

This rehabilitation program is designed to return the individual to their full activities as quickly and safely as possible following a patellar/quadriceps tendon reconstruction. Modifications to this guideline may be necessary dependent on physician specific instruction or other procedures performed. This evidence-based patellar/quadriceps tendon reconstruction guideline is criterion-based; time frames and visits in each phase will vary depending on many factors. The therapist may modify the program appropriately depending on the individual's goals for activity following patellar/quadriceps tendon reconstruction.

This guideline is intended to provide the treating clinician with a frame of reference for rehabilitation. It is not intended to substitute clinical judgment regarding the patient's post-operative care based on exam/treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

## **General Guidelines/Precautions:**

- Monitor for patellofemoral irritation and arthrofibrotic knee
- Avoid aggressive knee flexion during first 6 weeks.

| Phase    | Suggested Interventions  | Goals/Milestones for Progression   |
|----------|--|--|
| Phase I  | <ul> <li>WB Status:</li> <li>WBAT, brace locked in full extension; sleep in locked</li> </ul>  | Goals of Phase:<br>1. Skin healing   |
| Week 0-3 | brace  | <ol> <li>Control pain and swelling</li> <li>Knee ROM 0-45 degrees</li> </ol> |
|          | <ul> <li>Therapy:</li> <li>Begin supine exercises including: Ankle pumps, isometric quad sets, hamstring sets, heel slides with passive knee extension (0-45°); hip abduction/adductions; at end of week one initiate gravity eliminated SLR flexion (ASSISTED)</li> <li>Gait Training for stairs and ambulation as needed</li> <li>Bein and adoma control modalities PRN</li> </ul> |  |



| Phase II   | WB Status:   | Goals of Phase:                              |
|------------|--|--|
|            | Continue WBAT, brace locked in full extension for                          | 1. Healing                                   |
| Weeks 3-6  | standing/walking/sleeping  | 2. Pain and edema control,                   |
|            | <ul> <li>Brace worn at night until 6 weeks unless cleared</li> </ul>       | modalities PRN                               |
|            | by physician   | <ol><li>Full wt bearing by 6 weeks</li></ol> |
|            | <ul> <li>Brace unlocked for sitting (only unlocked to</li> </ul>           |  |
|            | available PROM)  | Criteria to Advance to Next Phase:           |
|            |  | 1. Knee flexion ROM 0-90°                    |
|            | Therapy:   | 2. Good patellar mobility                    |
|            | Begin extension stretching with prone hangs and heel                       | 3. SLR without extensor lag                  |
|            | props  | 4. Pain-free WBATATO <sup>o</sup> extension  |
|            | NuStep, assistance from upper extremities for knee                         |  |
|            | extension.   |  |
|            | Patellar mobilizations     Cait training                                   |  |
|            | • Gail iraining  |  |
|            | <ul> <li>Balance and proprioception: weight shifting single lea</li> </ul> |  |
|            | stance   |  |
|            | <ul> <li>initiate mini squats (0-45 degrees)</li> </ul>                    |  |
|            | <ul> <li>knee flexion PROM starting at 50 degrees</li> </ul>               |  |
|            | o light overpressure only for PROM   |  |
|            | <ul> <li>progressing 10 degrees/week until 90 degrees is</li> </ul>        |  |
|            | achieved   |  |
|            | active knee extension 90 to 30 degrees                                     |  |
|            | Multi angle isometrics – knee extension                                    |  |
|            | Initiate pool exercise program if incision is fully healed                 |  |
|            | Calf raises  |  |
| Phase III  | WB Status:   | Goals of Phase:                              |
|            | WBAT, brace unlocked, begin with crutches and                              | 1. Full ROM 0-125°                           |
| Weeks 6-12 | progress out as able.  | 2. Normalize gait without assistive          |
|            | <ul> <li>No weight bearing with flexion &gt;90 degrees until</li> </ul>    | device                                       |
|            | atter 8 weeks  | 3. Able to ascend 8" step                    |
|            | No maximal voluntary contraction of quadriceps (no                         |  |
|            | MMI or nandheid dynamometer testing)                                       | Criteria to Advance to Next Phase:           |
|            |  | Normal Gall pattern     Dein control         |
|            |  | Z. Pain conirol                              |



