

End-of-winter running gusto brings increased risk of overuse injury

AmericanRunning.org

3/2/2004

As runners shake off the winter cobwebs and hit the roads with the first spring thaw, the gusto too often gives way to grievance as overuse injuries abound.

Although anatomical abnormalities like high arches and leg length discrepancies, as well as biomechanical factors such as magnitude and rate of pronation, determine overuse injury susceptibility in runners, in a general sense all overuse injuries are training errors on some level.

Muscles, joints and bones need time to adapt to the repeated impact stresses placed on them. If the impact stress is great enough, and the time allowed for repair and remodeling is not long enough, an overuse injury results. These include Achilles tendinitis, stress fractures, plantar fasciitis and medial tibial stress (shin splints).

What can be done to minimize the occurrence of these injuries? This is best achieved with a balance between deferring to your physiological limitations, and gradually attempting to change them. The body's relationship with stress is love/hate.

Runners should train below the level at which stresses cause injury, but not so low as to affect no improvement upon or even weaken joint, muscle and bone structures -- an obvious example would be prolonged bed rest. Stresses ultimately raise the threshold for injury as these structures strengthen.

Think of proper form as the first line of defense, and get to know where there is room for improvement.

The area of contact is influenced by how much and how quickly you pronate (lower the inner edge of the foot by turning it outward as you land). You can decrease the stress by diffusing it over a greater surface area. The actual force of impact is also a huge factor. This is determined in part by how much you weigh (mass of body at contact).

Ideally, we'd be able to change our stride and body mass. We often cannot.

However, dampening elements like shoe cushioning and road surface can greatly influence the effects of force of impact. Concrete is the least forgiving of surfaces, while dirt paths offer a comparatively favorable degree of cushioning. Aim for them if you are injury-prone.

But the single biggest factor over which you have control is how fast you run, because this influences the velocity of contact. The intensity of your workout can literally make or break you here. And it is a further influence because it determines the time between repetitions as well.

Running slower will allow you to train more days per week, and for longer periods.

Other factors well within your control are the time you allow between runs for repair. Listen to your body and know your history. If you run hard, you will need more time to recover, since with each footfall, you are causing impact stress on your muscles, bones and joints. This is necessary to increase strength and build bone density.

You also increase your tolerance for the number of repetitions with incremental increases in the distance you run. Avoid the "too much too soon" compulsion that bites in springtime, and don't increase your mileage each week by more than 10%.

Similarly, rapid changes in intensity from one week to the next will eventually result in overuse injury.

Know your level of flexibility, and work to improve it. Poor stretching habits are another avoidable cause of injury. Lack of flexibility leads to bad form, which can cause injury. Bad form will result in early fatigue, which in turn further deteriorates form.

Aim to gradually improve these components of your training, and it will lead to greater injury threshold over the long haul. Remember it is optimal to push, then repair.

Finally, don't necessarily go by others who share your age and weight. If you have one leg shorter than the other, your injury susceptibility will differ greatly from the next runner's. Biomechanical and anatomical factors work together in strange and complex combinations among individuals.

Discover a level of training appropriate for you, then gradually ramp it up.

(Biomechanics, 2002, Vol. 9, No. 9, pp. 51-58)

Running & FitNews, Vol. 21, No. 2. Copyright, 2003.