

# Fixed flexion view detects narrowing of the joint space width better than the standing extended view in patients with moderate osteoarthritis of the knee – Retrospective study of 545 knees

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**Background:** Earlier studies have produced conflicting findings concerning whether osteoarthritis of the knee (OA) is seen better in flexion position radiographs (MTP) than in the standing extended view (SEV). The purpose of this study was to assess the value of flexion views in evaluating osteoarthritis of the knee (OA).

**Material and methods:** We retrospectively evaluated 545 (1090 x-rays) consecutive knees with non-traumatic knee pain. Both flexion and standing extended views had been taken bilaterally in every case. OA was classified according to the Kellgren-Lawrence (KL) radiographic grading scale and joint space widths were measured.

**Results:** Medial joint space width was on average lower in the flexion view in all groups of knees, with the greatest difference in medial joint space width between the two radiographs found in the KL II knees (1.00 mm, SD 1.13). The most common change in the KL classification was seen in the KL II group of knees. Medial full thickness loss of cartilage was also seen more often in the MTP view of the knees with moderate OA (5.6% vs. 18.6%).

Variability of medial joint space width was also seen in the case of knees with no radiological OA, where the medial joint space width was 0.56 mm lower in the MTP view than in SEV on average. On the lateral side results were different.

In non-arthritic knees lateral joint space width was actually 0.10 higher in the MTP view than in SEV while there was no difference between the two radiographs (0.00 mm, SD 0.95) in the cases with mild arthritis (KL I).

**Conclusion:** On average, joint space width was less in the MTP view than in the SEV in all OA severity groups. According KL-classification the majority of knees were classified in the same way in both radiographs. In cases of change, OA was usually classified as more severe on the basis of the MTP view.

In earlier studies, the MTP view has been found to be reproducible and easy to use in clinical practice and using MTP view there is no need for measuring the precise knee flexion angle or use of fluoroscopy. In conclusion, we recommend routinely using the MTP view if planning surgery to patient with OA in order to get a better picture of the thickness of the cartilage and the severity of arthritis in the knee. This is especially beneficial for patients for whom it is difficult to choose whether the best surgical treatment option is osteotomy, unicompartmental arthroplasty, or total knee arthroplasty. In the evaluation of medial joint space narrowing in young patients and non-arthritic knees should be aware of natural variability of medial joint space width, especially if there are no other signs of arthritis (osteophytes or subchondral sclerosis).