These are rehabilitation guidelines for OSU Sports Medicine patients. Please contact us at 614-293-2385 if you have any questions.

Rehabilitation Precautions

- Weight bearing as tolerated with brace locked in full extension 0-6 weeks.
- Isotonic strengthening
  - Avoid isolated active/resistive hamstring strengthening for 5 months.
  - Closed chain co-contraction activities may begin at 6 weeks.
- Posterolateral Corner Repair—Non weight bearing for 4 weeks, then increase weight bearing in brace locked at 0°. Unlock brace at 6 weeks with goal of progressing out of brace by 8 weeks.
- Progression is time and criterion-based, dependent on soft tissue healing, patient demographics, and clinician evaluation

Post-operative weeks 0-4

Bracing

- Locked in full extension except for ROM activities.

ROM

- Maintain/obtain full knee extension
- Supine/long sitting passive heel slide with posterior tibia support to avoid posterior tibial sag (0-90°)
- Patellar mobilizations
- Maintain hamstring and calf flexibility, via posteriorly supported positions. (No 90/90 or supine straight leg stretching of hamstrings due to possible posterior tibial sag)
- Edema control
  - Vasopnuematic device
  - Ice education

Strengthening

- No active/resistive hamstring activities
- Neuromuscular re-education with e-stim and/or biofeedback if needed
- Quad sets, supine or prone
- Straight leg raises with brace: flexion, abduction, and adduction
- Weight bearing activities with brace (weight shifts, heel/toe raises)

Goals to Progress to Next Phase

1. Good quad set
2. ROM 0-90°
3. Straight leg raise without knee extensor lag.

Weeks 4-6

ROM

- Brace may be unlocked for ranging activities.
- Supine/long sitting passive heel slide with posterior tibia support (0-100 degrees)
- Continue with hamstring and calf flexibility in available range (light towel stretch)

Strengthening

- Continue closed chain activities in locked brace.
- Straight leg raises with brace: flexion, abduction, and adduction.
 o Contralateral hip PRE’s/Steamboats (No Extension)
o Continue quadriceps strengthening.

**Goals to Progress to Next Phase**
1. ROM 0-100 degrees
2. Pain free full weight bearing in brace locked at 0 degrees
3. Able to perform single leg stance with moderate to good balance

**Week 6-8**
Patient able to **discontinue brace** after 6 weeks when normal pain free gait pattern is demonstrated.

**ROM**
o Full seated and supine active ROM 0-130 degrees. No resistance.
o Able to perform passive ROM beyond available active ROM (avoid direct anterior to posterior force on tibia)
o Begin bike, no resistance

**Strengthening**
o Initiate multidirectional hip PRE’s/steamboats all directions.
o Progress partial weight bearing strengthening (Total Gym, Shuttle, Aquatics, etc.)
o Mini Squats, wall slides, step ups
o Gait training
o Proprioceptive activities
o Trunk and lumbosacral strengthening (No Bridging)

**Goals to Progress to Next Phase**
1. Ability to progress therapeutic exercise without pain or reactive swelling.
2. Active ROM 0-130° pain free
3. Normal gait pattern

**Week 8-12**

**ROM**
o Full active and passive ROM
o Initiate passive stretching of all major LE muscle groups.
o Continue bike with low level resistance

**Strengthening**
⇒ No active open kinetic chain hamstring exercises (may begin closed chain)
o Initiate step down begin with 2 inch step and progress to 4 inch.
o Retro treadmill ambulation
o Mini lunges, squatting 0-90°
o Progress LE/trunk strength and stability exercises (may initiate bridging)
o Resisted lateral stepping
o Proprioceptive activities progressed from stable to unstable surfaces
o Begin bilateral total gym/shuttle plyometrics **(at Week 10)**

**Goals**
1. Demonstrate ability to descend 6 inch step without reactive instability
2. ROM within normal limits
3. No dynamic valgus with squat to 90°

**Weeks 12-16**

**ROM**
o Continue per tolerance and use for pre-exercise warm up

**Strengthening**
o Shuttle/ Total Gym
  Partial weight bearing jogging
Rotational and single leg hopping
  o Initiate walk-jog progression (14 weeks)
    Criteria to initiate jogging
    ▪ ≥ 7 /10 on #10 IKDC Questionnaire (Appendix A)
    ▪ 20 heel touches with good alignment
    ▪ Appropriate landing mechanics
    ▪ Normalized ROM
    ▪ Audible rhythmic strike patterns and no gross visual antalgia
  o Initiate agility exercises 50-75% speed (14-16 weeks) Side shuffle, carioca, figure eight, zig zags, resisted jogging with sports cord, back pedaling, etc.
    Note: No acceleration/deceleration work due to delayed hamstring activation.

Goals
1. Pain free jogging
2. No reactive effusion
3. ROM equal to contralateral side.
4. Pain free bilateral plyometrics without reactive instability.

4-6 Months
ROM
  o Continue per patient ability – recumbent bike, upright bike, elliptical, treadmill

Strengthening
  o Initiate active resistive hamstring dominant exercises (5-6 months)
  o Continue jogging progression, increase speed and duration
  o May begin single leg full weight bearing plyometric training
  o Progress agility exercises 75-100% speed
  o May begun acceleration/deceleration and change of direction training
  o Continue emphasis on quad, hamstring, and core stability
  o Bilateral full weight bearing plyometrics

Goals
  o Functional Tests
    ▪ Single leg and cross over hop for distance within 10-15%
    ▪ FMS with score of at least 15 out of 21
    ▪ Complete sports specific drills without exacerbation of symptoms or reactive instability

6 Months
Strengthening
  o This sport-specific phase should transition from the rehab specialist in the clinic to athletic trainer or sports performance specialist as appropriate.
  o Continue sports specific agility exercises
  o Progress gradually to 100% per tolerance
Appendix A

IKDC #10 Question of Function

“How would you rank the function of your knee on the scale of 0 to 10 with 10 being normal, excellent function and 0 being the inability to perform an of your usual daily activities which may include sports?”

FUNCTION PRIOR TO YOUR KNEE INJURY:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couldn’t perform daily activities</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
</tr>
</tbody>
</table>

CURRENT FUNCTION YOUR KNEE:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couldn’t perform daily activities</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
</tr>
</tbody>
</table>

Functional tests

1.) **Single hop for distance**: Have the subject line their heel up with the zero mark of the tape measure, wearing athletic shoes. The subject then hops as far as he can, landing on the same push off leg, for at least 3 seconds. The arms are allowed to move freely during the testing. Allow him to perform 4 practice hops on each leg. Then, have the subject perform 4 trials, recording each distance from the starting point to the back of the heel. Average the distances for each limb.

2.) **Cross-over hop for distance**: This test is set up with a 15cm strip, extending 6 meters. The subject lines his heel up at the zero mark of the tape measure and hops 3 times on one foot, crossing over the center line each time. Each subject should hop as far forward as he can on each hop, but only the total distance hopped is recorded. Allow the subject to perform 4 practice rounds before recording. Average the distances for each limb.

Scoring:

- Begin with the uninvolved leg. If using tape to mark distance, remove it before the next trial to minimize visual cues.
- Greater than a 15% difference in average distance between the right and left limbs should be cause for concern, indicating quad, and hamstring weaknesses that should be addressed prior to return to sport.
- If patient fails test, evaluate and implement appropriate strength/stability/balance exercise strategies. Once resolved, test again.
REFERENCES


