A prospective look at the risk factors for overuse running injuries

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Video Abstract

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Abstract

With the numerous health benefits tied to running, it's no wonder there are over 20 million regular runners in the United States alone. But running is also implicated in high rates of musculoskeletal injuries, with up to 65% of runners reporting overuse injuries annually. The National Center for Injury Prevention and Control has recently called for more rigorous prospective and comprehensive analyses to define the origin of running injuries. To answer this call, a team of US-based researchers conducted a prospective longitudinal trial to identify risk factors associated with overuse injury. Their findings could reveal new ways of reducing injury incidence. The trial tracked overuse injuries and anthropometric, biomechanical, and psychosocial variables in 300 recreational runners over a 2-year observational period. All participants ran a minimum of 5 miles per week and were injury free for at least 6 months prior to enrollment. At least one overuse running injury was sustained by 66% of the group. Most injuries occurred within the first year of the trial, and injury severity was equally divided between grade 1 and grades 2 and 3. The knee was the most often injured site. Surprisingly, many factors widely believed to be associated with overuse injury were not predictive of injury risk. The uninjured and injured groups showed similar weekly mileage, shoe type, foot motion, anthropometric variables, strength, and flexibility. When the team applied bivariate analysis, several factors were associated with injury. These included knee stiffness, sex, and psychosocial status. When these factors were put into a multivariable model, however, only knee stiffness was significant. This was largely due to the greater knee stiffness observed for participants with higher body weights in the injured group. Although the causal relationships tying these factors to injury risk must still be defined, the trial provides etiological evidence that may be useful for guiding the development of more effective preventive strategies and treatment plans for overuse running injuries. One suggested strategy is to reduce knee stiffness by shortening stride length, running on a stable but soft surface, or reducing body weight in select individuals.