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INJURY PREVENTION FOR RUNNERS

By Dr. Michael Hannon

There are several orthopedic injuries that are associated with distance running. Among the most important of these are stress fractures. A stress fracture is essentially an overuse injury of your bone such that the bone has seen too much micro-damage and is not able to repair itself adequately before the next run. There are several important considerations in terms of your training in order to prevent possible stress fractures.

PROPER RUNNING SHOES

It is very important that you are properly fitted with an appropriate running shoe that is specific for your type of foot. You should be changing your running shoes every six months or approximately after every 400 miles of running. A good running store or triathlon store or a physical therapist or podiatrist can analyze your shape of foot and put you in the appropriate type of running shoe for your foot type. Some runners have a neutral foot some runners have a high arch, and some runners have a relatively flat foot and the selection of your style of running shoe should be based upon the shape of your particular foot.

DIET

Your diet that is consumed in and around your training is a very important component to your overall health and your success. You want to ensure that you are taking an appropriate diet that is filled with a variety of fruits and vegetables, aiming to eat many different types and to have appropriate variation in color on your dinner plate. You also want to make sure that you are consuming adequate amounts of water. You should also be ensuring that you are getting the vitamins and minerals that you need, especially calcium and vitamin D for appropriate bone health.

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CALF FLEXIBILITY

One of the most important areas for runners in terms of stress fracture prevention is to ensure that you have appropriate flexibility in your calf muscle. The calf muscles are the large muscles on the back of your leg. You should ensure that you are appropriately stretching your calf two to three times a day for two to three minutes a session. You want to ensure that you are stretching your calf such that your ankle can bend up approximately 20 degrees. You want to perform this stretch with your knee fully straight, which is the extended position as well as with your knee slightly bent, which is the flexed position. This will allow you to stretch all of the muscular components of your calf muscle and ensure good calf flexibility. Good calf flexibility is essential when performing distance running as a good flexible calf will allow plenty of motion at your ankle joint and will decrease the stress which is transmitted to your shin bone as you are running.

MUSCULAR STRENGTHENING

It is important that you strengthen several groups of muscles in your lower extremities in order to help prepare your legs for the demands of distance running. One of the most neglected, but perhaps, most important areas that you must strengthen in your legs are your lateral hip muscles. The lateral hip muscles are the small muscles that attach on the top of your thigh bone, which stabilize your pelvis as you are running. The muscle, specifically, is the gluteus medius muscle. If this muscle has a weakness, this can contribute to many of the very common running-type overuse injuries in the lower extremity. Conversely, a strong gluteus medius muscle group will help your kneecap track appropriately and will help you to avoid many of the common injury patterns that we tend to see with running and overuse.

WARMING UP

As is common knowledge, an appropriate warm up is essential in order to prevent injury. The two basic types of stretching are static stretching and dynamic stretching. Static stretching is putting a stretch on a particular muscle group and holding for 30 seconds with the muscle in a stretched position. This older style of stretching is the type that we are all familiar with from elementary and high school gym class. Some would argue that traditional static stretching may adversely affect performance. Static stretching may be an important component of your cool down after your performance has been completed.

Dynamic stretching is placing a stretch on a muscle with controlled rhythmic movements. This type of stretching may be a more effective method of preparing your muscle for activity.

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RECOVERY AFTER RUNS

There are several components to appropriate recovery after running is completed. Every workout should have a stretching or warmup period, the actual workout, and then a cool down period. The cool down period may also involve static stretching, as previously noted. Additional modalities that can assist in muscle recovery between workouts include manual massage, utilization of a foam roller, as well as resting muscles, and cryotherapy or icing routines. All of this will be important in muscle recovery.

STRENGTH TRAINING AND CROSS TRAINING

Building up of the gluteus medius muscles, those small lateral hip muscles, that are so essential in running health will be an important component of maintaining healthy lower extremities as you train for distance running. Two common exercises which are very effective in targeting the gluteus medius muscle are the single leg squat exercise as well as band exercises, also known as monster walks. The single leg squat exercise is performed on a step and is most effective when looking in a mirror such that you can confirm your form is appropriate with one knee extended one should keep the back straight and bend at the knee with care to keep the shoulders and pelvis level. One can repeat these exercises in a set of ten to twelve repetitions to work on the gluteus medius. The exercise band type exercise is for gluteus medius, also called monster walks, are when an exercise band is wrapped around the ankles and the runner will walk from side to side allowing the band to provide resistance and allow a focal workout to the gluteus medius muscles.

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COMMON RUNNING INJURIES

Common running injuries can be divided into knee injuries and foot and ankle injuries. There are several areas around the knee that are commonly affected with distance running. The most common running knee injury is likely patellofemoral pain syndrome. This diagnosis can be due to excessive friction behind the kneecap, the kneecap grinding on the femur bone, or even excessive inflammation in the patella tendon which is the soft tissue that attaches the kneecap to the shin bone. Typically patellofemoral pain syndrome has to do with a combination of tight quadriceps muscles and tight hamstring muscles. Prevention of patellofemoral pain syndrome is essential and is achieved by appropriate stretching and strengthening routines.

Pain on the outside of the knee is often referred to as runner's knee or iliotibial band friction syndrome. There is a distinctive spot on the outside of one's knee where the iliotibial band or IT band will rub with repetitive running and cause pain on the outside of the knee. IT band syndrome can be avoided by keeping the IT band stretched out with appropriate foam rolling as well as performing appropriate gluteus medius strengthening to avoid tightening of the IT band.

In general, problems about the area of the knee in runners can be avoided with proper stretching and strengthening. The quadriceps, hamstrings, and iliotibial band should both be stretched in a static as well as in a dynamic mode.

RUNNING FOOT INJURIES

Common injuries about the foot and ankle with running include Achilles tendonitis, plantar fasciitis, and tendonitis about the front of the ankle. Again, most typically these problems have to do with areas where the muscles are tight or the muscles tend to be weak. The most critical factor in avoiding these problems is to make sure that the calves are appropriately stretched.