**Day of Surgery**. Rest and recover.

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| PRECAUTIONS | - Avoid prolonged standing and walking- Avoid pain with walking and exercises- Avoid painful activities- Avoid putting heat on hip- Use crutches as needed |
| Emphasize | - Control swelling- Independent transfers- Gait training with appropriate assistive device- Appropriate balance of activity and rest |
| Assessment | - Mental status: Alert and Oriented x3- NPRS- Wound status- Swelling- Passive and Active-assisted range of motion (P/AAROM) of hip- Post-anesthesia sensory motor screening- Functional status |
| Treatment Recommendations | - Transfer training- Gait training weight bearing as tolerated (WBAT) with assistive device on level surfaces and stairs\* Patient education:* Edema management
* Activity modification

\* Initiate and emphasize importance of HEP* Quadriceps sets, gluteal sets, ankle pumps,
* Seated knee AAROM
* Straight leg raises
* Passive hip extension
 |
| Criteria for Discharge | - Independent ambulation with appropriate assistive device on level surfaces and stairs- Independent with transfers and activities of daily living (ADLs)- Independent with home exercise program (HEP) |

**Phase I, 0-2 weeks**. Pain and edema control, start flexibility and strengthening exercises.

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| PRECAUTIONS | - Start slow progression back to ADLs- Avoid heat application- Avoid prolonged standing/walking |
| Emphasize | - Full PROM hip - Controlling pain and swelling- Compliance with HEP and precautions |
| Assessment | - LEFS, IKDC, SANE, ACL RSI, NPRS- Swelling- Gait and Neurovascular assessment- Wound status- LE AROM and PROM- Straight leg raise (SLR) in supine- Single leg stance, when appropriate |
| Treatment Recommendations | - Quadriceps re-education: quadriceps sets with towel under knee with neuromuscular electric stimulation (NMES) or biofeedback- AROM hip flexion to tolerance- SLR in all planes - Hip progressive resistive exercises- Calf strengthening (Unilateral elastic band & bilateral calf raises)- Leg press bilaterally in 80°-5° arc if knee flexion ROM > 90°- Initiate flexibility exercises- Proprioception board/balance system (bilateral WB)- Stationary bicycle:* Short (90mm) crank ergometry
* Standard crank for ROM and/or cycle (requires 115° knee flexion)

- Upper extremity ergometry, as tolerated- Gait training with progressive WB- Edema management, e.g. cryotherapy (no submersion), elevation, gentle edema mobilization avoiding incision- Progressive home exercise program |
| Criteria for Advancement | - Ability to SLR without quadriceps lag or pain- Hip ROM 0°-90°- Pain and swelling controlled |

**Phase II, 2-6 weeks**. Progressive strengthening.

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| PRECAUTIONS | - Monitor tolerance to load, frequency, intensity and duration- Avoid heat application- Slow progression of duration while standing/walking- Wean off crutches - Avoid ascending/descending stairs reciprocally until adequate quadriceps control & lower extremity alignment obtained |
| Emphasize | - Hip and knee ROM- Normalizing gait pattern- Activity level to match response and ability |
| Assessment | - LEFS, IKDC, SANE, ACL RSI, NPRS- Swelling- Gait and Neurovascular assessment- Wound status- LE AROM and PROM- Straight leg raise (SLR) in supine- Single leg stance, when appropriate |
| Treatment Recommendations | - Quadriceps re-education: quadriceps sets with towel under knee with neuromuscular electric stimulation (NMES) or biofeedback- Hip soft tissue mobilization- Progression from seated to standing (wall slides) to bike ROM- Straight leg raises (SLR) PRE's in all planes- Leg press bilaterally, to 2 up/1 down, to unilateral- Functional strengthening* Mini squats, initiating movement with hips
* Forward step-up progression starting with 2”-4”

- Hip-gluteal progressive resistive exercises- Hamstring strengthening - Calf strengthening (Progression to unilateral calf raises)- Flexibility exercises- Proprioception board/balance system* Progression from bilateral to unilateral weight bearing
* Once single leg stance achieved with good alignment and control, progress from stable to unstable surfaces

- Stationary bicycle- Upper extremity ergometry, as tolerated- Edema management, e.g. cryotherapy (no submersion until incision adequately healed), elevation, gentle edema mobilization avoiding incision- Progressive home exercise program- Patient education regarding monitoring of response to increase in activity level and weightbearing |
| Criteria for Advancement | - Minimal swelling- Non-antalgic gait- Ascend 6” stairs with good control without pain |

**Phase III, 7-12 weeks**. Regain functional movement and strength.

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| PRECAUTIONS | - Initiate return to running/sport only when cleared by physician- Avoid pain with exercises and functional training- Monitor tolerance to load, frequency, intensity and duration- Avoid too much too soon |
| Emphasize | - Address impairments- Return to normal functional activities |
| Assessment | - LEFS, IKDC, SANE, ACL RSI, NPRS- Swelling- Girth measurements- LE AROM and PROM- Functional assessment, e.g. single leg stance, step ups/downs, squat, gait- Balance testing, e.g. Star Excursion Test, Biodex Balance SystemTM- QMA – Quality of Movement Testing |
| Treatment Recommendations | - Progress leg press eccentrically- Functional strengthening- Initiate plyometric progression - Continue foundational hip-gluteal progressive resistive exercises- Continue hamstring and calf strengthening- Flexibility exercises and foam rolling- Progress proprioception training- Progress cardiovascular conditioning- Cryotherapy and/or compression therapy- Progressive home exercise program- Patient education regarding monitoring of response to increase in activity level |
| Criteria for Advancement | - No swelling- Normal neurovascular assessment- Normal scar and soft tissue mobility- Full LE ROM, flexibility and strength- Quantitative assessments = 85% of contralateral lower extremity |