*Please realize that no two individuals or surgeries are alike. Keep in mind that:*

“As tolerated” means be safe and use common sense; pain, a limp, and swelling are indicators that you are doing too much too soon. If any of these should occur, decrease activity level, ice and elevate the leg.

Ice is your friend. Please ice for 20 minutes following each exercise, therapy, or training session. While your knee remains swollen icing should also be done separate from exercise at least three times per day.

Progression through the protocol should be based upon criteria as opposed to dates listed and will vary depending on each individual patient. These are merely guidelines.

Progress should be agreed upon by the patient and his/her team of providers.

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***Phase 1 – Weeks 1-3***

**Brace:**

Use as directed – Off for bathing, dressing, and exercises only.

**Crutches/Function:**

Bilateral (2) axillary crutches

Ambulation with crutches and foot-flat walking on reconstructed leg

Begin progression to full weight bearing at post-op week 3

**PROM:** 0 to 90

**AROM:** 0 to 120 as tolerated

**Therapeutic Exercise:**

•quad sets, isometric knee extension at multiple angles in allowed range of motion and as tolerated at patellofemoral (PF) joint, open kinetic chain (OKC) knee extension 90° to 0° as tolerated at PF joint

• Isometric and OKC hamstring strengthening in pain free ROM

• Hip 4-way SLR (straight leg raise)

• Ankle and foot stretching and strengthening in non-weight bearing

• No exercises in weight bearing

**Manual:**

• Scar and soft tissue massage, patella mobilizations

**Proprioception:**

• Seated BAPS board

**Cardio:**

• UBE (arm bike)

**Modalities:**

• NMES (neuromuscular electrical stimulation) for quadriceps atrophy, strengthening as needed

• HVPC (high volt pulsed current) for effusion (swelling) reduction as needed

• Cryotherapy six to eight times per day for 15 to 20 minutes each

**Progression to Phase II:**

• Hip flexion SLR without knee extension lag

• Full knee extension

• Knee flexion to 90°

• Minimal joint effusion

• Ambulation without assistive device or limp

***Phase 2: Weeks 3-8***

**Crutches/Function:**

• Full weight bearing without crutches as tolerated and directed

**ROM:**

• 0° to 120° - Active and passive

**Therapeutic Exercises:**

• Closed chain strengthening in pain free ROM (no >90°),

• OKC knee extension and flexion as tolerated

• Total leg strengthening

• Core strengthening

**Manual:**

• Scar and soft tissue massage, patella mobilizations

**Proprioception:**

**•** SLS (single limb stance), BAPS, unstable surfaces

• Joint repositioning

**Cardio:**

**•** UBE, stationary bike, elliptical

**Modalities:**

**•** NMES for quadriceps atrophy, strengthening as needed

• HVPC for effusion reduction as needed

**• Cryotherapy:**

• Six to eight times per day for 15 to 20 minutes each

**Progression to Phase III:**

• Knee ROM 0°-120°

• No effusion

• No pain

• Good eccentric control of involved knee

• Isometric quad strength 70% of non-involved side at 60° knee flexion

• Isometric hamstring strength 70% of non-involved side at 60° knee flexion

• Isokinetic quad strength 70% of non-involved side tested at 300°/sec

• Isometric hamstring/quad ratio >60% tested at 60° knee flexion

***Phase 3: Weeks 8-16***

**Note:** *\*Do not initiate new activities during post-op week eight due to graft vulnerability\**

**Therapeutic Exercises:**

**•** Progress ROM and flexibility to full if limited, CKC multi-plane activities within pain-free ROM, OKC knee extension 90 to 40 with 1# weight increase per week

• Hip and core strengthening

**Proprioception:**

**•** SLS, BAPS, unstable surfaces

• Joint repositioning

• Perturbation training (balance against resistance)

**Cardio:**

**•** UBE, stationary bike, treadmill ambulation

**Plyometrics:**

**•** Frontal (forward) and sagittal (side) plane double-leg plyometrics, plyometric leg press

• Progress from double to single limb plyometrics after 12 weeks

**Modalities:**

**•** Cryotherapy after activity for 15 to 20 minutes

**Progression to Phase IV:**

**•** Full ROM

• No effusion

• No pain

• Proprioception 80 to 100% of non-involved side

• Isometric quad strength 80% of non-involved side

• Hamstring to quad ratio 70%

***Phase IV: Weeks 16-24***

**Recommend pursuing Transitional Therapy for return to sport activities during this phase**

**•** Transitional Therapy – a strength and conditioning program that is lead by medical professionals with a sports medicine background with the goal of transitioning from therapy back to sport

• Contact Elite Sports Medicine for details

In addition to ongoing strength, balance, agility, and cardio conditioning, initiate sport specific plyometric activities as tolerated such as:

Soccer/Football: Two foot ankle hop, double-leg hop, front barrier hop, lateral barrier hop, single-leg hop, power skip, backward skip, double arm alternate leg bound, and cycled split squat jump

Basketball/Volleyball: Two foot ankle hop, double-leg hop, squat jump, double-leg vertical jump, single-leg hop, single-leg vertical jump, power skip, backwards skip, double-arm alternate-leg bound, alternate leg push off box drill, and side-to-side push off box drill

Baseball/Softball/Overhead throwing sports: Two foot ankle hops, double-leg hop, front barrier hop, lateral barrier hop, single-leg hop, power skip, backward skip, double arm alternate leg bound, cycled split squat jump, and return to throwing program

***Phase V: Return-to-Sport***

As discussed, return-to-sport needs to be an individual decision based on you and your providers understanding of your readiness to do so. In addition to sport specific activities and training it is suggested that you go through a formal return-to-sport examination once cleared to do so. This exam done by a physical therapist includes:

Isokinetic strength testing

Functional movements including:

Single leg hops for distance and for time

Jump testing

Whole body functional screening

Additional testing and referrals as necessary will be suggested.