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Konishi T, Hamai S, Tsushima H, et al. Pre- and postoperative Coronal Plane Alignment of the Knee classification and its impact on clinical outcomes in total knee arthroplasty. *Bone Joint J*. 2024;106-B(10):1059-1066.

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Authors' reply:

Dear Editor,

We thank Messrs Roopnarinesingh and Harty for their thoughtful comments and insights on our paper.[1] We appreciate the opportunity to clarify our research and to address several aspects related to alignment and its impact on patient-reported outcome measures (PROMs), particularly as our findings indicate that changes in coronal plane alignment from pre- to post-operation are associated with a drop in PROMs.

Regarding surgical technique, all total knee arthroplasties (TKAs) were carried out by senior knee surgeons using a standardized medial parapatellar approach and applying a modified measured resection technique. Femoral and tibial components were aligned perpendicular to their mechanical axes in the coronal plane, with the tibial component set at 3° posterior tilt in the sagittal plane. The femoral component was further aligned parallel to the surgical transepicondylar axis, while the tibial component was aligned with the tibial anteroposterior axis. Soft-tissue balancing aimed to achieve near-normal medial stability, and allowed slight lateral laxity in both knee extension and flexion using a medial stabilizing technique.[2]

Research by Pangaud et al supports the concept that maintaining a consistent CPAK phenotype pre- and postoperatively results in improved clinical outcomes,[3] concurring with our observations. However, even in their study, there were no objective data available on soft-tissue balance, which is likely to become an important topic in future research.

Studies of Asian patient cohorts have shown that maintaining the native alignment of the knee leads to better postoperative PROMs than cases in which the alignment is in neutral postoperatively.[4,5] As such, maintaining preoperative alignment may be useful for improving PROMs even in Asians, where constitutional varus (mainly CPAK Type I) is common.

Gurusamy et al have previously shown that a change in alignment from varus to valgus can negatively impact PROMs.[6] The likely reasons cited include the potential need for medial collateral ligament (MCL) release, or the discomfort associated with altered MCL tension when alignment is changed from varus preoperatively to neutral or valgus postoperatively: this could potentially affect gait and functional outcomes. While we used a medial stabilizing technique, which we believe minimizes impact on the MCL during surgery, correction of the constitutional alignment to a neutral alignment may alter ligament balance. As such, future investigations into the influence of intra- and postoperative soft-tissue conditions, as well as changes in soft-tissue balance, on PROMs are essential.

We hope that our further description of our surgical technique will provide useful context for our findings. We appreciate Roopnarinesingh and Harty's valuable insights into our study, as research that simultaneously investigates the effects of both alignment changes and soft-tissue balance on PROMs is limited. We agree that future studies focusing on these combined factors would be highly beneficial.

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1. **Konishi T, Hamai S, Tsushima H, et al.** Pre- and postoperative Coronal Plane Alignment of the Knee classification and its impact on clinical outcomes in total knee arthroplasty. *Bone Joint J*. 2024;106-B(10):1059-1066.
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