DOI: https://doi.org/10.30795/scijfootankle.2019.v13.1011

Scientific Journal of the Foot & Ankle

Abstract Number: 18070

Interobserver agreement of assessment methods for static footprint analysis in runners

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ABSTRACT

Introduction: Running as a physical activity has gained considerable prominence in recent years. The diagnosis of footprint type has also been increasing in popularity, and several methods can be used for this purpose. However, we still lack effective mechanisms for accurate assessment. This study assesses the interobserver accuracy of diagnostic methods of footprint type in runners using 3 assessment methods: physical examination, podoscopy and baropodometry, in comparison with radiographic measurement of Meary's and calcaneal pitch angles.

Methods: A cross-sectional study of runners. In total, 40 patients were selected, namely, 29 men and 11 women, whose mean age was 39 years. Physical examination, podoscopy and baropodometry were performed and assessed by 4 raters; the results were compared with the radiographic classification of the footprint type identified by measuring Meary's angle and the calcaneal pitch angle.

Results: The interrater agreement regarding these parameters was assessed using the weighted Cohen's kappa coefficient, which showed significant agreement regarding the physical examination, podoscopy and baropodometry. The kappa coefficient indicated that agreement was marginal when the results of the 3 methods were compared with the classification of radiographic angles.

Conclusion: We obtained excellent agreement among observers when the physical examination, podoscopy and baropodometry were used for the diagnosis of the footprint type of runners. However, when the results of the physical examination, podoscopy and baropodometry were compared with radiographic measurements, agreement regarding the diagnosis of footprint type was low.

Keywords: Athletes; Observer-dependent variations; Diagnostic studies; Gait.