

Variations in Carrying Angle between Two Sexes on Complete Extension

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Abstract:

The carrying angle is acute angle between median axis of the upper arm with fully extended and supinated forearm. A cross-sectional study was carried out with 100 males and 100 females and variations in carrying angle between males and females were calculated using Goniometer. Females had more carrying angle than males.

Key Words:

Carrying angle, Goniometer, Extension, Variation

INTRODUCTION:

The carrying angle is acute angle between median axis of the upper arm with fully extended and supinated forearm. This angle can also be used to calculate lateral obliquity of arms¹. It is said that females have more carrying angle than males because of variations in secondary sexual characters in females^{2 3 4 5 6}. In some cases it was also seen that females and males did not have variations in carrying angle on full extension^{7 8 9}. This study provides a sex specific data on variations in carrying angle on full extension.

MATERIALS AND METHODS:

This is a cross-sectional study. Carrying angle was measured in both arms of 100 males and 100 females aged between 18 to 24 years using goniometer¹. Age of individuals was recorded. Their height and weight was also recorded. This sample size excludes people with fracture in their arm.

Data was manually collected, computerized and then analyzed statistically.

RESULTS:

When carrying angle was measured out of 200 subjects 18.62% did not have variations in carrying angles of their right and left arm. In 81.18% of subjects variations were seen in carrying angles of left and right arm.

When carrying angles were seen for males and females separately, 13.33% of males did not have variations in their carrying angles in left and right arm and 18.39% of females did not have variations in carrying angles of left and right arm.

On average,

In males, carrying angle of right arm was 19.4° and carrying angle of left arm was 12.8° were as in females, carrying arm of right arm was 21.2° and carrying angle of left arm was 18.4°.

Females had greater carrying angle than males. This can be justified by stating that females have boarder pelvis than male, which is one of their secondary sexual character. Pelvic region is broader in females because they have to give birth to child.

DISCUSSION:

We have studied variations in carrying angle between males and females. Females had greater carrying angle than males. Due to secondary sexual characters, that is broader pelvis arms are more laterally angulated and they have greater carrying angle^{2 3 4 5 6}.

CONCLUSION:

When carrying angles of both left and right arms were measured in both males and females and were compared, we found out that females have greater carrying angles than males.

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