Can We Tell if the Peritalar Joints are Spared? A Critical Analysis of the Kellgren & Lawrence Grading System.

Foot & Ankle Category: Ankle

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Introduction
One of the main advantages of total ankle replacement (or TAR) over ankle fusion (or AF) that has been often reported in the literature is the ability of the TAR to decrease the development of peritalar arthritis in the long term. Until now the Kellgren & Lawrence grading system has been the most often quoted method of reporting the onset or progression of arthritis in the peritalar joints following either TAR or AF. This system has never been, in a rigorous way, validated for use of the subtalar (or STJ) and talonavicular (or TNJ) joints.

Methods
100 weight bearing lateral plain-film radiographs of the foot (or x-rays) with varying degrees of STJ and TNJ arthritis were chosen. Two fellowship-trained foot and ankle surgeons, as well as a fellowship trained musculo-skeletal radiologist reviewed the same 100 x-rays. As some x-rays were of debatable quality, only those with agreed quality (by committee) were used for the final analysis. 91 STJ x-rays and 98 TNJ x-rays were included. A second viewing was undergone one week later. The weighted kappa system of analysis was used to investigate the consistency of the inter- and intra-observer trials.

Results
All observers qualitatively rated their comfort and ease-of-use of this classification system as “low.” For the STJ analysis, a kappa statistic of 0.34 (0.21 – 0.48; p < 0.0001) was observed. Similarly, for the TNJ a kappa of 0.41 (0.29 – 0.54; p < 0.0001) was obtained. Both fall well below the 0.6 – 0.8 demanded for “good” and “very good” agreement. Intra-observer trials had similarly low correlability.

Conclusion
The inter-and intra-observer agreement for the use Kellgren and Lawrence scale to determine the degree of arthritis in the STJ and TNJ was low. In this study, the Kellgren & Lawrence grading system, based on a lateral weight bearing projection, is not adequate for use in rigorous research to determine the degree of osteoarthritis in the STJ and TNJ.