

1 performed using range of motion, Western Ontario and McMaster Arthritis index
2 (WOMAC) scores and Knee Society (KS) score.

3 **Results**

4 At a final follow up, the mean of valgus laxities were 3.9° in the navigation group
5 and 4.0° in the conventional group, and the corresponding mean of varus laxities
6 were 4.0° and 4.3° (p=0.19, p=0.22). Although there was no significant difference in
7 the total laxity (7.8° in the navigation group and 8.1° in the conventional group,
8 p=0.35). However, more than 10° of total laxity was significantly reduced in the
9 navigation group (1 knee in the navigation group and 6 knees in the conventional
10 group). The mean of mechanical axis was not statistically different between two
11 groups. In the inclination of the femoral and tibial components, posterior femoral
12 offset difference, radiolucent line, there were no statistical differences between two
13 groups. But, the outlier numbers at mechanical axis, the mean of coronal inclination
14 of the femoral and tibial component and the mean of sagittal inclination of the
15 femoral component in the two groups was significantly different. At the last follow
16 up, the differences in ROM, WOMAC score and KS scores were not observed
17 between the two groups. But, stiffness of WOMAC score were significantly better in
18 the navigation than in the conventional group (p<0.001).

19 In conclusion, the navigation system can provide good stability, improved alignment
20 accuracy of the lower extremity and better result in stiffness of knee compared with
21 conventional technique.

22 **Key Words:** Navigation, Conventional, Laxity, Clinical outcome, Total knee
23 arthroplasty