

# ADVANCED RETURN TO RUNNING REHABILITATION GUIDELINE

Progression is time and criterion-based, dependent on soft tissue healing, patient demographics and clinician evaluation. Contact Ohio State Sports Medicine at 614-293-2385 if questions arise.

- Ideal for athletes with non-surgical injuries, post-surgical patients following Alter G or Deep Water Running Progression, and runners that average 40-60 miles per week
- This guideline is intended for end stage rehabilitation return to running and the clinician should use their own clinical judgement when it is safe to return the athlete to plyometrics and running
- Supplement with Alter G and Deep Water Running Progression for post-surgical patients

## Phase I: Walking and Plyometrics

| <b>Criteria to Start Phase I</b>   | <ul style="list-style-type: none"> <li>• Ability to walk 30 minutes pain-free</li> <li>• Full joint range of motion</li> <li>• At least 80% strength compared to the unaffected limb (specifically post-surgical injuries)</li> <li>• Trace to no edema present</li> </ul>  |  |                                   |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|--|---|--|-----------------------------------|--|------------|------------|--------------|--------------|-------------|-------------|--------------|--------------|------------|------------|------------------|------------------|-----------|------------|--------------|------------|------------|------------------------|-----------------|----------------|
| <b>Goals</b>   | <ul style="list-style-type: none"> <li>• Tolerate single leg impact activities</li> <li>• Demonstrate proper lower extremity biomechanics</li> <li>• Walking without limitations</li> <li>• Demonstrate equal quality and power bilaterally</li> </ul>  |  |                                   |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
| <b>Guidelines</b>  | <table border="1"> <tr> <td rowspan="10"> <ul style="list-style-type: none"> <li>• Double limb jumps progressed to single limb hops</li> <li>• Unilateral to multi-directional plane hops</li> </ul> </td> <th colspan="2" style="background-color: #c00000; color: white;">Sample Functional Hop Progression</th> </tr> <tr> <th>Double Leg</th> <th>Single Leg</th> </tr> <tr> <td>Hop in Place</td> <td>Hop in Place</td> </tr> <tr> <td>Forward Hop</td> <td>Forward Hop</td> </tr> <tr> <td>Backward Hop</td> <td>Backward Hop</td> </tr> <tr> <td>Triple Hop</td> <td>Triple Hop</td> </tr> <tr> <td>Side-to-Side Hop</td> <td>Side-to-Side Hop</td> </tr> <tr> <td>Crossover</td> <td>Cross-over</td> </tr> <tr> <td>Scissor Hops</td> <td>Dot Drills</td> </tr> <tr> <td>Dot Drills</td> <td>Lateral Bounds/Skaters</td> </tr> <tr> <td>180 Degree Hops</td> <td>90 Degree Hops</td> </tr> </table> | <ul style="list-style-type: none"> <li>• Double limb jumps progressed to single limb hops</li> <li>• Unilateral to multi-directional plane hops</li> </ul> | Sample Functional Hop Progression |  | Double Leg | Single Leg | Hop in Place | Hop in Place | Forward Hop | Forward Hop | Backward Hop | Backward Hop | Triple Hop | Triple Hop | Side-to-Side Hop | Side-to-Side Hop | Crossover | Cross-over | Scissor Hops | Dot Drills | Dot Drills | Lateral Bounds/Skaters | 180 Degree Hops | 90 Degree Hops |
| <ul style="list-style-type: none"> <li>• Double limb jumps progressed to single limb hops</li> <li>• Unilateral to multi-directional plane hops</li> </ul> | Sample Functional Hop Progression   |  |                                   |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Double Leg  |  | Single Leg                        |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Hop in Place  |  | Hop in Place                      |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Forward Hop   |  | Forward Hop                       |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Backward Hop  |  | Backward Hop                      |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Triple Hop  |  | Triple Hop                        |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Side-to-Side Hop  |  | Side-to-Side Hop                  |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Crossover   |  | Cross-over                        |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Scissor Hops  |  | Dot Drills                        |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
|  | Dot Drills  | Lateral Bounds/Skaters   |                                   |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |
| 180 Degree Hops  | 90 Degree Hops  |  |                                   |  |            |            |              |              |             |             |              |              |            |            |                  |                  |           |            |              |            |            |                        |                 |                |

## Phase II: Walk to Run Progression

|                                   |  |
|-----------------------------------|--|
| <b>Criteria to Start Phase II</b> | <ul style="list-style-type: none"> <li>Athlete is able to tolerate 200-250 foot contacts               <ul style="list-style-type: none"> <li>Athlete is able to tolerate number of foot contacts for ~1/3rd of a mile of running</li> </ul> </li> <li>No symptoms reported by the patient and demonstrates adequate plyometric form with minimal to no knee valgus, toe to heel landing, no trunk lean, and demonstrates soft landing</li> <li>Ability to perform 15 heel taps with proper LE mechanics</li> </ul>  |
| <b>Goals</b>                      | <ul style="list-style-type: none"> <li>Progression back to continuous running without aggravation of symptoms and antalgia</li> </ul>  |
| <b>Guidelines</b>                 | <ul style="list-style-type: none"> <li>Prior to walk to run progression complete 5 minute dynamic warm-up (example at <a href="http://wexnermedical.osu.edu/sports-medicine/treatments/endurance-medicine">wexnermedical.osu.edu/sports-medicine/treatments/endurance-medicine</a>)</li> <li>Athlete must take at least one running off day in between each return to running workout, non-impact cross training during off days</li> <li>Take at least one complete rest day a week</li> <li>If athlete develops pain, return of other symptoms, or cannot complete the phase they remain at that phase until they are able to complete it without symptoms</li> <li>Complete only one phase per day</li> </ul> |

