

Correlation Analysis Between Clinical Hypermobility Measurement and Radiographic Parameters of the Hallux Valgus Deformity, Kaur et. al. The Journal of Foot & Ankle Surgery, Volume 000, 1–4, 2023

Level of Evidence: 3

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A long-held connection has been established between two deformities of the foot: the hypermobility of the first ray, and hallux valgus. This presumption began as early as 1935 by the famous Dr. Morton and persists today. The objective of the study is to consider through correlation analysis, first ray hypermobility and hallux valgus. The study includes 86 feet from 55 subjects for analysis. 60% of subjects were female with an average age of 46. The authors excluded patients with history of foot/ankle surgery or acute forefoot trauma. The first ray mobility was measured utilizing a “Klaue device” (outlined and validated by Jones et. al. (2005), which measures to a precision of 0.01 mm), with all measurements performed by one study investigator and supervised by the senior author. Radiograph measurements were recorded from weightbearing AP views, with tube head angulated 15 degrees from vertical and aimed at second metatarsocuneiform joint. IMA defined as the angular relationship between longitudinal bisectors of first and second metatarsal shafts. All radiographic measurements were performed 5 times and averaged.

Statistical investigation revealed no statistically significant correlation observed between total sagittal plane first ray motion with first intermetatarsal angle. Additionally, there was no statistical correlation with sagittal plane first ray motion and the following: hallux valgus angle, sesamoid position, medial column position, medial column obliquity, and metatarsal declination angle.

Authors of the study conclude that sagittal plane first ray motion should be evaluated due to continuous variables, but according to the data distribution and correlation statistics, the authors reject the long-held connection between the hypermobility of the first ray and hallux valgus. This surprising data questions the role of first ray hypermobility in clinical evaluation, treatment and prognosis in hallux valgus deformity.

Although sample sizes were adequate for correlation statistics, authors do admit to some degree of selection bias, having recruited individuals from a podiatric office and not the general population. This study does however add to the body of knowledge on the subject and guides practitioners on evaluating these deformities.



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