

Commentary

Innovative running-related researches

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There was a surge in published research related to barefoot running in the past 2 decades, and especially in the past 5 years. For example, the number of returns for “barefoot running” in Google Scholar increased dramatically relative to the search returns for “running” (Fig. 1). “Running” related returns started at about 220,000 in 1997 and peaked at about 376,000 in 2007 (a 0.7 times increase) and gradually decreased to less than 70,000 in 2016. In contrast, “barefoot running” related returns started at 945 in 1997 and peaked at 5010 in 2012 (a 4.3 times increase). Between 2007 and 2012, the number of returns for “running” decreased, but the number of returns for “barefoot running” increased. Although these numbers may not be the exact numbers of peer reviewed publications related to the searched terms, they reflect the general trend in these research areas.

With the increase of publications on “barefoot running”, the depth of the research also increased. The 2 review papers by Davis et al.¹ and Hamill and Gruber² published in this issue summarize the recent trends in running-related research, and demonstrate the use of innovative ideas and methods.

The 2 reviews differ on the question of whether we should support changes in running footfall patterns. Davis and colleagues¹ favor the idea that changing from rearfoot landing (typical for running with cushioned shoes) to forefoot landing (typical for barefoot running) is a good thing, while Hamill and Gruber² are more skeptical about such an abrupt change in footfall patterns, and suggest that some crucial questions need to be answered first before agreeing a final decision can be made.

While most people studying footfall patterns in running focus on the mechanical properties of the shoes and the ground reach forces, Davis and co-workers¹ focused on recent literature describing the tissue mechanics of the foot during running. The performance and mechanical properties of the heel pad, the plantar fascia, and the Achilles tendon were considered important in deciding what footfall pattern might be best for runners

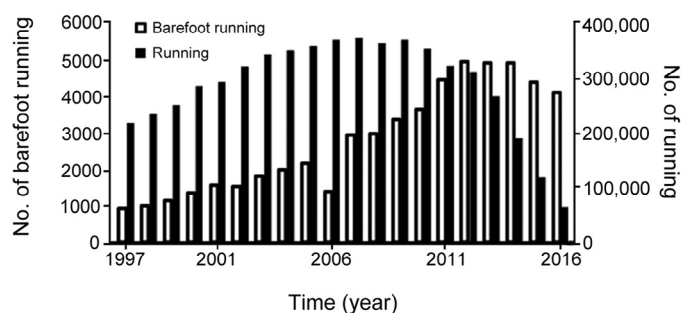


Fig. 1. Number of returns for the years 1997–2016 when searching for “barefoot running” and “running” on Google Scholar (search performed on February 5, 2017).

trying to avoid injuries. In contrast to Davis and colleagues, Hamill and Gruber² focused on the biomechanics and physiology of footfall patterns as they relate to the economy of running, and they pointed out the conflicting findings when studying impact peaks in time and frequency domains using wavelet analysis.

The number of publications on “running” peaked 10 years ago. However, “barefoot running” and novel and sophisticated analysis procedures are driving running biomechanics research to new insights and important findings, and although the number of “running” papers has decreased, the quality of the research and the sophistication of approaches has given new life to one of the best studied areas in sport biomechanics and physiology.

Competing interests

The author declares that he has no competing interests.

References

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2. Hamill J, Gruber AH. Is changing footfall patterns beneficial to runners? *J Sport Health Sci* 2017;6:146–53.

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