

# **RUNNING & ENDURANCE TRAINING**

Injury Prevention Tips



**ThedaCare**<sup>®</sup>

# I WANT TO RUN BUT MY KNEE HURTS

Knees are the most common site of injury for runners. Typically, pain is experienced in either the front part of the knee (the knee cap) or the outside aspect of the knee. Pain in the front of the knee is medically termed patellofemoral pain syndrome. Pain on the lateral or outside part of the knee commonly results from a condition known as iliotibial band syndrome (or ITB syndrome for short). This article is going to focus on the latter, ITB syndrome. ITB syndrome is inflammation and pain on the outside part of the knee. The iliotibial band is a thick connective tissue that runs along the outside of your thigh. It connects a muscle on the outside of your hip to the outside of your lower leg. ITB syndrome results from this band repetitively rubbing along the bone of your femur, causing inflammation. Running is the most common cause of ITB syndrome.

## What can you do to prevent and reduce ITB syndrome symptoms?

- **Warm-up** by performing active stretches prior to running. Save stretching for AFTER the race.
- **Take a break from running.** Add cross-training, such as biking, elliptical, or swimming, to your weekly routine in place of some of your runs. This will allow you to continue to improve your cardiovascular endurance and fitness level while giving your legs a much needed rest. Any activity that you choose MUST be pain-free!
- **Watch your stride.** Can you hear your feet hitting the ground? Do you consider yourself someone who takes long strides? Over striding results in significant stresses to the muscles, bones, and soft tissues of the lower body. This can result in various injuries, including ITB syndrome. Shorten your stride to reduce impact on your joints and improve your running efficiency.
- **Replace your shoes.** Depending on what you read, it is recommended that you change your shoes every 400-600 miles.



But don't get too caught up in the exact number. Listen to your body. Pain can be a sign that your shoes are wearing down. It's also important to purchase your shoes from a reputable shoe store that understands how to assess the right type of shoe for you.

- **Don't forget the ice.** Ice can reduce pain and inflammation and should be utilized on the affected area for 20 minutes, 2-3 times per day. Be sure to put a towel between the skin and ice pack to prevent frost bite, cold injuries.
- **Roll it out.** Using a foam roller can help decrease the tension in the iliotibial band. Lie on your side with your thigh of the affected leg contacting the foam roller. Your arm and opposite leg will help to support you. Gently roll up and down the foam roller from your knee to your hip. Repeat 10 times. 1 time per day.
- **Stretch it out.** Stretches that target the front and the outside of the hip improve the length of the affected muscle and iliotibial band.
- **Strengthen your glutes.** Performing exercises that target the buttock muscles can help to stabilize the femur and prevent it from rubbing on the iliotibial band.
- **Check out our free injury clinics.** The less time that passes from the onset of the injury to the start of the treatment typically means the less time away from the sport you love. Let us help you get back to running faster!

# DYNAMIC WARM-UP

Performed BEFORE running or other aerobic activities. A dynamic warm-up is one in which you are moving throughout the full range of motion of the joints, without holding the position, to prepare yourself for the activity. Dynamic warm-ups improve the elasticity of the muscles, improve your coordination, and excite the nervous system for the upcoming event.

## Grapevine



Cross trailing leg over the leading leg and return to neutral stance. Repeat with trailing leg crossing behind the leading leg.

## Knee High Hug



As you walk forward, bring one knee up to your chest, pulling it close with your hands. Alternate legs as you continue to walk forward. Perform 10 repetitions on each leg. Repeat the exercise walking backward. Perform 10 repetitions on each leg.

## Lunge with Overhead Reach



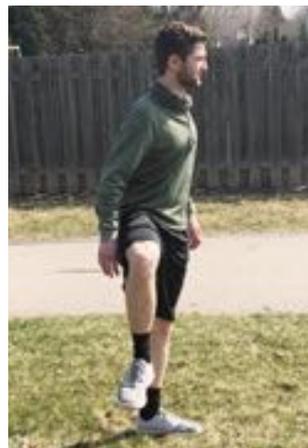
Lunge forward onto one foot. Keep the knee straight on the trail leg and the heel on the floor. Hold this position as you reach your arms overhead. Repeat on the other leg as you continue to move forward. Perform 10 repetitions on each side.

## Hamstring Stretch



As you walk forward, kick your left leg out in front of you and reach for your toes with your right hand. Then kick your right leg out in front of you and reach for your toes with your left hand. Perform 10 repetitions on each side. Repeat the exercise walking backward. Perform 10 repetitions on each side.

## Hurdlers



Stand on one leg and lift the other leg out to the side with knee bent. Circle leg forward until knee is in front of your body. Lower that leg to the ground and repeat on the other side. Make sure your upper body stays tall and does not lean side to side.

# STATIC STRETCHES

Hold a position for a period of time and are best when performed AFTER a run or other aerobic activity. While exercising, our blood flow is diverted to the working muscles which warms the muscles and makes them more pliable. Static stretches maximally elongate the muscles and relax the nervous system.

Stretching is very important for runners. Flexibility exercises maintain optimal joint mobility which in turn allows for improved distribution of forces across joint surfaces. Stretching and warming up properly can decrease your injury risk. BUT – when is the best time to stretch?

## Buttock Stretch



Lay on your back with both knees bent. Place the ankle of your left leg onto your right knee. Gently pull your right leg up toward your chest. You should feel a stretch in your left buttock. Hold this position for 30 seconds. Perform 3 repetitions. Repeat on the other side.

