



## AB074. SOH23ABS\_232. Precision in knee osteotomies: comparative study assessing accuracy of measurements between conventional radiograph and navigation measurements

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**Background:** Deformities of the knee joint in the coronal plane (i.e., valgus-type, varus-type) predispose the joint to uneven kinematic forces leading to uneven wear and tear to one compartment over the other, precipitating an early onset of degenerative arthritis with associated altered walking gait and in severe case, marked negative effect on quality of life. Knee osteotomies are the procedure of choice to correct the altered kinematics, with the aim to correct as close to normal range as physiologically possible. Conventional measurements require full length standing X-ray imaging from the pelvis to both feet to assess mechanical axis and plan for degree of correction. However, over- or under-estimation of measurements can occur and lead to unsatisfactory correction. Navigation (computer-assisted) systems take *in-vivo* measurements of the affected limb and aim to provide more accurate measurements of limb kinematic.

**Methods:** Our study describes comparison of 17 cases measurements of hip-knee angles and mechanical axes measurements between conventional radiograph imaging and navigation system in the pre- and post-operative setting to assess degree of accuracy and degree of correction closely aligned to the standard axis as physiologically possible. Statisticians were recruited for statistical analysis of the data obtained.

**Results:** Data shows more accurate measurements in both hip-knee angles and mechanical axes measurements with the navigation system compared with the conventional radiographs on pre-operative assessment and more closely aligned results on post-operative measurements.

**Conclusions:** These findings suggest improved accuracy of measurements with the navigation system. However due to the sample size of the study, larger patient pool will be required to ascertain strength of the intervention in the study and eliminate as much bias as possible.

**Keywords:** Computer-assisted; joint-line; knee; navigation; osteotomy

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### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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