Tibial Tubercle Osteotomy & MPFL

Post-Operative Rehabilitation Protocol

Ironman Sports Medicine Institute
1st Edition

Update 2017
Tibial Tubercle Osteotomy

PHASE 1 - ACUTE (0-6 Weeks)

PHASE GOALS: PROTECT OSTEOTOMY, RESTORE QUADRICEPS ACTIVATION

RANGE OF MOTION

0-1 WEEKS - ALLOW FLEXION TO 30 DEG
1-2 WEEKS - GRADUALLY PROGRESS FLEXION TO 60 DEG
2-4 WEEKS - GRADUALLY PROGRESS FLEXION TO 90 DEG
4-6 WEEKS - GRADUALLY PROGRESS FLEXION TO 120 DEG

WEIGHT BEARING

0-2 WEEKS – TOE TOUCH WEIGHT BEARING
2-6 WEEKS – PARTIAL WEIGHT BEARING, WBAT AFTER 6 WEEKS

BRACE & CRUTCH USE

0-2 WEEKS - BRACE LOCKED IN EXTENSION, CRUTCHES FOR 6 WEEKS
2-6 WEEKS – UNLOCK BRACE 30 DEG EACH WEEK **WITH GOOD QUAD

STRENGTHENING & CONDITIONING

0-2 WEEKS - QUAD SETS
2-6 WEEKS - QUAD SETS, SLRs, UPPER BODY ERGOMETER

CRITERIA FOR PROGRESSION

• WITHIN 2 DEG NORMAL KNEE EXTENSION & ≥ 90 DEG KNEE FLEXION
• ≤ 2/10 PAIN AT REST
• STRAIGHT LEG RAISE WITHOUT QUAD LAG

Update 2017
Tibial Tubercle Osteotomy

PHASE 2 – AMBULATION & ADLs (7-10 Weeks)

PHASE GOALS: RESTORE AMBULATION STATUS & ADLS

RANGE OF MOTION

7-10 WEEKS - GRADUALLY PROGRESS FLEXION TO FULL

WEIGHT BEARING

7+ WEEKS – PROGRESS AS TOLERATED

BRACE & CRUTCH USE

7+ WEEKS – PROGRESS TO FULL *WITH GOOD QUAD CONTROL

STRENGTHENING

7-8 WEEKS - QUAD SETS, LEG RAISES, HIP & CORE STRENGTHENING, SIDE PLANKS, GAIT TRAINING, SINGLE LEG BALANCE

9-10 WEEKS - CONTINUE PREVIOUS, SAQ, LAQ, PARTIAL RANGE LEG PRESS (LIGHT), STEP-UPS (6” OR LESS), PSOAS AND POSTERIOR CHAIN FLEXIBILITY

CONDITIONING

UPPER BODY ERGOMETER, BIKING WHEN > 115 DEG FLEXION,

CRITERIA FOR AMBULATION WITHOUT ASSISTIVE DEVICE

• AT LEAST 7 WEEKS POST-SURGERY
• PAIN LESS THAN 2/10 (WORST)
• WITHIN 2 DEG NORMAL KNEE EXTENSION & 120 DEG KNEE FLEXION
• SINGLE LEG BALANCE > 20 SEC (BESS)
• MD OR PT APPROVAL
Tibial Tubercle Osteotomy

PHASE 3 - STRENGTH (11-18 Weeks)

PHASE GOALS: IMPROVE STRENGTH & INITIATE JOGGING PROGRAM

RANGE OF MOTION

11+ WEEKS – MAINTAIN ROM

STRENGTHENING

11-13 WEEKS – CONTINUE PREVIOUS, SQUAT PROGRESSION (PARTIAL RANGE -> BODYWEIGHT – SQUATS)

13-16 WEEKS – CONTINUE PREVIOUS, SINGLE LEG SQUATS, SMALL HOPS IN PLACE, JUMP ROPE

CONDITIONING

11+ WEEKS - STATIONARY BIKING, ELLIPTICAL, ROWING MACHINE, SWIMMING

CRITERIA FOR JOGGING

• AT LEAST 16 WEEKS POST-SURGERY
• PAIN LESS THAN 3/10 (WORST)
• WITHIN 2 DEG NORMAL KNEE EXTENSION & 125 DEG KNEE FLEXION
• AT LEAST 1 MINUTE OF SINGLE LEG SQUATS
• MD OR PT APPROVAL
Tibial Tubercle Osteotomy

PHASE 4 - AGILITY (19-24 Weeks)

PHASE GOALS: INTRODUCE DYNAMIC & POWER MOVEMENTS

STRENGTHENING

GYM SPECIFIC STRENGTHENING (BARBELL SQUATS & DEADLIFTS)

BIODEX QUAD & HAMSTRING FATIGUEING PROTOCOLS

CORE EXERCISES (MOUNTAIN CLIMBERS, PLANKS, V-UPS)

SINGLE LEG SQUATTING TO FATIGUE

CONDITIONING

ROAD OR STATIONARY BIKING

JOGGING PROGRAM

PLYOMETRICS & LIGHT AGILITY

LADDER DRILLS, BOX JUMPS (UP/DOWN TO 24”), BROAD JUMP,

VERTICAL JUMPS, HOP PROGRESSION

CRITERIA FOR HEAVY AGILITY & SPORT SPECIFIC MOVEMENTS

- 20 WEEKS POST-SURGERY
- PAIN LESS THAN 2/10 (WORST)
- QUAD & HAM STRENGTH ≥ 80% NORMAL; ≥ 50% H/Q RATIO FOR FEMALES
- AT LEAST 2 MINUTES OF SINGLE LEG SQUATS (RESISTED)
- ≤ 5 ON LANDING ERROR SCORING SYSTEM (LESS)
- MD OR PT APPROVAL

Update 2017
Tibial Tubercle Osteotomy

PHASE 5 - RETURN TO PLAY (24+ Weeks)

PHASE GOALS: INITIATE SPORTS SPECIFIC MOVEMENTS & RETURN TO PLAY

STRENGTHENING

PROGRESS GYM ROUTINE (SQUATS, DEADLIFTS, OLYMPIC LIFTING)

BIODEX QUAD & HAMSTRING FATIGUE PROTOCOLS & CORE EXERCISES

CONDITIONING

JOGGING, BIKING, & SWIMMING

INTERVAL SPRINT WORKOUTS

PLYMETRICS & AGILITY (2-3 DAYS/WEEK)

MAX EFFORT BOX JUMPS (PROGRESS WITH ROTATION)

LATERAL & ROTATIONAL AGILITY

SINGLE-LEG HOPS TESTING

UNPREDICTABLE CUTTING & CONTACT DRILLS

RECOMMENDED CRITERIA FOR RETURN TO PLAY

• PAIN LESS THAN 2/10 (WORST)
• QUAD & HAM STRENGTH ≥ 90% NORMAL; ≥ 60% H/Q RATIO FOR FEMALES
• AT LEAST 3 MINUTES OF SINGLE LEG SQUATS (RESISTED)
• 90% NORMAL ON ALL SINGLE-LEG HOP TESTS
• 95% NORMAL - FIGURE OF 8, 5-10-5 PRO-AGILITY, & S-L VERTICAL JUMP
• MD OR PT APPROVAL