## Quadriceps Stretch



Lay on your stomach on the right side of your bed. Drop your right leg off of the bed, flexing your hip and knee so that your foot is underneath your hip. Use a belt or your left hand to grasp your left ankle. Pull your left leg toward your buttock until you feel a stretch in the front of your left thigh. Hold this position for 30 seconds. Perform 3 repetitions. Repeat on other side.

## Hamstring Stretch



Stand with your right leg on a chair. Keep your left leg straight and your trunk tall. Gently reach forward, leading with your chest. Do not round your back. You should feel a stretch in the back of your thigh. Hold this position for 30 seconds. Perform 3 repetitions. Repeat on the other side.

## Inner Thigh Stretch



Sit with your back and buttock against a wall. Tuck your feet in toward you. Relax your legs so that they fall toward the ground. From this position, gently arch your back away from the wall. You should feel a stretch in your groin and inner thigh. Hold for 30 seconds. Perform 3 repetitions.

# CROSS TRAINING 101



**Cross training is an essential component to successfully training for any running event.** It helps to assist with injury prevention as well as give your body a break from the rigors of logging miles. Cross training also improves recovery, overall fitness level, stamina, motivation, and rejuvenates the body by challenging it with different movement patterns. Some examples of cross training include strength training, flexibility training (yoga), and endurance training.

When cross training, you may choose other forms of exercise that mimic the movement of running. Examples include water running, elliptical, cross country ski machine, or a stationary bike. Cross training days are different from rest days in your training schedule and you still want to exert the same effort you would put forth during a training run. Research has found that substituting 25-30% of your weekly mileage with cross training can maximize your overall running quality and fitness level.

As a runner, there are certain areas that you may be overly strong in while other areas you may be neglecting due to the same motion your body goes through with every step and arm swing. Runners tend to have:

#### **Weak Hamstrings**

- Improves with...
  - Cycling

#### **Weak Upper Body**

- Improves with...
  - Swimming
  - Rowing

#### **Decreased flexibility**

- Improves with...
  - Yoga
  - Pilates

Visit [www.foxcitiesmarathon.org/news](http://www.foxcitiesmarathon.org/news) for more on cross training.

## A STRONG CORE

Posture and form are extremely important for runners to decrease abnormal loading. The core is composed of the abdominals, back/spinal, gluteal and hip musculature. A strong core allows a runner to maintain good posture and transfer the load of their

feet contacting the ground. Training these muscles allows for the maintenance of good form especially as a runner fatigues during the later stages of an endurance event. The core can be trained in as little as 2-5 minutes every day.

### **Basic Core:**

Work up to being able to hold for a total of 60 seconds (i.e. beginning 4 x 15 seconds)

**Low Plank**



**Low Side Plank**



### **Advanced Core:**

Work up to performing each motion for total of 30 repetitions

**High Plank with Hip Extension**



**High Plank with Hip Abduction**



# RECOVERY BEGINS AS SOON AS YOU FINISH

Our goal is to help you start your post-race recovery safely, until you can get back home and begin your post-race routine.



## RECOVERY STRETCHES:

**Hamstring**



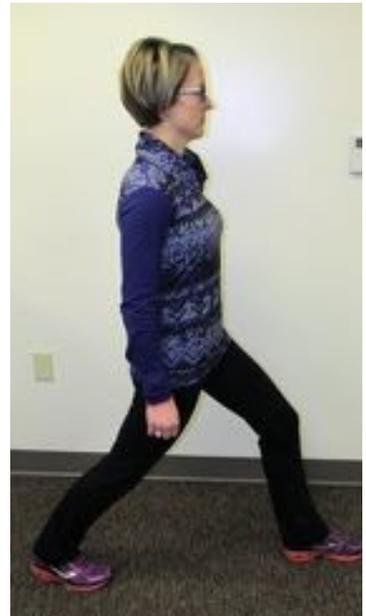
Place right foot on ground. Slowly lean forward, keeping back straight, until stretch is felt in back of thigh. Hold 30 seconds and repeat on other side as well.

**Calf**



Put left ball of foot up against the wall, slanted at about a 30 degree angle with heel resting on floor. Keep toes straight and support with hands on wall. With left leg straight, press entire body forward towards the wall. Hold 30 seconds and repeat on other side as well.

**Hip Flexor/Quad**



Standing with right leg back, slowly push hips forward while slightly arching back until stretch is felt in front of the right hip. Hold 30 seconds and repeat on other side as well.

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#### **Keep walking after you finish your race**

During the race, blood has been redirected to the working muscles in your legs and away from internal organs. It's important to continue walking after you finish your race for about 20 minutes to allow the body to re-equilibrate your blood supply. Otherwise, you may feel nauseous (not enough blood flow to the stomach) or dizzy and weak (not enough blood flow to the brain).

#### **Replenish your body's fluids**

Begin drinking fluids slowly at the finish line as soon as your body is able to tolerate without feeling nauseous. Sports drinks containing electrolytes and sodium are best to replace the fluid and salt your body has lost during the race. Keep track of urination color and frequency after the race to monitor your hydration status.

#### **Slowly add food to restore energy**

Begin eating solid food when your stomach feels like it can handle it. Good sources of energy including sodium and potassium are bananas, pretzels, bagels, energy bars and other easily digested high-carbohydrate foods. Studies have shown that your muscles are primed to take in and recharge their energy supply most efficiently in the first few hours after the race. Eat slowly, and be aware of any nausea to avoid throwing up.

#### **Take a lukewarm or cool shower**

Avoid hot showers until you are completely rehydrated, because they can dilate your blood vessels and cause you to get dizzy and pass out. Avoid hot tubs because they will worsen swelling and inflammation in the muscles and joints.