



## **Running Injury Prevention Tips & Strength Training Program for Runners**

The intent of these guidelines is to provide the athlete with a framework for return to sports activity following injury. These guidelines should not take the place of medical advice if attempting to return to sports following an injury. If an athlete requires assistance in the progression of a return to sport program they should consult with their primary care physician, surgeon, or physical therapist.

### **Steps to reduce tissue trauma / injury**

- Gradual increases in running time / miles (10% rule)
- Be careful of excessive downhill running
- Reasonable amount of fast paced running
- Adequate rest between workouts
- Fewer hard surface runs
- Proper eating / sleeping
- Avoidance of complete fatigue
- Every run should have a purpose
- Develop stronger tissues – strength training

### **Strength Training Program for Runners**

Stronger muscles provide:

- More power for running up hills
- Better shock absorption, which assists in injury prevention
- Improved soft tissue / connective tissue integrity
- UE strength assists with improved UE motion during late stages of a run when legs are fatigued

Exercise Parameters:

- 3 x / week
  - (2 x / week has about 85% benefit of 3 / x week)
- 1 set of 12 - 16 of each major muscle group
  - (equal benefit of 2-3 sets)
- Moderate to slow repetitions to focus on control
  - (6 seconds for each repetition)
- 75 % of maximum weight / resistance
- If able to do 16 reps comfortably then increase resistance by 5%
- About 25 minutes total per session

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1

| <b>Muscle group</b> | <b>Machine</b>  | <b>Free weights</b> |
|---------------------|-----------------|---------------------|
| • Quadriceps        | leg ext.        | Squat/lunge         |
| • Hamstrings        | leg curl        | Squat/lunge         |
| • Gluteals          | hip ext.        | Squat/lunge         |
| • Gastrocs          | Heel ups        | Heel ups            |
| • Anterior Tibialis | -----           | Toe ups             |
| • Pec. Major        | double chest    | bench press         |
| • Latissimus dorsi  | pullover        | bent row            |
| • Deltoids          | lateral raise   | lateral raise       |
| • Biceps            | bicep curl      | bicep curl          |
| • Triceps           | triceps ext.    | triceps ext.        |
| • Spinal erectors   | low back        | back ext.           |
| • Abdominals        | abdominal       | crunches            |
| • Upper Trapezius   | neck & shoulder | shrug               |

### **Injury Prevention:**

- 80% of running injuries are caused by too much of an increase in mileage
- The cardiovascular system adjusts to stress quicker than the joints
- Joggers/runners should increase their total weekly running amount by no more than 10%
- Get a good pair of running sneakers and change them every 300-400 miles
- Run on soft, flat surfaces whenever possible. Treadmill training is fine
- If you cannot take more than a couple of days per week of impact, cross-train on bike or elliptical trainer to increase fitness level
- Maintain or achieve ideal body weight to minimize joint stress
- Stretch regularly

### **Warm Up**

- Any cardio exercise should begin easy and gradually increase intensity
- Should last 3-5 minutes
- Example: If you normally run a 10-minute/mile pace, warm-up running 12-13 minute/mile pace or begin with walking briskly

### **Cool Down**

- At the end of the run, walk for around 3-5 minutes to prevent blood from pooling in your legs and to allow your heart rate to decrease

### **Stretching**

- Stretching should be done at the conclusion of the run
- Stretch to the point of tension and hold for 20-30 seconds, at least 1x per muscle group
- Do not bounce when stretching
- If you have a particular tight spot, stretch more frequently (after the initial warm up or even at every mile)

## **Running Injury Prevention Tips & Strength Training Program for Runners**

2

## **Warning Signs of Injury**

### **What pain is ok?**

- General muscle soreness
- Slight joint discomfort after workout or next day that is gone in 24 hours
- Slight stiffness at beginning of run or walk that dissipates after first 10 minutes

### **What pain is not okay? (You should not train!)**

- Pain that is keeping you awake at night
- Pain that is evident at beginning of run/walk then becomes worse as run/walk continues
- Pain that changes your stride

### **What to do if I get reinjured / injured?**

- Ice area: 15-20 minutes several times per day (frozen peas work well)
- Elevate injured part while icing
- Rest (at least initially)
- Analyze program for possible causes
  - What did I do differently in training?
  - Big mileage jump?
  - Significant pace increase?
  - Shoes beaten up? Or change in shoe model?
  - Change from all treadmill or soft surface to road running?
- Cross-train on non-impact cardio – follow similar minutes that you were doing running/walking (elliptical trainer – 130 + strides/minute)
- Determine plan to return to full program, return to running very slowly
- Physical therapist and/or orthopedic referral

## **Warning Signs of Overtraining**

- Difficulty performing typical workouts for more than a week
- Excessive fatigue
- Higher resting heart rate
- Decreased appetite
- Sorer muscles
- Troubled sleep
- Irritability
- Increased perspiration
- Decreased desire to train

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3

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