



Title

ANTHROPOMETRIC MEASUREMENTS OF THE HUMAN KNEE: CORRELATION TO THE SIZING OF CURRENT KNEE ARTHROPLASTY SYSTEMS

Authors

Hitt K, Shurman II J, Greene K, McCarthy J, Moskal J, Hoeman T, Mont MA

Publication

Journal of Bone & Joint Surgery. 2003;85:115-122

Purpose/Premise

This study was conducted to assess anatomic data from TKA patients and to correlate the dimensions of the patients' bones with the dimensions of current knee replacement systems.

Material and Methods

Morphological measurements were taken during TKA on 337 knees from eight centers. The data was collected and translated into M/L-to-A/P aspect ratios for the femur. The data was then compared to the femoral and tibial geometries of six prosthetic knee systems.

Outcomes

The analysis of the six implant systems showed a wide variation in the femoral component aspect ratio. The morphological data for the femur showed higher aspect ratios for smaller knees and proportionally lower ratios for larger knees. An analysis of the femoral implant designs showed little change in the aspect ratio. In female patients, there was a significant correlation between the femoral implant size and the mediolateral overhang. The larger sizes resulted in greater overhang.

Conclusion/Recommendation

The authors concluded that implant manufacturers could use this anthropometric data to develop component geometries with more appropriate aspect ratios for use in total knee arthroplasty.

More information about this article may be requested from your local Zimmer representative or by logging onto science.zimmer.com.