|             | Criteria to discontinue brace:                         | 3 Edema managed                    |
|-------------|--|------------------------------------|
|             | Chief of discontrol (20 SLR without log) and closed by | 4. Full knop floxion               |
|             | Good quad control (20 SLK without lag) and cleared by  | 4. FUILKNEE HEXION                 |
|             | surgeon  |                                    |
|             | The survey of a life and a                             |                                    |
|             | Inerapy additions:                                     |                                    |
|             | Restore knee flexion ROM to 0-125°                     |                                    |
|             | <ul> <li>Avoid aggressive quad stretching</li> </ul>   |                                    |
|             | Stationary bike  |                                    |
|             | Forward step ups                                       |                                    |
|             | Knee extension 0-90°                                   |                                    |
|             | Mini squats to 70 degrees knee flexion                 |                                    |
|             | Leg press with 2 legs                                  |                                    |
|             | Wall squats  |                                    |
|             | Front lunges   |                                    |
|             | Lateral lunges   |                                    |
|             | Hamstring curls (restricted ROM)                       |                                    |
|             | Core strengthening                                     |                                    |
|             | BAPS   |                                    |
|             | Proprioception drills                                  |                                    |
| Phase IV    | WB Status:   | Goals of Phase:                    |
|             | Eull: patient should exhibit pormalized gait           | 1 Return to normal ADI's           |
| Wooks 12 16 |  | 2 Able to descend 8" step          |
| Weeks 12-10 | Evercise additions:                                    |                                    |
|             | Desconding stairs working up to 9"                     | Critoria to Advance to Next Phase: |
|             | Descending sidirs, working up to a                     | Chiefid to Advance to Next Fridse. |
|             | Lateral siep ops                                       |                                    |
|             | Backwara lunges  | siep                               |
|             | waiking program  |                                    |
|             | Aavance squat training                                 |                                    |
|             | Aavance closed chain program                           |                                    |
|             | Elliptical Training                                    |                                    |
|             | Agility Training                                       |                                    |



| Phase V<br>Weeks 16-20 | <ul> <li>Exercise additions:</li> <li>Plyometric program</li> <li>Forward running</li> <li>Knee extension machine</li> <li>Agility and sport specific training</li> <li>High level proprioception drills</li> <li>Impact control exercises begin 2 feet to 2 feet, then 1 foot to other foot, then affected foot to affected foot.</li> </ul>   | <ul> <li>Goals of Phase: <ol> <li>Restore strength and ROM</li> <li>Pain-free Running</li> <li>Improve tensile strength properties of patellar/quad tendon</li> </ol> </li> <li>Criteria to Advance to Next Phase: <ol> <li>85% limb symmetry with hop test and isokinetic testing</li> </ol> </li> </ul> |
|------------------------|---|---|
| Phase VI               | <ul><li>Exercise additions for high level sport specific training:</li><li>Twisting jumps</li></ul>   | Goals of Phase:<br>1. Return to prior level of function.  |
| Weeks 20+              | <ul> <li>Backwards walking up to 20-30% incline</li> <li>Lateral hops over cones, blocks, etc.</li> <li>Single leg jumps up to 6 inch box</li> <li>Figure 8 running</li> <li>Zigzag cutting (45 degree angles)</li> <li>Lateral shuffles with resistance</li> <li>Single leg plyometrics</li> <li>Sport specific training including full speed running, cutting, and stopping.</li> <li>Return to play testing if returning to sport</li> </ul> | Criteria to Return to Play<br>1. Pass return to play testing<br>a. Physician Approval<br>b. Full ROM<br>c. No pain or swelling<br>d. Normal running<br>e. Adequate drop jump<br>mechanics<br>f. Adequate lateral shuffle<br>mechanics<br>g. Adequate cutting<br>mechanics                                 |