**Running Injury Prevention Program:**

The intent of these guidelines is to provide the athlete with a framework for return to sports activity following injury, or off season, or athletes new to running long distances. 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, athletic trainer 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 10-15 minutes

**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 beginning and end 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)

**Return to Running Program:**

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.

*(New runners and returning runners may skip this stage if they can already complete it pain free)*

**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.

*(New runners and returning runners may be able to complete this stage. If they can complete it with control, they may progress to the next stage.)*

Exercise Sets Foot contacts per set Total foot contacts

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 4 5 20

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.

**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.

*(Returning runners may be able to complete this phase or may be able to start at a later stage. No runner should progress to Phase IV until they can run for 30 continuous minutes without pain.)*

Walk Jog Repetitions Total time

Stage I 5 minutes 1 minute 5 times 30 minutes

Stage II 4 minutes 2 minutes 5 times 30 minutes

Stage III 3 minutes 3 minutes 5 times 30 minutes

Stage IV 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.

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 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.

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

• The Intermediate schedule is designed for the runner who is new to running, restarting training or recovering from an injury, 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.

• 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.

Day 1 2 3 4 5 6 7 Week

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.

Day 1 2 3 4 5 6 7 Week

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 has taken a rest (less than 4 weeks) from running, or other activities (such as over the summer)

• You may begin this program on level ground if you have completed Phase I, II and III.

•Cross train, active rest or total rest on days off.

• Estimate a pace between 7:30 to 8 minutes per mile.

Day 1 2 3 4 5 6 7 Week

 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

**Strength Training Program for Runners (Can be done on off days from running)**

Stronger muscles provide:

• More power for running up hills

• Better shock absorption, which assists in injury prevention

• Improved soft tissue / connective tissue integrity

• Upper extremity strength assists with improved upper extremity motion during late stages of a run when legs are fatigued

**Exercise Parameters:**

• 3x per week

• 1 set of 12 - 16 of each major muscle group (moderate pace, focus on control)

• 75 % of maximum weight / resistance (If able to do 16 reps comfortably, increase resistance by 5%)

Muscle group Machine Free weights

• 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