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Rehabilitation Following
ACL-HT Reconstruction

- **No full arc knee extensions through six months post-op.**

I. Immediate Post-Operative Phase

POD 1

Brace – Brace locked at zero degrees extension for ambulation.

Weight Bearing – Two crutches (less than 50% WB).

Ankle pumps – (20-30 per hour)

Cryotherapy – Ice 20 minutes out of every hour and elevate with knee in extension.

POD 2 to 9

Goals: - Decrease pain / inflammation.
- PROM 0-90/100 degrees.

Brace – Brace locked at zero degrees extension for ambulation.

Weight Bearing – Two crutches as tolerated.

Range of Motion - Patient out of brace 4-5 times daily for seated self ROM.
- PROM: 0-90/100 degrees.

Exercises:

- Intermittent ROM exercises (0-90 degrees)
- Propped heel exercise to maintain full extension.
- Patellar mobilizations
- Ankle pumps (20-30 per hour to prevent blood clots)
- Straight leg raises (Flexion and Abduction only)
- Quad Sets
- Calf Stretching
- No Hamstring Stretching

Modalities:

- NMES to quads with quad sets / straight leg raises
- IFC / HI-Volt electrical stimulation.
- Ice 20 minutes out of every hour with knee elevated and extended.

Post-op check: Follow up with physician at 9 days post-op.

II. Maximum Protection Phase (Week 2-8)

- Goals:
- Decrease pain / swelling
 - Prevent quad atrophy
 - Protect graft
 - Maintain full passive/active knee extension
 - ROM 0-125 degrees

A. Week 2

Brace: Brace locked at zero degrees for ambulation.

Brace can be unlocked during non wt-bearing situations.

Weight Bearing: As tolerated (goal to discontinue crutches 7-10 days P/O.)

Range of Motion: Self ROM, emphasis on maintaining full passive extension.

PROM: 0-100 degrees.

Exercises:

- PROM/AAROM 0-105 degrees
- Propped heel extension
- Patellar mobilizations
- Straight leg raises (Flexion and Abduction only)
- Mini squats (0-40 degrees)
- Knee extension (90-40 degrees)
- Proprioceptive training
- PRE program – start with 1 lb., progress as tolerated

Modalities:

- NMES as needed for quad control.
- Electrical stimulation for pain/inflammation control.
- Ice, compression, elevation

B. Week 4

Brace: Brace unlocked for ambulation at 4 weeks post-op.

Range of Motion:

- Maintain full extension
- PROM: 0-120 degrees

Precautions: **No full arc knee extensions until minimum 6 months post-op.**

Exercises:

- Same as week two
- Initiate SLR into Adduction and Extension
- Initiate stationary bicycle when patient has 110-115 degrees of flexion.
- Leg Press (0-60 degrees)
- Step-ups (forward/lateral)
- Wall slides
- Emphasize CKC exercise
- Hip strengthening
- Core strengthening

C. Week 6

Brace: Discontinue use of drop locked brace.

Range of Motion:

- PROM 0-125 degrees
- AROM 0-115 degrees

Exercises:

- Same as week 4
- Initiate Hamstring curls (light resistance)
- Bicycle/Stairmaster
- Initiate step downs
- Hip strengthening
- Core strengthening

D. Week 8

MD recheck: MD to consider use of functional ACL brace.

Exercises: Continue PRE Program.

III. Moderate Protection Phase (Week 10 – 16)

Goals: - Maximize strengthening of quads/lower extremity
- Protect patellofemoral joint

Precautions: - No full arc extensions until minimum 6 months post-op.

A: Week 10

Range of motion: 0-130/135 degrees.

Exercises:

- Knee extension (90-40 degrees)
- Leg Press (0-60 degrees)
- Mini Squats (0-45 degrees)
- Forward/Lateral Step Ups
- Step Downs
- Hamstring Curls
- Hip Abd/Add
- Calf Raises
- Wall squats
- Lunges
- Proprioceptive training
- Bike/Stairmaster/Elliptical
- Hip/Core strengthening

B. Week 12-14

Exercises:

- Continue all above exercises

IV. Light Activity Phase (Month 4-5)

Criteria to enter Phase IV:

- AROM 0->125 degrees
- Quad strength 70% of contralateral side, knee flexor/extensor rated at 70-79%.
- Minimal/no effusion
- Satisfactory clinical exam

Goals: - Development of strength, power, endurance
- Begin gradual return to functional activities

A. Week 16

MD Recheck: 4 months post-op.

- * Earliest timeframe to initiate light agility/functional progression drills (with MD approval).

Exercises:

- Emphasize eccentric quad work
- Continue closed chain exercises, step-ups, mini squats, leg press

- Continue knee extension (0-40 degrees)
- Hamstring curls
- Calf stretches
- Hip abduction/adduction
- Bicycle for endurance
- Stairmaster
- Proprioceptive training
- Core Strengthening

B. Month 5-6

Functional Testing:

- Single Leg, Lateral Timed Hop (20 seconds)
- Single Leg Broad Jump
- Triple Hop Test
- Single Leg Vertical Jump

Exercises:

- Continue all above exercises
- Progress agility program
- Consider initiation of plyometric program (with satisfactory functional test and MD approval)
- Consider initiation of running program (MD approval)
- Initiate jump rope program (MD approval)
- May initiate full-arc knee extensions at 6 months post-op.

Criteria for Running / Plyometric Programs:

- No pain/swelling
- Satisfactory clinical exam

V. Return to Activity Phase (Month 6-7)

- **This is the earliest the patient should plan on returning to competitive athletics.**

Goals:

- Achieve maximal strength and endurance.
- Return to sport activities with MD approval.

Return to sport requirements:

- Quadriceps strength of at least 90% of normal leg.

- Hamstring strength of at least 90% of normal leg.
- Full Range of Motion
- No swelling
- Good stability
- Ability to complete a running program.
- Pass functional test with >90% on all tests without pain/hesitation and demonstrate good hip muscular control.

Functional Testing:

- Single Leg, Lateral Timed Hop (20 seconds)
 - Single Leg Broad Jump
 - Triple Hop Test
 - Single Leg Vertical Jump
 - Sport Specific Activities demonstrated without deficiencies.
- Continue strengthening program for one year from surgery.