

MATTHEW R. BYINGTON, DO
Orthopaedic Surgeon - Board Certified & Fellowship Trained
Sports Medicine & Arthroscopic Surgery
Knee & Shoulder Reconstruction
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POSTOPERATIVE REHAB PROTOCOL: KNEE TIBIAL TUBERCLE TRANSFER/FULKERSON OSTEOTOMY

I. IMMEDIATE POST-OPERATIVE PHASE (Day 1 - Day 5)

Goals:	Diminish swelling/inflammation (control hemarthrosis) Diminish post-operative pain Initiate voluntary quadriceps control Independent Ambulation
<u>Brace:</u>	Brace for ambulation only (POD 1 - Week 4)
<u>Weight Bearing:</u>	As tolerated two crutches (approx. 50% WB)
<u>Swelling/Inflammation Control:</u>	Cryotherapy Compression Bandage Elevation & Ankle Pumps
<u>Range of Motion:</u>	Full passive knee extension Flexion to 45 degrees (Day 1 to 4) Flexion to 60 degrees (Day 5) PROM and gentle AAROM only
<u>Muscle Retraining:</u>	Quadriceps setting isometrics Straight Leg Raises (Flexion) Hip Adduction/Abduction * NO active Knee Extension
<u>Flexibility:</u>	Hamstring and Calf Stretches PROM/AAROM within ROM limitations

II. ACUTE PHASE (Week 2-4)

Goals:	Control swelling and pain Promote healing of realignment tibial tuberosity Quadriceps Strengthening
<u>Brace:</u>	Continue brace for ambulation only Discontinue brace (week 4)
<u>Weight Bearing:</u>	Progress WBAT (2 crutches for 4 weeks)
<u>Swelling/Inflammation:</u>	Continue use of cryotherapy Compression bandage Elevation
<u>Range of Motion:</u>	PROM/AAROM exercises Range of Motion 0-75 degrees (Week 1-3) Range of Motion 0-90 degrees (Week 4)

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ACUTE PHASE - Continued:

Muscle Retraining: Electrical muscle stimulation to quads
Quad Setting Isometrics
Straight Leg Raises (flexion)
Hip Adduction/Abduction
Hip Extension
Gentle submaximal isometric knee extension (multi-angle)

Week 4: Light Leg Press
Vertical Squats (no weight)

Flexibility: Continue Hamstring, Calf Stretches

III. SUBACUTE PHASE - "MOTION" PHASE (Week 5-8)

Goals: Gradual improvement in ROM
Improve muscular strength and endurance
Control forces on extension mechanism

Weight Bearing: One crutch (week 4-6)
Discontinue crutch week 6

Range of Motion: PROM 0-115 degrees (week 5)
PROM 0-125 degrees (week 6)
PROM 0-125/135 degrees (week 8)

Exercises: Continue electrical muscle stimulation to quadriceps
Quadriceps setting isometrics
Hip adduction, abduction, and extension
Vertical Squats
Leg Press
Knee Extension Light (0-60 degrees)
Bicycle (week 6-8)
Pool Program [walking, strengthening (when able)]

Flexibility: Continue all stretching exercises for LE

IV. STRENGTHENING PHASE (Week 9-16)

Goals: Gradual improvement of muscular strength
Functional activities/drills

Criteria To Progress to Phase IV:

1. ROM at least 0-115 degrees
2. Absence of swelling/inflammation
3. Voluntary control of quads

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Exercises:

- Vertical Squats (0-60 degrees)
- Wall Squats (0-60 degrees)
- Leg Press
- Forward Lunges
- Lateral Lunges
- Lateral Step-ups
- Knee Extension (60-0 degrees)
- Hip Adduction/Abduction
- Bicycle
- Stairmaster®

V. RETURN TO ACTIVITY PHASE

Goal: Functional return to specific drills

Criteria to Progress to Phase V:

1. Full Non-Painful ROM
2. Appropriate Strength Level (80% or greater of contralateral leg)
3. Satisfactory clinical exam

Exercises:

- Functional Drills
- Strengthening Exercises
- Flexibility Exercises