



**Injury
Prevention**



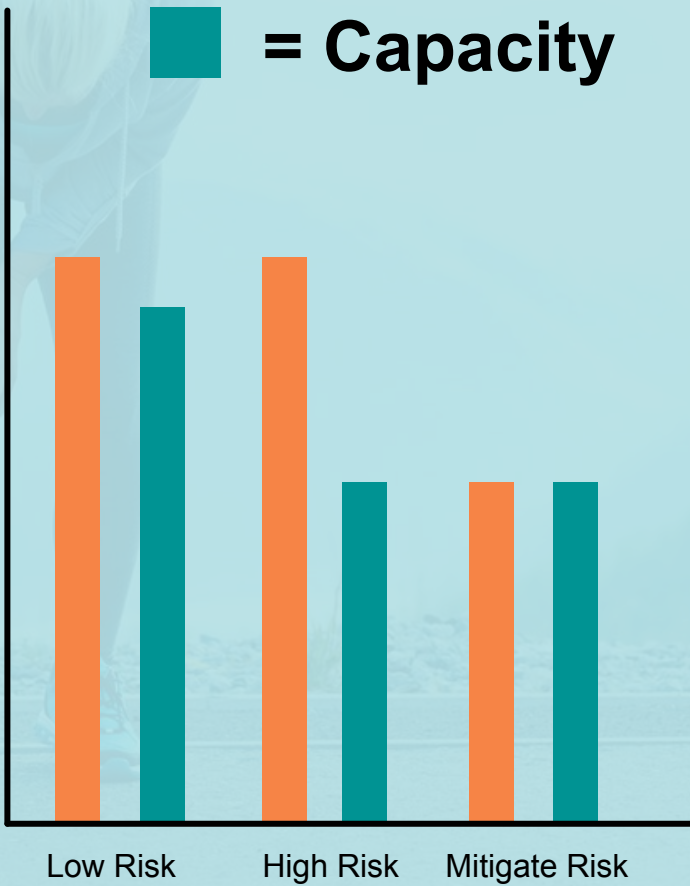
Trail Running



Why We Get Injured

 = Load

 = Capacity



Increase Capacity

Warm-Ups



Most of us are rather sedentary during the day. We can often find an hour of the day to get out for a run, but fail to prepare our bodies for the task at hand! Dynamic warm-ups prepare your joints, muscles, tendons, and ligaments for a sudden increase in load. This decreases your chance of getting injured!

Cool-Down



Slow and relaxed cool-downs are just as important to return the body to a state of homeostasis. This means returning your heart rate and blood pressure back to resting levels, and allowing your muscles to return to a relaxed state without tightness or cramping.

Increase Capacity

Cross Training

Did you know that your muscles give your joints the same support as a brace when trained properly?

Strong stabilization muscles reduce your risk for injury by taking some of the load off of your joints and ligaments!

Examples:

- Single leg balance exercises for ankle and knee stability
- Banded lateral walks for stable hips
- Planks, side planks, and hollow holds for low back stability
- Yoga for bodily awareness and control



Manage Load

Progressions

Most injuries come from doing:

- too much too soon
- too much when injured
- too much when tired

Follow your training plans and listen to your body day-to-day!



Manage Load

Listen to Your Body!



Before each run close your eyes and ask yourself:

- Physical energy level?
- Mental energy level?
- Does something feel stiff?
- Does something hurt?
- Do you feel "off" or "clumsy" today?
- Are you overtrained?
- Are you coming back from time off?

Types of Injury

Overuse

Chronic micro-trauma

- Poor form
- Poor recovery
- Wrong gear
- Too much too soon



Acute Trauma

One-time macro-trauma

- Sprains/strains
 - Rolling ankles
 - Overextending knees
 - Stepping wrong and tearing a hamstring
- Falls
 - Cuts, scrapes, bruises
 - Fractures
 - Whiplash/concussions

5 Most Common Running Injuries

Symptoms

Why it hurts

Treatment

Prevention

Ankle Sprains

Symptoms

- Sharp pain (outside more common than inside)
- Pain with bearing weight
- Bruising
- Swelling
- Loss of range of motion
- Altered sensation

Why it hurts

- Ligament tears
 - Grade 1 = Micro-tears. Minimal pain, bruising, & swelling. Can bear weight without issue.
 - Grade 2 = Partial tear. Moderate pain, bruising, and swelling. Bearing weight is rather painful.
 - Grade 3 = Full tear. Severe pain, bruising, swelling. Bearing weight is extremely difficult.

