

FEBRUARY RUNNERS EDGE NEWSLETTER ARTICLE

RUNNING INJURY

(Suggestions for Preventing & Treating Three Common Running Injuries)

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Whether you are new to running, working toward a personal best in an upcoming race, considering trail running, revamping your running and training technique, or a seasoned runner, avoiding injury is easier than recovering from injury. Last month's article focused on the role of the hip in preventing injury and recovering from injury. This month I will provide a few simple preventative pointers aimed at preventing common running injuries. Three common injuries will be briefly explained and key preventative components listed. Because exercise prescription should be an individualized process, I recommend a biomechanical running and strength assessment to determine your areas of strength, weakness, and asymmetry. Biomechanical running assessment should preferably be done on the road or trail, not on a treadmill. Treadmill running does not require active hip extension which greatly alters hip dynamics.

The following common running injuries can be prevented and/or treated by identifying an area of weakness and the associated area of overcompensation or overuse. The trick is identifying the cause or culprit. Below I will list some key areas to strengthen to prevent a running injury or effectively treat an existing running injury:

Common Running Injuries:

▪ **Knee Pain**

- Hip Strength: Strong hip musculature is necessary to prevent torsional force through the knee during running. Hip weakness results in a valgus (inward) stress through the knee and leads to pain and injury.
- Quad Strength: Strength through all four quadriceps muscles is necessary to allow the patella (knee cap) to track properly across the knee joint. The vastus medialis oblique (**VMO**) is often underdeveloped in runners and leads to lateral tracking of the patella and knee cap pain.
- Intrinsic Foot Strength: Weakness of the deep musculature of the foot can lead to excessive pronation and subsequent torsion through the knee. Pronation is not bad, but the ability of the foot to come out of pronation during the end of the running stride (supination) and lead to knee pain.
- Adductor Strength: "**Runners Knee**" is an overuse injury cause by inflammation of the **Pes Anserine** (medial knee) tendon. Overuse or weakness of the adductor muscles, gracilis muscle, and semi-tendonosis hamstring muscle lead to Pes Anserine tendonitis.
- Quick Check: Stand in front of a mirror with a 4 to 8 inch step or box in front of you. Slowly place one foot on the box. Gradually step up onto the box as you watch your hip, knee, and ankle in the mirror. See if you can

step up onto the box without movement in the hip (outward), knee (inward) or ankle (inward or loss of balance). Did you pass?

▪ **Foot Pain**

- Intrinsic Foot Strength: Weakness of the deep musculature of the foot can lead to excessive **pronation** (arch falling inward). Pronation is not bad and allows our foot to accommodate to uneven surfaces and absorb shock. The tibialis posterior muscle, however, is required to **supinate** the foot or switch our foot from shock-absorbing mode to rigid push-off platform mode. Weakness in the foot and lower leg can compromise the balance of pronation & supination.
- Anterior Lower Leg Strength: The tibialis anterior (TA) allows us to clear the ground while running. Adequate TA strength relative to calf strength prevents foot injury.
- Calf Flexibility: Limited gastroc-soleus (calf muscle) flexibility has been correlated with increased tension through the plantar fascia and Achilles tendon. Stretch the calf with the knee bent and with the knee straight.
- Dynamic Balance: Balance is a multi-faceted phenomenon enjoyed by two-legged runners. It begins with foot and ankle balance reactions and can be strengthened with a series of standing motions on a dyna-disc or pillow.
- Running Shoe Choice: Talk to the experts at **Runners Edge** for the correct running shoe choice. New to running? Experienced runner? Strong feet, lower legs, quads, hamstrings, hips or do running injuries lurk behind every bend in the trail? A shoe will not take the place of proper conditioning and training practices.
- Quick Check: Sit in a chair with a towel flat on a slick floor. Slowly curl the towel beneath your foot using your deep foot intrinsic muscles and repeat 5-10 times. Now stand with your bare feet flat on the floor. Slowly “curl” your arches to make them “taller” while keeping your big toe on the floor and slowly release without your arch flattening completely to the floor and repeat 5-10 times.

▪ **Shin Splints**

- Lower Leg Strength: Balance of anterior and posterior lower leg strength is key in preventing and treating shin splints. Muscle imbalance equals asymmetry which spells **o-v-e-r-u-s-e i-n-j-u-r-y**.
- Gluteus Medius Strength: Once more the gluteus medius plays a key supporting role in preventing lower leg torsional force as the body resists the pull of gravity during running which can be described as “**graceful falling**” stride after stride.
- Foot and Ankle Flexibility: Limited ankle medial and lateral mobility (subtalar joint of ankle) limits the foot-ankle-lower leg complex’s ability to conform to terrain irregularity and the compressive forces of running. Excessive calf tightness leads to premature heel elevation during the stance phase of running can increase stress through the anterior lower leg resulting in shin splints.

- Running Surface: Running on firm or off-camber terrain requires the strength and mobility of the joints and muscles of the leg ranging from the overlooked intrinsic foot musculature to the power-generating quads, hamstrings, and glut musculature. Shorten your stride, run naturally, listen to your body, vary your training terrain, and gradually transition from trail to road running and visa versa.
- Training Progression: Gradual changes in running intensity and duration are required to allow your body to heal from training micro-trauma and recover stronger. The 10% weekly distance increase rule is a good place to start. Rest is just as important as training. Overtraining or lack of adequate recovery after a huge training or racing effort increases injury risk.

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Next Month's Article:

Dynamic Warm-up Exercises versus Static Stretching