51. **CROSS SECTIONAL STUDY TO CORRELATE THE STATURE AND PERCUTANEOUS LENGTH OF ULNA BONE OF PEDIATRICS AGE GROUP IN NORTH KARNATAKA STATE OF INDIA**

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BACKGROUND: Estimating stature is important for clinical, anthropological, forensic as well as medico-legal standpoint. In clinical scenarios, its significances range from estimating the BMI (body mass index) to diagnosing certain physical growth disorders and assessment of nutritional status. Height is one of the key parameters in multiple vital decision-making setting, such as: body surface area, drug dosage calculations, glomerular filtration and prediction of pulmonary function. Moreover, lack of cooperation from patient in pediatric is much common which may delay the classical method of stature estimation. Above all, height measurement is restricted to ambulatory patients only. But measurement of ulna bone overcomes all these shortcomings. The long bone, ulna is mostly subcutaneous throughout its length and easily approachable for measurement makes it the most preferable to be selected for the study. **AIM**: To calculate age wise stature variations among pediatric groups, to estimate percutaneous length of ulna bone, to establish a relationship between stature and percutaneous length of ulna bone, and to formulate predictive equations for calculating stature with ulnar length, respectively for each of the genders. **METHODS**: The study was conducted at the pediatric ward of a medical college in North Karnataka from August 1,2022 to December 31, 2022. Sample size for proportion was calculated to be 96, taking 33% as P (Pilot study) and at 5% absolute precision at 95% confidence level. All steps and precautions were followed appropriately as per guidelines published by World Health Organization. Length of ulna bone was measured using a measuring tape (0-152cm/60 inches) with rounded ends, from the tip of the olecranon process to the tip of the styloid process of ulna keeping elbow joint flexed and palm spread over opposite shoulder. Measurements of length of both the right and left ulna were taken separately for calculation. Both the stature and the length of ulna were measured in centimeters. Means of age, length of ulna and body height/length were analyzed amongst both the genders for each age group. Data analysis would be done using Statistical Package for the Social Sciences; SPSS version 23; $p \leq 0.05$ would be considered statistically significant. **RESULTS**: In the study, relationship between stature and percutaneous length of ulna bone were analyzed and predictive equations for calculating stature with ulnar length, respectively for each of the genders were formulated as: For males, length or height = 6.545455 × (mean ulnar length of both the arms) ±0.3cm. For females, length or height = 6.540540 × (mean ulnar length of both the arms) ±0.3cm. **CONCLUSION**: The study suggests that there is a linear correlation between stature and ulna bone length in pediatric age groups. The derived equation can be used to estimate the stature of pediatric age group, specific to the gender. Similarly, length of ulna bone may be estimated if the stature is known. It will contribute greatly towards anthropometry and its widespread applications in clinics and forensics.

Table. Comparison Between Actual Length/Height and Estimated Length/Height.

	Male				Female			
Age in years	Mean ulnar length (cm)	Estimated mean length/ height in cm (x1)	Actual mean length/ height in cm (y1)	Difference in cm (x1-y1)	Mean ulnar length (cm)	Estimated mean length/ height in cm (x2)	Actual mean length/ height in cm (y2)	Difference in cm (x2-y2)
1	11.6	75.9	76	-0.1	11.5	75.2	75	+0.2
2	13.3	87.1	87	+0.1	13.3	87.0	87	0
3	14.6	95.6	96	-0.4	14.5	94.8	95	-0.2
4	15.7	102.8	103	-0.2	15.4	100.7	101	-0.3
5	16.6	108.7	109	-0.3	16.4	107.3	107	+0.3
6	17.6	115.2	115	+0.2	17.4	113.8	114	-0.2
7	18.5	121.1	121	+0.1	18.3	119.7	120	-0.3
8	19.4	127.0	127	0	19.1	124.9	125	-0.1
9	20.2	132.2	132	+0.2	20.2	132.1	132	+0.1
10	21.1	138.1	138	+0.1	21.0	137.3	137	+0.3
11	21.8	142.7	143	-0.3	21.9	143.2	143	+0.2
12	22.8	149.2	149	+0.2	22.5	147.2	147	+0.2

Key words: Pediatrics; Anthropometry; Ulna Bone (Source: MeSH-NLM).