| Advanced Walk to Run Program | Warm-up  | Run: Walk    | Repetitions | Cool down | Total     | Days |
|------------------------------|----------|--------------|-------------|-----------|-----------|------|
| Phase 1                      | 5-10 min | 4 min:1 min  | 2-4         | 5-10 min  | 20-30 min | 2    |
| Phase 2                      | 5-10 min | 6 min:1 min  | 2-4         | 5-10 min  | 25-35 min | 2    |
| Phase 3                      | 5-10 min | 8 min:1 min  | 2-4         | 5-10 min  | 30-40 min | 2    |
| Phase 4                      | 5-8 min  | 10 min:1 min | 2-4         | 5-8 min   | 35-45 min | 2    |

## Phase III: Running Progression

|                                    |  |
|------------------------------------|--|
| <b>Criteria to Start Phase III</b> | <ul style="list-style-type: none"> <li>Able to complete Phase II without pain or symptoms</li> <li>At least 90% strength and Limb Symmetry Index compared to the unaffected limb (specifically post-surgical injuries)</li> <li>Ability to perform 12 inch hop downs from box with proper LE mechanics</li> </ul>      |
| <b>Goals</b>                       | <ul style="list-style-type: none"> <li>Increase daily and weekly mileage gradually</li> <li>Return to normal running routine within 5 weeks</li> <li>No return of pain or symptoms</li> </ul>  |
| <b>Guidelines</b>                  | <ul style="list-style-type: none"> <li>Athlete can cross train or rest on off days, but must take at least one rest day a week</li> <li>Prior to run progression complete 5 minute dynamic warm-up and 5-10 min walking warm-up</li> <li>After run complete 5-10 min walking cool down and post-run stretch</li> </ul> |

| Advanced Running Progression | Day1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Total Miles |
|------------------------------|------|-------|-------|-------|-------|-------|-------|-------------|
| Week 1                       | 2    | -     | 2     | -     | 3     | -     | 3     | 10          |
| Week 2                       | -    | 4     | -     | 4     | -     | 3     | 3     | 14          |
| Week 3                       | -    | 5     | -     | 5     | 4     | -     | 4     | 16          |
| Week 4                       | 5    | -     | 6     | 5     | -     | 6     | -     | 22          |
| Week 5                       | 6    | -     | 7     | 7     | -     | 9     | 4     | 32          |
| Week 6                       | -    | 7     | 10    | 4     | -     | 12    | 7     | 40          |



# ADVANCED RETURN TO RUNNING PROGRAM (FOR PATIENTS)

## Step 1: Walk to Run

- Only complete one phase per day, performing workout every other day
- On off days, either cross train or rest but must take one day of complete rest each week
- Stop running if you begin to experience pain, swelling, or altered running/walking pattern
- Complete each phase without symptoms before moving on to the next phase

| Advanced Walk to Run Program | Warm-up  | Run:Walk     | Repetitions | Cool down | Total     | Days |
|------------------------------|----------|--------------|-------------|-----------|-----------|------|
| Phase 1                      | 5-10 min | 4 min:1 min  | 2-4         | 5-10 min  | 20-30 min | 2    |
| Phase 2                      | 5-10 min | 6 min:1 min  | 2-4         | 5-10 min  | 25-35 min | 2    |
| Phase 3                      | 5-10 min | 8 min:1 min  | 2-4         | 5-10 min  | 30-40 min | 2    |
| Phase 4                      | 5-8 min  | 10 min:1 min | 2-4         | 5-8 min   | 35-45 min | 2    |

## Step 2: Running Progression

- On off days, either cross train or rest but must take one day of complete rest each week
- Avoid hill running until you have returned to your normal weekly mileage and pace
- Stop running if you begin to experience pain, swelling, or altered running pattern
- Work to increase speed before increasing distance

| Advanced Running Progression | Day1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Total Miles |
|------------------------------|------|-------|-------|-------|-------|-------|-------|-------------|
| Week 1                       | 2    | -     | 2     | -     | 3     | -     | 3     | 10          |
| Week 2                       | -    | 4     | -     | 4     | -     | 3     | 3     | 14          |
| Week 3                       | -    | 5     | -     | 5     | 4     | -     | 4     | 16          |
| Week 4                       | 5    | -     | 6     | 5     | -     | 6     | -     | 22          |
| Week 5                       | 6    | -     | 7     | 7     | -     | 9     | 4     | 32          |
| Week 6                       | -    | 7     | 10    | 4     | -     | 12    | 7     | 40          |

## Recommendations to Prevent Injuries in the Future

- Give yourself at least one rest day a week
- Continue with strengthening exercises from physical therapy at least 2-3 times a week
- Perform a dynamic warm-up prior to running and perform static stretching after your run (example at [wexnermedical.osu.edu/sports-medicine/treatments/endurance-medicine](http://wexnermedical.osu.edu/sports-medicine/treatments/endurance-medicine))
- Decrease mileage or stop running if your injured, slowly return to your normal routine
- Increased mileage increases your risk of injury, gradually increase mileage and intensity

## References

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