



## **Running Injury Prevention Tips & Return to Running Program**

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.

### **Injury Prevention Tips:**

#### **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

#### **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)

## **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

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## **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

## **Return to Running Program:**

When beginning a return to running program a runner and therapist should take into consideration the original injury / underlying health status in order to modify this program accordingly. A runner should progress through this program on phase at a time.

### **Phase I: Walking Program**

You should be able to walk, pain free, aggressively (roughly 4.2 to 5.2 miles per hour), in a controlled environment, preferably on a treadmill, before beginning the plyometric and walk/jog program.

### **Phase II: Plyometric Routine**

A mile run typically consists of 1500 foot contacts, 750 per foot. This program integrates 470 foot contacts per leg, which would be equivalent to two thirds of the foot contacts during a mile run. Upon successful completion of this phase is a good indicator that an athlete is ready to attempt running a half to three-quarters of a mile distance.

<b>Exercise</b>	<b>Sets</b>	<b>Foot contacts per set</b>	<b>Total foot contacts</b>
Two-leg ankle hops: in place	3	30	90
Two-leg ankle hops: forward/backward	3	30	90
Two-leg ankle hops: side to side	3	30	90
One-leg ankle hops: in place	3	20	60
One-leg ankle hops: forward/backward	3	20	60
One-leg ankle hops: side to side	3	20	60
One-leg leg broad hop	<u>4</u>	5	<u>20</u>
	22		470

**Rest Intervals:**      Between Sets            90 seconds  
                                  Between Exercises:    3 minutes

**General Guidelines:**

- Stretch Gastro, Soleus, Quads and Hamstrings between exercises.
- If you experience pain or are unable to complete an exercise, stop, stretch and apply ice to the involved area. If you are pain free the next day, attempt to re-start the routine.

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### Phase III: Walk/Jog Progression

You may begin this program on level ground if:

1. Successful completion of Phase I and II.
2. You have no pain with normal daily activities.

	Walk	Jog	Repetitions	Total time
<b>Stage I</b>	5 minutes	1 minute	5 times	30 minutes
<b>Stage II</b>	4 minutes	2 minutes	5 times	30 minutes
<b>Stage III</b>	3 minutes	3 minutes	5 times	30 minutes
<b>Stage IV</b>	2 minutes	4 minutes	5 times	30 minutes

**Stage V** Jog every other day with a goal of reaching 30 consecutive minutes, begin with 5 minutes of walking, gradually increasing the pace. End with 5 minutes of walking, gradually decreasing the pace to a comfortable walk.

### Pain Management

If you develop swelling in a joint or muscular pain that lasts longer than 72 hours, you have done too much and need to decrease activity (duration and/or intensity) and increase rest between workouts.

Apply moist heat before activity and stretch thoroughly then ice immediately after activity for 15 to 20 minutes.

If you develop tightness during activity, stop and stretch (3 reps for 30 a count each) the affected area then resume activity. If tightness returns, stop and stretch again. If pain develops or after three stretching sessions the tightness remains, stop activity and apply ice to involved area for 20 minutes.

It is important to identify to exact location of your pain. Is it in a constant location or does it “move around” in a general area?

- Constant location: be very cautious, incorporate more rest between exercise sessions, keep the intensity low and exercise on level, soft surfaces.
- “Moves around”: continue with progression, but do not increase the intensity.

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It is important to identify when you have pain:

- **Type I:** After activity: stretch affected area well (at least 3 to 5 reps, hold each for at least a 30 count), long, slow, gentle stretch, then ice for 20 minutes. Continue to progress program if discomfort appears to be muscle soreness. If joint pain and/or swelling develops, increase rest between exercise sessions and decrease activity level to previous level.
- **Type II:** During activity, at begin then dissipates: maintain same activity level and low intensity until symptoms dissipate.
- **Type III:** During activity, gradually develops and intensifies with activity: decrease intensity of activity, stop and stretch to relief symptoms, stop activity if those do not relief symptoms. Maintain same activity level; if symptoms continue, decrease activity to previous level.
- **Type IV:** At night, keeps you up or wakes you up: Bad, doing too much; total rest until symptom free, decrease activity to previous level and keep intensity low.
- **Upon waking:** In the morning, upon waking, then dissipates: sign of more to come, decrease activity to previous level and keep intensity low.

