

Piecing Together the Puzzle of Running Injuries

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Every athletic trainer appreciates a patient with a straightforward acute musculoskeletal injury. The diagnosis is often clear, the management can be simple, and most rehabilitation plans result in noticeable progress. Conversely, musculoskeletal injuries with complicated pathomechanics that include multiple risk factors, inconsistent management techniques, and trial-and-error rehabilitation plans can be extremely frustrating. Running injuries often seem to fall into this category. They can be challenging for patients and clinicians alike, yet they also seem to be the most satisfying in the end, driving us to synthesize what we know about tissues, mechanics, shoes and running surfaces, training, and possible interventions. Dealing with running injuries is like solving a complex puzzle: one intricate piece at a time.

Running continues to grow in popularity worldwide. In the United States alone, more than 55 million people ran regularly in 2017.¹ With limited barriers to entry, an increased emphasis on fitness, and more running events, the popularity of running will likely continue to grow. However, with this growth comes an increase in injuries. Almost half of all runners report an injury each year, mostly due to overuse.² Athletic trainers are perfectly positioned to prevent, manage, and treat these injuries.

Running injuries are plagued with a large number of intrinsic and extrinsic risk factors, which may or may not be related to each other. The combination of risk factors, along with various ideas about management and rehabilitation techniques and interindividual patient differences, results in a unique problem. One might argue that every running injury is different and, therefore, the approach to each patient should be different. The running-injury puzzle probably cannot be solved with a single approach. Instead,

clinicians must identify and assemble all the pieces of the puzzle to provide a successful intervention.

This special issue offers detailed reviews and current research findings that will help athletic trainers better recognize the individual puzzle pieces and how they fit together. The issue opens with 2 current clinical concepts articles summarizing the management of patellofemoral pain in runners and the role of training shoes in the prevention of running injuries. The remainder of the issue comprises original research findings that address important topics, including the examination of 300 heat-stroke cases over 16 years of a popular 7-mile road race, insights into injury risk factors and treatment strategies among high school cross-country runners, and the use of ratings of perceived exertion as an adjunct to mileage to determine training loads in runners. Among the abundance of clinically relevant biomechanical studies is a focus on wearable sensors for assessing gait biomechanics in runners' natural training environments.

This special issue represents a culmination of the work of an international and multidisciplinary group of sports medicine clinicians and scientists, and we thank them for their contributions in elucidating aspects of the running-injury puzzle. We hope you find that these contemporary insights inform your clinical practice and improve the outcomes of the distance runners in your care.

References

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2. Fields KB, Sykes JC, Walker KM, Jackson JC. Prevention of running injuries. *Curr Sports Med Rep*. 2010;9(3):176–182. doi:10.1249/JSR.0b013e3181de7ec5