

What Happened to American Podiatric Biomechanics?



BY JARROD SHAPIRO, DPM

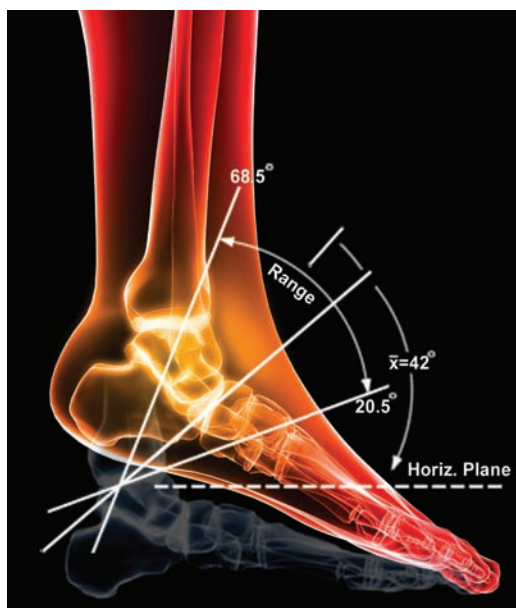
Why are we abdicating our once dominant role in this field?

BY JARROD SHAPIRO, DPM

Practice Perfect is a continuing every-issue column in which Dr. Shapiro offers his unique personal perspective on the ins and outs of running a podiatric practice

One of the underlying themes I noticed during various group discussions and personal conversations at the recent ACFAOM conference was the lack of biomechanics being taught at the podiatric medical schools nationally. This led to the following question: has the podiatric profession abdicated its place as the world's experts in biomechanics of the lower extremity?

As a disclaimer, I am an assistant professor and teach biomechanics at Western University College of Podiatric Medicine (WUCPM) in Pomona, California. WUCPM teaches podiatry in an integrated fashion with a series of classes called "Podiatric Medical Principles and Practice." All podiatric-related topics are combined into a case-based format in which all subject matter is covered within these cases. For example, we might discuss a case that focuses on hammertoe deformities. Within that case, we would cover the biomechanics, pathophysiology, non-surgical and surgical treatments, as opposed to splitting these topics up into various separate class-



es. The point here is not to argue in favor of one teaching method or another, but to clarify one's involvement as it relates to biomechanics.

With that said, let's get to the question: What happened to American podiatric biomechanics? The question asked is specifically about American podiatric biomechanics, because it seems alive and well in other professions, such as physical therapy, pedorthics, and others. For an example of the current biomechanics environment, look to the June issue of *Lower Extremity Review Magazine*. The cover story is about

evidence-based use of metatarsal pads, written by Greg Garguilo, a freelance medical writer. Looking through the article, here are some interesting statistics:¹

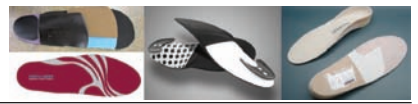
Number of experts by specialty interviewed or quoted:

- Physical therapist: 1
- Orthopedist: 2
- Non-Orthopedist MD: 1
- Pedorthist: 2
- Non-U.S. Podiatrist: 1
- U.S. Podiatrist: 1

Out of eight experts interviewed or quoted in the piece, only one was an American podiatrist. The article itself has twenty-four citations in the references. Of the twenty-four citations, ZERO were authored by American podiatrists.

Of these twenty-four references, FIVE were from podiatric journals. And, as mentioned, none of these studies were authored by American podiatrists. Three articles published in the *Journal of the American Podiatric Medical Association* were from the Netherlands, England, and one was authored by an American PhD bio-engineer. One article published in the *Journal of Foot and Ankle Surgery* was from a pedorthist. One article by an Australian researcher was published in the *Journal of Foot and*

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Ankle Research, and one was published by a Canadian in *The Foot*.

By no means is this a scientific review of types of publications and who is publishing in them. There is obviously some serious selection bias in the choice of one article from one trade magazine about one specific biomechanics-related subject. But this does at least give us a taste of the biomechanics environment.

If one examines the most recent two issues of the *Journal of the American Podiatric Medical Association (JAPMA)*, one would again see a paucity of American biomechanics represented.

The *JAPMA* May/June 2014 issue had three biomechanics-related articles. Of these, one was authored in the Netherlands,² one authored by an American physical therapist,³ and the third was authored in Spain.⁴

The *JAPMA* March/April 2014 issue also had three biomechanics-related articles, one from an American DPM,⁵ one authored in Spain,⁶ and the third authored in Brazil.⁷

Of these six articles, over a four-month period, only ONE was from an American podiatrist, relatively consistent with the subjective discussion

of the magazine article above.

There should be no fault placed on the non-podiatric or foreign authors and researchers, nor on the journals themselves. In fact, *JAPMA* should be congratulated for the number of international and multi-specialty submissions that it receives.

American podiatrists are simply not carrying their weight. Besides a small number of podiatrists, it seems we stopped contributing after Root, Orien, and Weed published their work on subtalar neutral theory. In fact, most of the current science that argues against the legitimacy of Root theory comes from others outside the American podiatric profession.

Why is this so? It boils down to research. It's telling to note that the one paper in the *JAPMA* March/April 2014 authored by American podiatrists⁵ is from the Center for Lower Extremity Ambulatory Research (CLEAR) at Rosalind Franklin University, a dedicated research lab. Similarly, the vast majority of major lower extremity biomechanics research is coming out of other research labs.

This, in fact, would be the solution to our lack of presence in the biomechanics community. We need to invest time, money, and effort into creating American podiatric biome-

chanics laboratories at each of the podiatric medical colleges and support the ones that already exist. Once this is done, we can create research fellowships, which will seed the colleges and our community with future experts to move the field. Until this happens, we will continue to move inexorably away from our previously dominant position in this field, and our students and residents will learn less about foot function, all to the detriment of our profession and, most importantly, our patients. **PM**

References

- ¹ Gargiulo, G. Lower Extremity Magazine. June 2014;6(6):16-22.
- ² Alsenoy K, et al. *JAPMA*. May/June 2014;104(3):238-246.
- ³ McPoil T, et al. *JAPMA*. May/June 2014;104(3):247-252.
- ⁴ Aranda Y and Munuera P. *JAPMA*. May/June 2014;104(3):263-268.
- ⁵ Frascione J, et al. *JAPMA*. March/April 2014;104(2):125-133.
- ⁶ Martinez-Nova A, et al. *JAPMA*. March/April 2014;104(2):154-158.
- ⁷ Resend R, et al. *JAPMA*. March/April 2014;104(2):183-190.

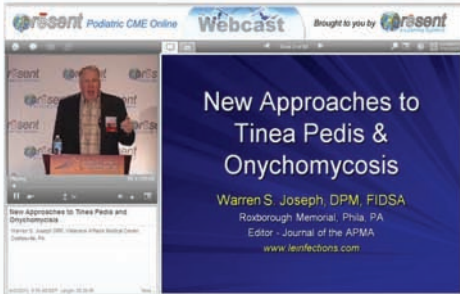
Dr. Shapiro is editor of PRESENT Practice Perfect. He joined the faculty of Western University of Health Sciences, College of Podiatric Medicine, Pomona, CA in 2010.

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