



## Rotational landmarks of the distal femur in Indian population: A MRI-based study

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### ABSTRACT BACKGROUND

Femoral rotational landmarks may vary according to the population. Our aim is to find out the relationship of the landmarks used in total knee arthroplasty in an Indian population and compare it with reported landmarks in other ethnic populations.

### MATERIALS AND METHODS

We retrospectively reviewed MR images of 124 knees in 124 patients to determine the relationship of bony landmarks by measuring the condylar twist angle (CTA), Whiteside-posterior condylar angle (W-PC), and Whiteside-epicondylar angle (W-EP). The difference between the genders and the sides was analyzed.

### RESULTS

The mean CTA, W-EP and W-PC were 5.92°, 88.99° and 94.09° respectively. The mean CTA, W-EP and W-PC in males were 5.77°, 89.16° and 94.22° and they were 6.24°, 88.61° and 93.82° in females. On the left side, the CTA, W-EP and W-PC were 5.90°, 89.37° and 94.45° while they were 5.93°, 88.65° and 93.73° on the right side. There was no statistically significant difference between the genders or the sides.

### CONCLUSION

The CTA was around 6° in our study, and the posterior condylar angle (PCA) would be 3° as the difference between them is 3°. Hence, we conclude that the conventional jigs used in the measured resection technique using 3° external rotation in reference to the posterior condyles are still an appropriate option in normal and varus knees. And there is no difference between Indians and Caucasians, but there was a significant difference with Chinese populations. Although determining rotation based on the posterior condylar axis is more practical, it is prudent to combine it with other methods.

### KEYWORDS

Rotational landmarks, Condylar twist angle, Posterior condylar angle, Knee, Indian, Arthroplasty