

Technique & Its Relation to Running Injuries

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Abstract: By teaching running patients proper techniques, we can help prevent recurrence of injuries.

In applied kinesiology we have worked long and hard to create treatment techniques that last. Those who have treated runners extensively have no doubt found that lasting treatments can be hard to come by. The problem of repairing a semimembranosus and having it hold for multiple forty-mile weeks only to break down again during the first fifty or sixty-mile week, has led to my good friend, Alan Beardall, to develop extensive detailed treatments for specific muscles and division of muscles. These treatments have been very helpful, but runners continue to break down at an alarming rate.

This problem has led me to explore the origin of running injuries. After talking to many coaches and quality runners, and watching miles of film, I am convinced that as many as 90 or 90 percent of all running injuries are the result of faulty technique. In order to help our patients to stay injury-free, we relate to them the following information.

There has been a great deal of faulty information taught about running. None of the information is more damaging than that related to technique. The best runners and coaches in the world to obtain more speed with less effort and reduce injuries use the following ideas. The elements of techniques we are to discuss are: relaxations into good posture, foot plant, stride length, toe-off and arm action.

The first element of technique to master is running posture. Running posture, like standing posture, requires 2 basic elements - balance and relaxation. Standing, the knees must be relaxed (not locked backwards), the pelvis centered between the malleoli and the shoulders and the weight centered on the foot. Now, lean forward at the ankles and this posture will resemble running posture.

Notice how the weight is balanced on the foot. The heel is on the floor but the weight is solidly on the ball of the foot. This is the way the foot should bear weight at the time of foot plant. This allows the gastrocnemius and soleus (the strongest muscles in the body) to absorb a large amount of the shock and also sets the stage for activation of the stretch reflex the calf at toe-off.

The stretch reflex occurs when a muscle is stretched hard as it is loaded and results in a partly involuntary and extremely forceful contraction that requires little effort. In order to accomplish this plant, the average runner will initially have to shorten his or her stride length. "Reaching" with the lead leg is the most common technique flaw we find. It often comes from the misconception that foot plant should start with the heel. The problem with heel striking and over striding is that it causes the knee to become the primary shock absorbing joint, it puts a large amount of stress on the low back, and decreases running efficiency in that by placing the foot forward of the center of gravity, the runner is actually slowing him or herself down with each step.

To learn good technique, assume the posture we discussed. Lean forward at the ankles and notice the feeling of the feet on the ground. Begin running and try to duplicate that feeling. At first it may be

helpful to use an exceptionally short stride to get the feeling of the planting of the foot under the center of gravity. As the foot plant begins to feel natural, the stride can be lengthened by concentrating on pushing with the trail leg and consciously toeing-off with a good plantar flexion of the foot, which will keep the rear foot on the ground a little longer.

It may also be helpful to learn technique while running alone because, when running with other runners there is a tendency to "fall in step" and for some reason we tend to fall into the slower cadence which increases stride length. We have found that this is particularly a common problem in women who habitually run with men. The women are generally shorter but are matching the men stride for stride and producing injuries.

The last element we will discuss is arm action. The arms counter-balance the legs to maintain balance in running. The movement of the arms should promote relaxation in the neck, shoulders and upper body. The arms swing from the shoulders with a medial deviation of the hands as they move forward. The hands should cross the centerline of the body. There is also a need for the angle at the elbow to increase as the hands move backwards and decrease as the hands move forward. Once the elements of good techniques have been mastered, all that remains is to develop a smooth natural rhythm. It should also be pointed out that as pace increases there is an increase in leg speed, stride length and arm and leg action, but the elements of technique we have discussed remain the same.

The above is an extremely basic discussion of technique. It is void of vital mechanical explanation, but not of vital mechanical basis. The hope is that it will enable the doctor to help running patients be more efficient and thereby, less injury prone. A side effect of this technique is that it is invariably faster.