

Letter to the Editor

Commentary on: “A comparison of foot pain and dynamic stability among flat and heeled footwear users in undergraduate female medical students”

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We read with great interest the article “Comparing foot pain and dynamic stability among flat and heeled footwear users in undergraduate female medical students.” This study addresses an often-overlooked health issue: the long-term musculoskeletal consequences of habitual footwear choices among young professionals. The topic is clinically relevant, particularly in populations where prolonged use of heeled footwear is common. The authors should be commended for addressing an understudied population and for employing validated outcome measures such as the visual analog scale and the Four Square Step Test (FSST)⁽¹⁾.

The study demonstrates several methodological strengths, including a clearly defined objective, an adequate sample size, appropriate differentiation of heel-height categories, and the use of suitable statistical tests after assessing data normality. Reporting test-retest reliability for the FSST and acknowledging study limitations further enhance the study’s transparency.

However, certain methodological and interpretative aspects need discussion. First, the use of a convenience sampling technique from a single academic institution limits external validity. While this is acknowledged by the authors, the conclusions appear to extend beyond what the sampling frame reasonably supports. The findings may not be generalizable to non-medical students, working women, or older populations, in whom footwear habits, physical activity levels, and musculoskeletal loading differ substantially.

Second, while the use of ANOVA and Kruskal-Wallis tests is appropriate, the analysis relies predominantly on p-values. Reporting effect sizes and confidence intervals would have provided a clearer understanding of the clinical relevance of the observed differences, particularly given the statistically significant findings across heel-height categories⁽²⁾.

Additionally, the absence of multivariable analyses limits the ability to examine variables such as body mass index, duration and frequency of heel use, habitual physical activity, and previous minor foot symptoms that did not meet the exclusion criteria.

Third, the categorization of heel height also deserves consideration. Grouping a wide range of heel heights into broad categories may introduce misclassification bias and obscure dose-response relationships. Future studies might benefit from narrower heel-height intervals or from analyzing heel height as a continuous variable.

In conclusion, present a timely and clinically meaningful study. Addressing the above points in future research through longitudinal designs, probabilistic sampling, and multivariable statistical approaches would further strengthen the evidence base and enhance the applicability of the findings.

We congratulate the authors on their contribution and appreciate the opportunity to engage in this scholarly discussion.

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Note: The Editor-in-Chief wishes to inform readers that the authors of the original article were duly notified of the submission of this commentary concerning their work. In keeping with the Journal of the Foot & Ankle’s commitment to editorial fairness and the principles of scientific dialogue, the authors were invited to submit a written response, which would have been published concurrently with this commentary. No response was received within the time period established by the Journal.



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References

1. Tahir A, Aziz R, Raza A, Perveen W. A comparison of foot pain and dynamic stability among heeled and flat foot wear users in undergraduate female medical students. J Foot Ankle. 2025;19(2):e1918.
2. Mika A, Olesky L, Mika P, Marchewka A, Clark BC. The influence of high-heeled shoes on the lower extremity posture and muscle activation. J Electromyogr Kinesiol 2026; 22(1):149-55.