese	52	0.95±0.22	0.02*
		North Indian	300	0.73±0.17	Insignificant
		Indian Americans	100	0.85±0.26	Insignificant

2	li-sto	Present Study	150	0.9±0.15	
		American	39	0.9±0.15	Insignificant
		Malay	50	1.1±0.12	<0.0001***
		Malaysian Indian	50	1.09±0.1	<0.0001***
		Chinese	52	0.97±0.16	0.004**
		North Indian	300	0.91±0.13	Insignificant
		Indian Americans	100	1.1±0.22	<0.0001***

Significant sexual dimorphism was observed in height of cutaneous lower lip (Table 1), showing that males have larger cutaneous lower lip, this observation is comparable with previous studies done on Americans, Chinese, North Indians and Indian Americans<sup>3,4,5,6</sup>. The values were similar to the data obtained from previous studies done on North Indians and Indian Americans (Table 2,3) however in Indian American males this parameter was statistically higher which can be attributed to lesser number of cases in the study<sup>5,6</sup>. In both the sexes values were higher in case of Americans and Chinese studies which implies Caucasians and Mongols have thicker cutaneous lower lip compared to Indians which may be due to racial changes.

No sexual dimorphism was observed in mean vertical height of vermilion lower lip. Mean Lower lip vermilion height was similar to another study done on North Indians, however the values were higher in Americans, Malays, Malaysian Indians, Chinese and Indian Americans (Table 2,3), which suggests Austronasiens, Mongols and Caucasians have larger lower vermilion when compared to North Indians which may be attributed to racial and habitat difference which can be affected by different environment, eating habits, talking style and climate.<sup>3,4,5,6,7,8</sup>

#### CONCLUSION:

1. All the parameters are higher in males when compared to female
2. Female lips are thinner, slender and less voluminous.
3. North Indians have thinner lips in comparison to Chinese populations.
4. Height of cutaneous lower lip is less than the height of lower vermilion.

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