**Additional file 1**

**Table S1.** Material constants for the ligaments

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | C10 (MPa) | C3 (MPa) | C4 (-) | C5 (MPa) | D1 (MPa-1) | λ\* (-) |
| ACL | 1.95 | 0.0139 | 116.22 | 535.039 | 0.00683 | 1.046 |
| PCL | 3.25 | 0.1196 | 87.178 | 431.063 | 0.0041 | 1.035 |
| LCL | 1.44 | 0.57 | 48.0 | 467.1 | 0.00126 | 1.063 |
| MCL | 1.44 | 0.57 | 48.0 | 467.1 | 0.00126 | 1.063 |
| PT | 3.25 | 0.1196 | 87.178 | 431.063 | 0.0041 | 1.035 |

ACL: Anterior cruciate ligament; PCL: Posterior cruciate ligament; LCL: Lateral collateral ligament; MCL: Medial collateral ligament; PT: Patellar tendon

**Table S2.** Number of nodes and elements of the intact knee model

|  |  |  |
| --- | --- | --- |
|  | Nodes | Elements |
| Meniscus | 9597 | 40411 |
| ACL | 1286 | 5535 |
| PCL | 2005 | 8948 |
| LCL | 2474 | 10279 |
| MCL | 2110 | 7522 |
| PT | 4893 | 16484 |
| FC | 20305 | 82929 |
| TC | 11710 | 46517 |
| PC | 7055 | 28116 |
| Femur | 14122 | 70430 |
| Tibia | 12379 | 58940 |
| Patella | 1483 | 7034 |

ACL: Anterior cruciate ligament; PCL: Posterior cruciate ligament; LCL: Lateral collateral ligament; MCL: Medial collateral ligament; PT: Patellar tendon; FC: Femoral cartilage; TC: Tibial cartilage; PC: Patellar cartilage