



Leaders in Orthopaedic Health

DR. BUTKOVICH EXTENSOR MECHANISM REPAIR **REHABILITATION PROTOCOL**

OVERVIEW

QUADRICEPS AND PATELLA TENDON TEARS CAN BE EITHER PARTIAL OR COMPLETE. PARTIAL TEARS DO NOT COMPLETELY DISRUPT THE SOFT TISSUE. COMPLETE TEARS WILL SPLIT THE TENDON INTO TWO SEPARATE PIECES.

THE TYPE OF TREATMENT REQUIRED DEPENDS ON THE TYPE AND SIZE OF THE TEAR, AS WELL AS, THE PATIENT'S ACTIVITY LEVEL AND AGE. MOST COMPLETE TEARS REQUIRE SURGERY. SURGERY IS ALSO CONSIDERED FOR PATIENTS WITH PARTIAL TEARS WHO HAVE TENDON WEAKNESS AND DEGENERATION.¹

DURING THIS SURGICAL PROCEDURE, THE TORN QUADRICEPS AND PATELLA TENDON IS REATTACHED TO THE TOP OF THE KNEECAP. SURGICAL OUTCOME IS BETTER IF THE REPAIR IS DONE EARLY AFTER THE INJURY. THIS HELPS PREVENT SCARRING AND TIGHTENING OF THE TENDON IN A SHORTENED POSITION, AS THESE TENDONS RARELY HEAL ON THEIR OWN.¹

TYPICAL TENDON HEALING TIME IS SIX TO EIGHT WEEKS.² THE REPAIR WILL BE PROTECTED WITH A KNEE IMMOBILIZER AND PATIENT WILL BE WEIGHT BEARING AS TOLERATED WITH THE USE OF THE TROM BRACE AND CRUTCHES. THE PATIENT WILL BE WEIGHT BEARING AS TOLERATED WITH THE USE OF THE BRACE AND CRUTCHES. THE PATIENT WILL LIKELY BE LOCKED IN EXTENSION FOR THE FIRST SIX WEEKS POST-OP. THE BRACE MAY GRADUALLY BE UNLOCKED TO ALLOW INCREASED RANGE OF MOTION, WITH FLEXION NO GREATER THAN 90 DEGREES DURING THESE FIRST SIX WEEKS.

INITIAL REHAB GOALS WILL BE TO RESTORE PROPER KNEE RANGE OF MOTION AND GAIT PATTERN, AND BEGIN STRENGTHENING OF KNEE MUSCULATURE. CARE MUST BE TAKEN TO AVOID EXERCISES SUCH AS SQUATS AND LUNGES THAT CREATE OVERLOAD ON THE QUADRICEPS AND PATELLAR TENDON. COMPLETE RECOVERY TAKE AT LEAST 4 MONTHS. MOST REPAIRS ARE NEARLY HEALED IN 6 MONTHS. MANY PATIENTS HAVE REPORTED THAT THEY REQUIRED 12 MONTHS BEFORE THEY REACHED ALL THEIR GOALS.

¹ Quadricep and Patellar Tendon Tears. In AAOS.org. Retrieved 3/3/14, from <http://orthoinfo.aaos.org/topic.cfm?topic=A00294>

² <http://orthosurg.ucsf.edu/oti/patient-care/divisions/sports-medicine/conditions/knee/quadriceps-and-patella-tendon-rupture/>

PHASE I- PROTECTIVE PHASE

WEEKS 1-2:

GOALS

- CONTROL PAIN AND SWELLING
- ACTIVATE QUAD

PRECAUTIONS

- WBAT WITH CRUTCHES AND KNEE IMMOBILIZER IN FULL EXTENSION
- NO STAIRS

EXERCISES

- NO KNEE ROM EXERCISES- KEEP KNEE LOCKED IN FULL EXTENSION IN BRACE
- QUAD SETS
- ANKLE PUMPS

PHASE II- INTERMEDIATE PHASE

WEEKS 2-6:

GOALS

- PROTECT TENDON REPAIR
- INITIATE KNEE MOTION
- ACTIVATE QUAD AND BEGIN MUSCLE

PRECAUTIONS

- FWB WITH BRACE IN FULL EXTENSION
- **NO** KNEE FLEXION BEYOND 90 DEGREES

EXERCISES

- QUAD SETS
- HEEL SLIDES
- ANKLE PUMPS
- SITTING KNEE FLEX MAXIMUM OF 90 DEGREES
- SIDE LYING HIP ABD
- HEEL RAISES

PHASE III
WEEKS 6-12:

GOALS

- WALK NORMALLY
- REGAIN FULL MOTION
- REGAIN FULL MUSCLE STRENGTH

PRECAUTIONS

- WEAN FROM AND D/C TROM WHEN SAFE PER MD
- FWB-AVOID LIMP
- AVOID SQUATTING, DEEP KNEE BENDING, LUNGES

EXERCISES

- STATIONARY BIKE
- QUAD SETS
- HEEL SLIDES
- SLR
- SAQ
- ANKLE PUMPS
- HEEL RAISE
- HIP ABD
- WALL SLIDES

PHASE IV
WEEKS 12 AND ON:

GOALS

- AVOID PAIN AT TENDON REPAIR SITE
- INCREASE STRENGTH
 - **AVOID THE FOLLOWING EXERCISES**
 - **KNEE EXTENSION WITH WEIGHT MACHINE**
 - **LUNGES**
 - **STAIRMASTER**
 - **STEP EXERCISES WITH IMPACT**
 - **RUNNING**
 - **JUMPING**
 - **PIVOTING OR CUTING**
- PROGRESSIVE WALK/ JOG 12-16 WEEKS
- PROGRESSIVE RUN/AGILITY 16-20 WEEKS RETURN TO SPORT 20-24 WEEKS

PRECAUTIONS

- WALKING/STAIRS WITHOUT AD OR BRACE
- BRACE FOR SPORT PRN

PHASE IV (CONTINUED)
WEEKS 12 AND ON:

EXERCISES

- STATIONARY BIKE
- SWIMMING
- WALL SLIDES
- SQUAT TO CHAIR
- STEP-UP/DOWN
- SINGLE LEG HEEL RAISE
- HS STRETCH
- QUAD STRETCH
- CALF STRETCH
 - ADDITIONAL EX. TO BE ADDED AT 16 WEEKS
 - SEATED LEG PRESS
 - HS CURLS
- INTERVAL SPORTS PROGRAMS CAN BEGIN PER MD