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Short Report

Sexual Dimorphism In The Carrying Angles Of Nigerian Igbos.

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The carrying angle is the obtuse angle obtained by subtracting the angle of deviation of the forearm at the elbow joint by 180°[1]. This angle is believed to be maintained by the obliquity of the ulna trochlea, which deviates laterally. This positum is maintained in supine anatomical fully extended elbow. Local and general factors favour the stability of the carrying angle. Lowrence[2] recorded the general factors to include diet, weight and height of the individual as well as weather. Among the local factors are strength of the muscles and the tendons and ligaments acting as struts to the bones[3].

This report examines the sex and race related changes in the carrying angles of a Nigerian population.

Carrying angles were measured in 1000 subjects (510 males & 490 females) using rulers, protractors, gonometer, cardboard sheets, tables and chairs. Clinical examinations of subjects were done to eliminate individuals with pathological conditions that may affect results. The subjects seated upright with their elbows placed flat on the table in fully extended anatomical position. The carrying angle was obtained by tracing a straight-line medial to the arm down towards the foreman. The acute angle made by the medial straight line of the forearm is subtracted from 180° to get the carrying angle of subjects.

The variations in the carrying angles according to sex (Table 1) and race (Table 2) are presented

TABLE 1: The Carrying Angles In Male And Female Nigerian Igbos

	Males			Females		
SIDE	*MEAN*	*S.D.*	*C.V.*	*MEAN*	*S.D,*	*C.V.*
Right	161.90°	4.41	2.74	159.50°	5.70	3.58
Left	159.87°	5.84	3.65	158.40°	6.09	3.85

TABLE 2: Data Of Carrying Angle In Different Races

SEX	NIG. NEGRO IGBOS.	CAUCASIANS
(A) MALES.	160.48°	165°
(B) FEMALES.	158.95°	155°

The carrying angle quoted in many literature of anatomy has the mean 165° in males and 155° in females. This represents the values for Caucasians. These values remain recognised world-wide[4]. This study revealed that the carrying angles were greater in the right side for the both sexes for the right handed individuals. In another perspective, the carrying angles are greater in males than the females. About 3% of the individuals were left handed and amongst them 75-% had greater carrying angles on the left side. 95% of the individuals

examined in this research were right handed. It was also observed that the carrying angle of the Caucasian males was greater than that of the Nigerian Igbo while that of the female Nigerian Igbo was greater than that of the Caucasian female.

The comparison of right and left sides in males and females indicate a significant difference (PLO.01).

It is suggested that the high activity level of male Nigerian Igbo and the possession of a more evolutionary articulated upper limb may be the cause of the difference.[5]

It is generally observed that the carrying angle of the individual gives an insight on the activity of the individual. There is also racial connotation of the carrying angle and right-left relationship, which helps in understanding human anatomy and functioning of the limbs. This also depicts technological advancement. The orthopedic surgeon as well as Traumatologist while correcting deformities and fractures of the elbow should limit the carrying angle to the normal range of 160-162° in Nigerian males and 158° and 159° in Nigerian females.

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