It is important to grade the level of pain you have over a period of several days to weeks. Is the pain getting worse, staying the same or gradually dissipating? Use a pain scale of 0 to 10, in which 0 is normal and 10 is the worst.

- Getting worse: need total rest, decrease to previous activity level and decrease intensity of exercise.
- Staying the same: decrease activity level to previous level and maintain until pain decreases.

### **General Guidelines**

- If you have no pain when doing this activity level or afterwards, and you have no discomfort or tightness that limits your normal movements the next morning, proceed to the next stage.

## **Phase IV: Timed Running Schedule**

### **Program Progression**

- If the jogging hurts, stop, apply ice and return to the previous stage the next day. If pain/discomfort remains or increases, continue to return to a previous level until discomfort stabilizes or decreases.
- If you have no pain when doing this activity level or afterwards, and you have no discomfort or tightness that limits your normal movements the next morning, proceed to the next stage.
- Increase the intensity (how hard/fast) of the jog/run before you increase the duration (how long) of the jog/run.
- When you increase the frequency (how many days per week you jog/run) of the workouts, decrease the duration of the workout.
- When you begin running multiple days in a row, make increases (duration or intensity) on the first day of activity after a day of rest, then decrease the duration of activity to the previous level.
- Ten Percent Rule: Only increase the weekly mileage by 10 % of the previous week.
- If you develop persistent tightness or increased discomfort during activity to a point of dysfunction, stop and note the time of onset of symptoms during the exercise session (during a 30 minute planned exercise session, symptoms develop after 21 minutes). Consider split the duration of activity between 2 workouts with each exercise session shorter than the time of the onset of symptoms during the previous attempt. Example: during a 30 minute planned exercise session, symptoms develop after 24 minutes, then each of the 2 exercise sessions would be 20 minutes long. The exercise sessions should be separated by 6 to 8 hours.
- Try to jog/run on a flat, forgiving surface (ie-golf course, athletic field) before hilly courses or even surfaces.

### **Phase IV: Timed Running Schedule-Intermediate**

- The Intermediate schedule is designed for the runner who is restarting training or recovering from an injury, such as a stress fracture or significant illness, which has kept them “off their feet” or on non-weight bearing activities for 4 weeks or longer.
- You may begin this program on level ground if you have completed Phase I, II and III.

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## **Running Injury Prevention Tips & Return to Running Program**

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- Run every other day for eight weeks. Cross train, active rest or total rest on days off.
- Estimate a pace between 8 to 9 minutes per mile.

<u>Day</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>Week</u>
Minutes	30	-	30	-	30	-	35	1
	-	30	-	30	-	35	-	2
	35	-	30	-	35	-	35	3
	-	35	-	40	-	35	-	4
	35	-	40	-	40	-	35	5
	-	40	-	40	-	40	-	6
	45	-	40	-	40	-	45	7
	-	45	-	40	-	45	30	8

Run multiple days in a row after 8 weeks.

<u>Day</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>Week</u>
Minutes	-	45	35	-	45	40	-	9
	45	45	-	45	45	30	-	10
	45	45	35	-	45	45	40	11
	-	45	45	45	-	45	45	12

#### **Phase IV: Timed Running Schedule-Advanced**

- The Advanced schedule is designed for the runner who is recovering from a soft tissue injury, such as a strained muscle, which has forced them to cross train for least than 4 weeks.
- You may begin this program on level ground if you have completed Phase I, II and III.

### **Running Injury Prevention Tips & Return to Running Program**

- Run every other day for eight weeks. Cross train, active rest or total rest on days off.
- Estimate a pace between 7:30 to 8 minutes per mile.

<u>Day</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>Week</u>
Minutes	30	-	30	30	-	35	30	1
	-	35	35	-	40	35	-	2
	40	40	-	45	40	-	45	3
	45	-	45	40	30	-	45	4
	40	35	-	45	40	40	-	5
	45	45	40	-	45	45	45	6
	-	50	45	40	-	50	45	7
	45	-	50	50	45	-	50	8
	50	50	-	55	50	50	-	9
	55	55	50	-	55	55	55	10
	-	60	55	55	-	60	60	11
	55	-	60	60	60	-	65	12

Return to running program based on a program by Steven L. Cole, ATC, CSCS, College of William and Mary.

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