

OSTEOCHONDRAL AUTOLOGOUS OR ALLOGRAFT TRANSFER (OATS) POST-OPERATIVE PHYSICAL THERAPY PROTOCOL

For rehabilitation purposes, this protocol is the same regardless of graft source (autograft or allograft, hamstring, patellar or quadriceps).

Goals:

1. Patient education from the start on HEP and self-mobilization.
2. It is critical that terminal knee extension is addressed and achieved within the first few weeks of therapy.
3. Patient should have at least 100 degrees of knee flexion by week 3.
4. Patient is to be NWB for three weeks and then PWB for three weeks.
5. FWB status should be achieved within 6-8 wks post-op depending on quad recruitment & pain level.

Week One:

Home Instructions:

1. Patient will be instructed in the use of a CPM machine. CPM should be utilized 6-8 hours a day on the slowest speed (1-2 cycles/minute). Range of motion to tolerance.
2. NWB at all times, safe technique, with two crutches or walker.
3. HEP focusing on knee extension and edema control.

Exercises:

1. Supine knee extension with heel prop for passive extension
2. Isometric quadriceps, hamstring and hip adduction exercises
3. Gentle hamstring and calf stretching
4. Gentle AAROM knee flexion exercises (using strap or uninvolved leg to assist ROM)
5. May initiate straight leg raises as tolerated (flexion, adduction and extension with attention given to maintaining full knee extension during exercises)

Manual Techniques/Modalities:

1. Patellar mobilizations
2. Electrical stimulation/cryotherapy for edema control
3. FES for quadriceps recruitment

Weeks two and three:

Home Instructions:

1. Continue the use of the CPM machine, 4-6 hours a day
2. Continue NWB (may be TTWB during week three)

3. HEP still focusing mostly on extension, but flexion as well
4. Pool exercises encouraged if available

Exercises:

1. Continue isometric quadriceps sets
2. Continue stretching exercises
3. Initiate (or progress) SLR flexion, extension and adduction with attention given to maintaining full knee extension during exercises
4. Initiate SLR abduction if there are no P-F tracking problems
5. Initiate short arc and long arc quadriceps exercises as tolerated
6. Initiate prone hamstring curls as tolerated
7. Initiate wall slides, heel slides for flexion (range of motion to tolerance)

Manual Techniques/Modalities:

1. Continue patellar mobilizations
2. Continue edema control with cryotherapy/electrical stimulation
3. FES for quadriceps recruitment as needed

Weeks four and five:

Home Instructions:

1. Unloader brace should be worn
2. Continue CPM as needed, 2-3 hours a day
3. Begin PWB with two crutches, wean to one crutch
4. HEP for knee extension and flexion, including isotonic
5. Continue water exercises if available

Exercises:

1. Continue stretching exercises
2. Continue isotonic, add weight as tolerated
3. Initiate stationary bike
4. Initiate hamstring machine with LIGHT resistance, as tolerated
5. Initiate shuttle leg press and calf raise with LIGHT resistance, as tolerated
6. Initiate leg press machine with LIGHT resistance, as tolerated

Manual Techniques/Modalities:

1. Continue patellar mobilizations with gentle PROM
2. Continue edema control
3. Continue FES as needed

Weeks six and seven:

Home Instructions:

1. Progress to FWB as tolerated and as quadriceps recruitment permits
2. HEP consisting mostly of isotonic (and motion exercises as needed)

Exercises:

1. Continue isotonic SAQ, LAQ, and SLR flexion isotonic
2. Continue previously listed weight machine exercises
3. Initiate multi-hip machine
4. Initiate t-band TKE
5. Initiate treadmill walking (focus on proper gait mechanics)

Manual Techniques/Modalities:

1. Same as in previous weeks on an 'as needed' basis

Weeks eight, nine, and ten:

Home Instructions:

1. Should be FWB with proper biomechanics, no antalgic pattern
2. Patient nearing discharge at week 10, encourage gym membership or graduate fitness for continued strengthening

Exercises:

1. Progress shuttle leg press and calf press (emphasis on repetitions, not resistance)
2. Progress multi-hip and hamstring exercises as tolerated
3. Initiate proprioceptive exercises (contra-kicks, rebounder ball toss, etc.)
4. Initiate bilateral knee extension machine (60 degrees-0 degrees) as tolerated with LIGHT weight, provided there is no anterior knee pain
5. At week 10, initiate step-ups with small step as tolerated (pain free)

AT DISCHARGE FROM THERAPY, THE FOLLOWING SHOULD BE DISCUSSED WITH THE PATIENT. IT IS ADVISED THAT THESE INSTRUCTIONS BE GIVEN TO THE PATIENT TO SERVE AS A GUIDE FOR ACTIVITIES IN THE UPCOMING MONTHS.

Three to five months post-op:

Exercises/Activities:

1. May begin step-up exercises on a standard-sized step (6-8 inches)
2. Once able to lift 15 lb., 3 sets of 15 during SAQ exercise (knee extension with bolster under the knee), you may begin light treadmill jogging and progress to running
3. May perform mini-squats (shortened range of knee bend) and leg press at a weight where you can comfortably do 3 sets of 15
4. May progress knee extension machine from 90 degrees to 0 degrees, provided there

- is no anterior knee pain
5. May initiate running in place on trampoline, if available

Six months post-op:

Exercises/Activities:

1. Progress treadmill running for 10-15 min. at 6-8 min. per mile pace. May add 3.5% grade and progress toward outdoor running.
2. Once able to run at pace above for 2-3 miles, may begin agility drills such as lateral and backward running, vertical jumping, jumping rope, carioca, stair climbing, high knee drills, and figure 8 running.
3. Begin practicing sport specific drills
4. May return to full sport at 6 months post-op if able to do items 1-3 above. Get doctor's approval as some patients may be advised not to return to sport or to modify sports activity.