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## A Popular Myth About Running Injuries

By **GRETCHEN REYNOLDS**

Almost everyone who runs (or has shopped for running shoes) has heard that how your foot pronates, or rolls inward, as you land affects your injury risk. Pronate too much or too little, conventional wisdom tells us, and you'll wind up hurt. But a provocative new study shows that this deeply entrenched belief is probably wrong and that there is still a great deal we don't understand about pronation and why the foot rolls as it does.

For the new study, [published online this month in The British Journal of Sports Medicine](#), researchers from Aarhus University in Denmark and other institutions began by advertising in Danish newspapers and at gyms to find men and women who didn't run but were game to try.

Recruiting novice runners for studies of injury risk is somewhat unusual. More typically, researchers rely on surveys of experienced runners, since those are, after all, the people who develop running injuries. By asking them about themselves, their training, their bodies and how they became injured, researchers have gained valuable insights into why runners get hurt.

But such studies have limitations. They rely on people's notoriously leaky memories, instead of controlled experiments. And because experienced longtime runners often have a history of injuries, and one injury frequently contributes to the next, it can be difficult to tease out the original primary risk factor.

So the Danish researchers turned to running newcomers, who would provide, in effect, a blank injury slate. They eventually settled on 927 healthy adults, an impressively large group by exercise-science standards. The volunteers, men and women, ranged in age from 18 to 65.

Then, using elaborate measurements and visual evaluations, the researchers profiled each volunteer's foot, to determine how he or she pronated.

Pronation, of course, is natural and desirable during running. When your foot flattens and rolls inward as you strike the ground — that is, when it pronates — it absorbs some of the forces generated by the impact of landing.

But it has long been thought that pronating too much or too little leads to a heightened risk of injuries to the leg or hip.

Determining exactly how much any given person pronates while in motion, however, is not easy. In very broad terms, flatter feet are associated with more pronation and higher-arched

feet with less. But in this study, the researchers went beyond those simple guidelines and created what is known as a foot posture profile for each runner.

Using a widely accepted foot classification system, they divided the volunteers into those with neutral pronation, overpronation, severe overpronation, underpronation or severe underpronation.

Then they gave all of the volunteers the same model of lightweight, neutral running shoes (rather than motion-control shoes, which are designed to correct pronation problems), along with a GPS watch to track their mileage and instructions to report any injury, which would then be assessed by medical personnel.

The volunteers subsequently ran as much as they wished at a self-chosen pace for a full year. As a whole, the group covered more than 203,000 miles and developed about 300 medically confirmed injuries.

Contrary to received running wisdom, however, those who overpronated or underpronated were not significantly more likely to get hurt than runners with neutral foot motion.

Among those who covered at least 600 miles during the year, injury rates in fact were slightly higher among the runners with neutral feet than among those who overpronated.

This result confirms those of [several earlier experiments](#) showing that when runners choose their shoes based on their foot type — when overpronators wear motion-control shoes, for instance, to reduce how much they pronate — they sustain injuries at the same rate or at higher rates than when they choose shoes at random.

In essence, what these findings suggest, says Rasmus Ostergaard Nielsen, a doctoral researcher at Aarhus University who led the new study, is that supposedly deviant degrees of pronation may not in practice be abnormal and do not contribute to injuries.

And if that is the case, he continues, runners, especially those new to the activity, probably do not need to obsess about their foot type. Instead, he says, they could more profitably “pay attention to things like body mass, training, behavior, age and previous injury in order to prevent running-related injuries.”

Other researchers agree. “This is an excellent study,” says Bryan Heiderscheit, an associate professor of biomechanics and director of the running clinic at the University of Wisconsin at Madison. The research reinforces a widespread belief among scientists studying running “that pronation doesn’t play much of a role” in injury risk, he says.

It also suggests, he says, that trying to alter pronation with a specific type of shoe is probably misguided. At the university’s running clinic, “we see so many injured runners who’ve been told that they overpronate” and need sturdy motion-control shoes to fix the problem. “They wind up injured anyway.”

Instead, he says, this new study and common sense suggest that comfort is likely to be a

better guide to shoe choice than foot posture. “We don’t know” whether anyone’s given degree of pronation needs to be altered, he says. “We do know that comfort helps” to make running tolerable. But when he asks injured runners at the clinic whether their current shoes are comfortable, “it’s amazing,” he says, “how many say no.”

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