

Dataset supporting the publication:

Johnston H, Abdelgaied A, Pandit H, Fisher J, Jennings LM. Representing the effect of variation in soft tissue constraints in experimental simulation of total knee replacements. DOI <https://doi.org/10.5518/391>

Figure 1: Geometry of three tibial insert designs tested; curved (CVD), lipped (PLI) and flat

Figure 2: Input anterior-posterior force and tibial rotation torque profiles

Figure 3: Anterior-posterior displacement and internal-external rotation input profiles

Figure 4: Effect of insert design on the output AP displacement

Figure 5: Effect of insert design on the output TR displacement

Figure 6: Effect of AP spring gap on peak AP displacement

Figure 7: Effect on TR spring gap on peak TR displacement

Figure 8: Effect of AP spring tension on AP displacement

Figure 9: Effect of TR spring tension on peak TR displacement

Figure 10: Output AP kinematics during wear testing with the CR, CS and hard springs

Figure 11: Output TR kinematics during wear testing with the CR, CS and hard springs

Figure 12: Wear rate for the CVD insert with the CR, CS and hard springs

Figure 13: Effect of tibial fixture weight on the output AP displacement

Figure 14: Effect of tibial fixture weight on the output TR displacement

Figure 15: Effect of springs based on clinical data on the AP displacement

Figure 16: Effect of springs based on clinical data on the TR displacement

Figure 17: Output AP displacement using same soft tissue conditions as Haider et al (2006) [14]

Figure 18: Output TR displacement using same soft tissue conditions as Haider et al (2006) [14]

InsertDesignOutputDisplacements.xlsx Average and 95% CI (n=6) AP and TR output displacements with the CVD, PLI and flat inserts

SpringGapDisplacements.xlsx Peak AP and TR displacements on each station with different AP and TR spring gaps for the CVD and PLI inserts

SpringTensionDisplacements.xlsx AP displacement at points C and D and peak TR displacement on each station with different AP and TR spring tensions for the CVD and PLI inserts

WearTestDisplacements.xlsx Average and 95% CI (n=6) AP and TR output displacements for the CR, CS and hard springs on the CVD inserts

WearData.xlsx Average wear rates for each tibial insert for the CR, CS and hard spring wear tests over 2MC

FixtureWeightOutputDisplacements.xlsx Average and 95% CI (n=6) AP and TR output displacements using the heavier steel tibial fixture and lighter PEEK fixture

ClinicalSpringsDisplacement.xlsx Average and 95% CI (n=6) AP and TR output displacements using the CR, CS springs and corresponding springs based on clinical data

ComparisonWithHaider.xlsx Average and 95% CI (n=6) AP and TR output displacements using the same spring conditions as Haider et al (2006) [14]