

Running and Injuries: Can I do one without the other?

"Ouch! Every time I go running I get this pain in my_____."

Fill in the blank with Foot? Heel? Shin? Knee? Hip? Low Back? Any and all of these body parts are common locations of overuse injuries amongst runners! How do I know if I have an overuse injury, you may ask? Well, if you find yourself having to slow down, reduce your time or distance, or if you go on less frequent runs due to pain, there is a good chance that you too have suffered an overuse injury.

Running or jogging is becoming an increasingly popular leisure sports activities, but next to its beneficial health effects, negative side effects in terms of sports injuries also need to be recognized.

Running is one of the most widespread activities in which overuse injuries can occur, in fact studies of both competitive and recreational runners, estimate that up to 70% of runners suffer an overuse injury during any one year period (1,2).

The exact causes of overuse running injuries is multi-factorial, but most health and fitness professionals describe the causes as being related to either training errors, or anatomical / biomechanical factors.

That being said the actual injury cycle can be considered to be the consequence of the tissue in question being unable to withstand the force or the number of repetitions we place upon it. Essentially when we overwork a muscle, we increase the pressure and tension within it, which often leads to decreased circulation and swelling. Eventually this scenario can result in decreased oxygen to the muscle and subsequent formation of scar tissue or adhesions.

A closer look at the research, shows that over 60% of running injuries can be attributed to training errors (1,2). Running and endurance coaches such as Steve Bentley suggest that all overuse injuries can really be considered the result of training errors. When the limits in distance or intensity are exceeded, any athlete can find themselves in the injury cycle described above. The actual limits one can endure are dependent upon several variables including running surface, shoes, and a variety of anatomical/biomechanical factors.

The majority of the anatomical and/or biomechanical factors which have been linked to overuse injuries amongst runners, can be termed either kinetic or kinematic variables. The kinetic variables include; the foot strike or impact forces, the rate of impact, and the push-off forces. These values tend to be negatively influenced in runners who are injured (1). The kinematic variables are more specifically, the amount of and the speed of foot pronation. Pronation is a normal, and protective mechanism in which the arch flattens and the foot rolls in. However, if pronation falls outside of "normal" limits (too much or too little) the sequential and co-ordinated movements of the ankle, shin, and knee are thrown out of sync, making one prone to injury (3).

After explaining this concept to my patients who regularly run, they invariably say "Ok, makes sense... so what do I do?"

First off, I firmly believe that running without injuries is most importantly about good Technique, but also muscle strength/balance, an efficient training regiment, and a little bit of good fortune.

Runners who have developed stride patterns, which allow for relatively low amounts of impact forces, and a fairly rapid rate of pronation are at a reduced risk. Think of running with a shorter stride and a quicker cadence.

Small aberrations in function result in inefficient compensation from other muscles, which can cause performance deficits and yes you guessed it... Overuse Injuries! Strong muscles are able to absorb increased amounts of energy without failing. Several studies have shown that strengthening programs can

decrease injuries while increasing speed in addition strength gains. Interestingly, the Clinical Journal of Sports Medicine, published a paper within the last year by Niemuth et al. showed an association between imbalance in the hip abductors, adductors, and flexors and overuse injuries in runners (4).

An effective running program incorporates runs of varying distances and intensities and includes specific strengthening exercises to correct underlying imbalances to address the faulty movement patterns before they lead to an injury.

Injured runners, or runners who are at risk for injury, should be advised to seek medical advice, as the most likely predicting for injuries amongst runners is a previous injury (5).

For those about to begin a running program, moderation is the best advice. For competitive runners, great care should be taken to ensure that prior injuries are sufficiently healed before attempting any racing event, particularly a marathon. Advice from a running coach, running group leader, or health professional on technique and developing an individualized program for you will go a long way to keeping you on your feet and injury free.