



## MEASUREMENT LENGTH OF CLAVICLE IN MALE AND FEMALE

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## ABSTRACT

**Introduction:** The clavicle is (collar Bone) typical long bone of upper limb which extends from the base of the neck to the shoulder, which lies horizontally. Anthropometry provides scientific method and technique for taking various measurements in both sexes and both sides.

**Aim:** The Purpose of the study was to measure the length in both sexes of both sides of dry fully ossified macerated bones.

**Materials and Methods:** The Present study was carried out on 100 dry fully ossified macerated clavicles (50 male & 50 female). The results obtained were statistically analyzed.

**Results:** In the present study, average length was found to be  $135.20 \pm 4.813$  and  $120.76 \pm 3.87$  on right side male and female respectively,  $149.44 \pm 4.243$  and  $130.40 \pm 2.993$  on left side male and female respectively.

**Conclusion:** Any increase or decrease in the both lengths of the both sexes of the both sides associated with various clinical conditions. The present study will be useful for various orthopedic procedures and diagnoses, in the fields of general human osteology and forensic anthropology.

**KEYWORDS :** Anthropology, Clavicle, Forensic, osteology

## INTRODUCTION

The clavicle is typical long bone with shaft and two ends. It is membranous with the two primary centers and first to ossify and fully ossified at the age of 28 years. Its medial and articulates with sternum to form sternoclavicular joint and lateral end of it will articulate with acromioclavicular joint. The acromioclavicular joint is the only connection of scapula to trunk, otherwise it attach only by muscles. Both clavicle and scapula are very important elements for movement of upper limb and thoracic cage. Morphometric measurement of clavicle help to determine the age, sex, stature and race of an individuals. Then measurement help in different specialties like anthropology, forensic medicine, archaeology, anatomy and orthopedic procedure.

The female clavicle is shorter, thinner, less curved, smoother and its acromial end is carried lower sternal end in female. In male acromial end is on a level or slightly higher than sternal end when arm is pendent. The clavicle is considered to be important bone clinically. The present study is undertaken with the view to study the sexual differences in adult human clavicle by morphometric parameters i.e lengths of clavicle in both sexes and both sides.

Morphometric study will help to the orthopedic implant manufactures and orthopedic surgeon to decide correct size and shape of implant for the treatment of clavicle fracture by open reduction procedures.

## MATERIALS AND METHODS

This was an observational descriptive type of study which was performed on 100 fully ossified adult human clavicle in both sexes in the department anatomy, Medical College.

Instrument used for taking measurement were graph paper, pen, pencil, eraser, goniometer, scale. Statistically analysis was done using service provisioning system software (Version 20.0)

## Parameters:

Lengths of both sexes of the both sides.

length of clavicle is measured in the horizontal axis of shaft by using goniometer, Vernier caliper etc.

## Lengths of clavicle :

Length of clavicle is measured by digital vernier caliper by holding the medial and lateral end by of clavicle. The maximum length of clavicle was measured in millimeters from sternal end to acromial end with the help of vernier caliper and graph paper.

## RESULT:

In the present study, average length of the Left side of male clavicle is higher ( $149.44 \pm 4.243$ ) than of female i.e.  $130 \pm 2.993$ . Average length of the Right side of male clavicle is higher ( $135.20 \pm 4.813$ ) than of female i.e.  $128 \pm 7.6$ .

Average medial angle of right clavicle of female > average medial angle of male.

Average length of left clavicle of male > average length right clavicle of female.

Average length of left clavicle is more in male and female than of right clavicle

## DISCUSSION:

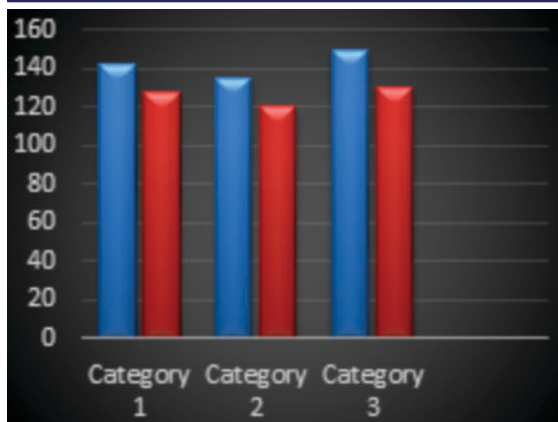
The mean value of maximum length of clavicles was found to be higher in males in comparison to females. In both right and left sided clavicles, the mean value of maximum length were observed higher in males in comparison. Statistically significant differences were observed ( $p=0.001$ )

It was seen that the length of clavicle was not same in different population and races. The average length of the clavicle in north Indian population was less when compared to other races. Genetic differences play a great role in the variations of the features of clavicle.

Other explanation offered for the patterns of bilateral asymmetry among clavicles is the role of mechanical forces

## CONCLUSION:

The knowledge of angles of clavicle is of extreme importance in determination of sex by morphometric parameters and in anthropological study. They also help in orthopedic surgeons for implant and in anatomy.



Graph 2 Comparison of maximum length of male and female clavicles.

Table 2 Comparison of maximum length in male and female clavicles.

Parameter ML	Male	Female	p-value
Total	142.41 ± 8.88	125.71 ± 6.34	0.001 *
Right	135.32 ± 4.76	120.84 ± 3.92	0.001 *
Left	149.51 ± 5.80	130.58 ± 4.17	0.001 *

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