



PHYSICAL DIMENSIONS

CHIROPRACTIC, PHYSICAL THERAPY, SPORTS MEDICINE
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Top Running Injuries and Prevention Strategies

1. Plantar Fasciitis

- a. Primary risk factors:
 - 1) Rapid increase in intensity or uphill running followed by sleeping on your stomach or tightly tucked sheets. This causes nocturnal contracture (shortening) of the plantar fascia.
- b. Preventions:
 - 1) Build volume before intensity.
 - 2) Sleep with your ankles in a neutral non-toe pointing position.
 - 3) Obtain a tibial night splint from a sports medicine professional.
- c. Secondary risk factors:
 - 1) Hyper flexible running shoes (racing flats) or work shoes.
 - 2) Excessive mileage on your shoes.
 - 3) Overpronation (flattened arches).
- d. Preventions:
 - 1) Train at moderate distances in a moderate weight shoe, and race in a flexible, fast racing shoe.
 - 2) Obtain an orthotics consultation from a professional sensitive to the needs of a runner. (A 4oz orthotic in a 10oz shoe adds up.)
 - 3) Wear quality rigid supportive shoes like Danskos to work on concrete floor.
- e. Tertiary risk factors:
 - 1) Weak intrinsic muscles of the feet com.
- f. Preventions:
 - 1) Perform toe gripping and toe walking activities to bring these muscles endurance up to speed with the rest of your program.

2. Patellar Tendonitis

- a. Primary risk factors:
 - 1) Rapid increase in intensity.
 - 2) Downhill running, or pseudo-downhill running (over striding).
- b. Preventions:
 - 1) Build volume before intensity before initiating downhill running.
 - 2) Lean forward on the flats and downhill running.
 - 3) Land with your foot level with the ground rather than leaning backwards with toes up trying to decelerate one self.
 - 4) Oscillate side to side on steep downhill running to disperse deceleration forces into your IT bands rather than patellar tendons.
 - 5) When looking down at your patella (kneecap) as you run, your sternum should be on top of your kneecaps and your kneecaps on top of your second toe. Poor



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alignment from either flat feet causing toe out or weak groin adductors or hip abductors cause excessive side to side tension on patellar tendon.

- 6) Increase back swing of upper extremity opposite of the symptomatic lower extremity to aid in forward propulsion and decrease deceleration forces.
- c. Secondary risk factors:
 - 1) Inflammation exceeds healing rate causing patella to become distended with fluid.
- d. Preventions:
 - 1) Ice daily with non-moist ice bag directly on patella with compression.

3. Iliotibial Band Syndrome

- a. Primary risk factors:
 - 1) Same as patellar tendonitis risk factors.
 - 2) Over supination or high arches, or excessive outward bowing on knees are inherent to ITB.
- b. Preventions:
 - 1) Same treatment approaches as patellar tendonitis except add hip abductor endurance activities on symptomatic side to minimize inherent Trendelenberg gait (hip drop) on side opposite symptoms at heel strike.
 - 2) Running on loose sand and dirt surfaces also surprisingly increase incidence of ITB due to the natural behavior of pausing during heel strike to establish firm surface to push off.

4. Hamstring Strains

- a. Primary risk factors:
 - 1) Over striding (not leaning forward at heel strike).
 - 2) Performing speed work on hamstrings that are already suffering from delayed-onset muscle soreness/hypertonic
 - 3) Weak adductor and gluteus maximus causing hamstring overemphasis.
- b. Preventions:
 - 1) Fix or identify over striding.
 - 2) Never do speed work on hypertonic hamstrings.
 - 3) Limit hamstring weight training the day before a track workout.
 - 4) Ice hamstrings after every workout to decrease natural hamstring tone.
 - 5) Perform adductor/gluteus maximus facilitation activities as demonstrated by a sports medicine professional.

5. Trochanteric Bursitis/Gluteus Medius Tendonitis

- a. Primary risk factors:
 - 1) Rapid increase in intensity and steep climbing in preseason before tendon thickness is adequate.



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- 2) Over striding.
- 3) Excessive hip drop opposite symptomatic hip at heel strike.
- 4) Poor hip abductor group endurance.

b. Preventions:

- 1) Volume before intensity i.e. Stairmaster walking before skyrocketing up Green Mountain, carrying 20lb child in backpack on level surfaces before attempting straight up a mountain.
- 2) Shorten stride and lean forward.
- 3) Increase opposite arm back swing to increase forward propulsion without overloading same side abductors.
- 4) Hip abductor/side-kicking endurance program.
- 5) Ice hips daily before they become symptomatic.

6. Shin Splints

a. Primary risk factors:

- 1) Intensity before volume.
- 2) Over striding/not leaning forward/landing with a level foot at heel strike.
- 3) Poor endurance of anterior tibialis muscles.
- 4) Overly rigid or flexible shoes
- 5) Running in the same direction every day around a track.
- 6) Running downhill with unusual weight on your back.

b. Preventions:

- 1) Perform volume before intensity.
- 2) Obtain a video gait analysis (VGA) to identify/correct over striding.
- 3) Perform anterior tibialis endurance exercises.
- 4) Obtain a shoe prescription and switch shoes every 300 miles.
- 5) Alternate directions around a track.
- 6) Ice daily with compression to decrease compartmental pressure at the shins.

7. Stress Fractures in the Feet

a. Primary risk factors:

- 1) Relative excess volume combined with premature intensity.
- 2) Hyper flexible training shoes.
- 3) Toe running/landing on mid to forefoot during heel strike.
- 4) Rapid increase in downhill running.
- 5) Rapid transition from trail running to pavement running.

b. Preventions:

- 1) Build volume before intensity and listen to your body.
- 2) Know weekly mileage threshold at which you experience stress phenomena.
- 3) Train in a moderate weight training shoe and race with a flexible flat if needed.



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- 4) If you come from a booted sport background like hockey and are new to distance running, take a year to build up to the marathon distance as you likely don't have the bone density yet necessary to train marathon distance on hard pavement.