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Columns: Review

Radiographic assessment of leg alignment and grading of knee osteoarthritis: A critical review

Lisa Sheehy, T Derek V Cooke

Abstract

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Knee osteoarthritis (OA) is a progressive joint disease<sup>33</sup> hallmarked by cartilage and bone breakdown and associated with changes to all of the tissues in the joint, ultimately causing pain, stiffness, deformity and disability in many people. Radiographs are commonly used<sup>45</sup> for the clinical assessment of knee OA incidence and progression, and to assess for risk factors.<sup>27</sup> One risk factor for the incidence and progression of knee OA is malalignment of the lower extremities (LE). The hip-knee-ankle (HKA) angle,<sup>32</sup> assessed from a full-length LE radiograph, is ideally used to assess LE alignment. Careful attention to LE positioning is necessary to obtain the most accurate measurement of the HKA angle. Since full-length LE radiographs are not always available, the femoral shaft – tibial shaft (FS-TS) angle may be calculated from a knee radiograph instead. However, the FS-TS angle is more variable than the HKA angle and it should be used with caution. Knee radiographs are used to assess the severity of knee OA and its progression.<sup>12</sup> There are three types of ordinal grading scales for knee

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