Ankle Sprains

Treatment

- IASTM (blading/scraping)
- Taping
- Ice
- Range of Motion exercises
- Proprioception exercises
- Muscle strengthening
- Joint Flossing
- Adjustments



Prevention

Training for strong and coordinated ankles. This requires:

- Ankle strengthening
- Proprioception training
- Agility training
- Adequate range of motion

IT Band Syndrome

Symptoms

- Sharp pain at the outside of the knee
- Pain is worse with downhill running and going down stairs
- Pain gets worse throughout the run
- Pain can be debilitating

Why it hurts



- Overly tight Tensor Fascia Latae (TFL) muscle
- IT band = long tendon of the TFL muscle
- IT band attaches around the knee
- Tight TFL leads to pulling on the IT Band
 - IT band rubs over bony structures and bursa around the knee.
 - Inflamed bursa = Bursitis
- Overuse Injury

IT Band Syndrome

Treatment

- Foam rolling the TFL and quads
- Active Release Technique (ART)
- IASTM (blading/scraping)
- Compression straps
- Strengthening the hips
- Stretching the TFL/quads/hips
- Self-massage of the TFL/quads/hips



Prevention

- Strong hips, glutes, and hamstrings
 - Banded lateral walks
 - Glute bridges
- Mobile hips
 - Dynamic stretching warm-ups
 - Static stretching cool downs
- Supple happy quads and hips
 - Foam roll
 - Self massage

Plantar Fasciitis



Symptoms

- Sharp pain at the base of your heel that may or may not radiate into the arch
- Worst pain with the first few steps in the morning
- Increased pain when you bring your toes towards your nose
- Pain mostly with weight bearing

Why it hurts

- Inflamed, damaged, tight plantar fascia
- Plantar fascia pulls on the heel bone
 - Can create spurs
- Overuse injury

Plantar Fasciitis

Treatment

- IASTM (blading/scraping)
- Self-massage
- Rolling foot with frozen water bottle or ball
- Supportive shoes/slippers
- Night splits
- Gentle stretches
- Strengthen the foot muscles

Prevention

- Proper shoes
- Strengthen foot muscles
- Roll out feet before runs
- Slowly progress training
- Avoid being barefoot if you are not usually barefoot



Runner's Knee

Symptoms

- Pain going up or down stairs
- Pain most common in the front of the knee, but can present elsewhere
- Pain with squatting
- Dull achey pain

Why it hurts



- Poor movement of the knee cap
 - Side to side instead of up/down
- Muscle imbalances
 - Weak medial quad
 - Too strong/tight lateral quad
- Gait dynamics change with longer distances
 - Muscle fatigue
- Cartilage inflammation under the knee cap

Runner's Knee

Treatment

- Stretch the quads and hamstrings
- Strengthen the glutes and medial quads
- Patellar mobilizations
- IASTM
- Active Release Technique
- Self-massage to release the lateral quads

Prevention

- Stay in the front seat when running
 - Putting on the breaks by leaning backwards over-activates the quads
- Stretch the quads and hamstrings
- Strengthen the glutes and medial quads
- Patellar mobilizations
- Self-massage the lateral quads

Blisters

Symptoms

- Blister formation
- Callus formation
 - Watch these areas for future blisters
- "Hot spots"
 - These are warning signs
 - ACT NOW!

The cause?



- Friction, Friction, Friction!
- Bunions/other foot deformities
- No socks / wrong socks
- Improper fitting shoes
 - Too tight (toes hitting the front on downhills?)
 - Small toe box (room for bunions?)
- Sand/grit in socks
- Overuse

Blisters

Treatment

- Leave the skin on if possible
 - Skin is a protective barrier to prevent infections
- Pop only when needed and with a sterile needle
- Clean & apply Neosporin
- Apply protective covering
 - Band-aids
 - Cover band-aid with KT tape
- Rest

Prevention



- Professionally fitted shoes
- Proper socks
 - Moisture wicking, blister socks
- Glide products onto hotspots and blister prone areas
- Taping around areas of high friction
- Slow progression

When to see a Doctor

Severity



- Pain at or above a 3/10
- Does it get worse throughout the run or does it fade after a mile or two?
- Bruising/swelling/deformities

Time

- Has it been more than a week or 2?
- Is it getting worse over time?

Gait

- Are you compensating for the pain by changing your gait?
- Compensations = future additional injuries!

When to see a Doctor

Daily Life

- Is the pain affecting your day-to-day life?
- Are you avoiding activities you would normally partake in?
- Are you taking time off of work?
- Is your pain affecting your family or social life?

If you can, get in before it gets worse!

- It's best to get see your local musculoskeletal professional before things get worse!
- It is easier to treat injuries right when they start.
- Chronic injuries are treatable, but can take longer to heal!



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