

## **A preliminary osteometric study of proximal humeri in a Sri Lankan population**

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### **Introduction**

Humeral head diameter and the inclination angle are important during shoulder reconstruction and prosthetic replacement while differences in the placement of the greater tuberosity can have an impact on postoperative range of movement. Although there are studies, no published data available for a Sri Lankan population.

### **Objective**

To study the osteometric measurements of proximal humeri in a Sri Lankan population.

### **Methods**

Forty-eight(left28:right20) humeri, donated for teaching and research purposes to Department of Anatomy, University of Sri Jayawardenepura were analyzed. Measurements were taken by a digital vernier calliper in millimetres up to 2 decimal points by two independent individuals and mean value was taken.

### **Results**

The mean humeral head diameter(HHD) was  $42.24 \pm 3.7$ mm). Majority(60.4%[29/48]) of the HHD were between 41-46mm. The left HHD had twice the standard deviation( $42.14 \pm 4.32$ mm) than right( $42.39 \pm 2.87$ mm).

Distance between the most proximal points on the humeral head and greater tuberosity(AB) had a mean of  $4.93 \pm 1.62$ mm and a range of 7.15mm(1.90-9.05mm). Majority 52%(25/48) of the AB distance was 4-6mm. On right the AB distance was greater( $5.10 \pm 1.73$ mm) than left( $4.81 \pm 1.56$ mm).

Angle of inclination(AI) had a range from  $104.55^\circ$ - $149.05^\circ$  and a mean of  $131.5^\circ \pm 6.91^\circ$ . Right side( $131.5^\circ \pm 6.91^\circ$ ) inclination angle was greater than left( $130.21^\circ \pm 8.42^\circ$ ).

Majority(37.5%[18/48]) of the Humeral length(HL) were between 300-340mm which ranged from 273.0-344.0mm. The mean HL was  $307.90 \pm 16.50$ mm while right( $308.30 \pm 15.90$ mm) was greater than left( $307.50 \pm 17.2$ mm).The mean of HL/HHD was  $7.33 \pm 0.62$ . The right side( $7.28 \pm 0.41$ ) ratio was lower than the left( $7.36 \pm 0.74$ )

### **Conclusions**

The study helps in forensic and archeological fields to identify unknown bodies as well as for the surgeons for the reconstruction of proximal humerus fractures.