



Green Bay • Fox Valley • Marinette

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## Physical Therapy Protocol: Knee Extensor Repair

### Philosophy:

Patellar/quadriceps tendon rupture or patellar fracture can be devastating injuries. Since the knee extensor tendon complex connects the thigh muscles to the tibia for knee motion & strength at push-off, functional recovery is critical for both balance, walking, stair climbing and return to sports. Successful results in knee surgery can only be accomplished through the cooperation and team approach of the surgeon, therapist and patient. Initially, immobilization will be used, followed by gradual return to bending. A strong, pain-free knee with functional range-of-motion only comes about through an anatomic reconstruction of the knee extensor complex with aggressive (but appropriate) physical therapy performed with the therapist and at home.

### *Phase I, surgery to 6 weeks*

#### **OSMS appointments:**

Medical appointments at 2 weeks

Physical therapy will begin as directed by your physician and as indicated on your physical therapy order

#### **Rehabilitation Goals:**

Achieve excellent hip and ankle range-of-motion

Reduce swelling in the limb

Control pain

#### **Precautions:**

WBAT in locked brace for 6 weeks

No active knee extension (quad sets in extension only)

No loaded knee flexion

Avoid knee hyperextension

ROM restrictions as below

#### **Range-of-Motion Exercises:**

After 2 weeks, 0-60 degrees allowed

After 4 weeks, 0-90 degrees allowed

After 6 weeks, unlimited flexion allowed

#### **Suggested Therapeutic Exercises:**

Ankle pumps, isometric quad sets, glute/hip sets

Gentle patellar mobilizations

4-way leg lifts with brace locked in full extension



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**Cardiovascular Exercises:**

Upper body circuit training or upper body ergometer

**Progression Criteria:**

Progress to phase II after 6 weeks if they have 0-90° knee PROM and only trace effusion

***Phase II, (after Phase I criteria met, usually at 6-12 weeks)***

**OSMS appointments:**

Medical appointments at 6 & 12 weeks

Physical therapy appointments continue at every 5-7 days

**Rehabilitation Goals:**

Weight bearing without the TROM brace as quadriceps function allows

**Precautions:**

Begin weaning from TROM at 6 weeks

**Range-of-Motion Exercises:**

No restrictions beyond 6 weeks

**Suggested Therapeutic Exercises:**

Begin short crank ergometry and progress to standard (170mm) if knee ROM >115°

Core strengthening

Proprioceptive training

Open chain hip strengthening

Closed chain TKE from 0-40° degrees with mini squats, weight shift

**Cardiovascular Exercises:**

Treadmill walking

Stationary bike or recumbent bike

Nordic Track/Elliptical

**Progression Criteria:**

Progress to phase III after 12 weeks if they have knee PROM 0-130° and zero effusion

***Phase III, (after Phase II criteria met, usually 12-26 weeks)***

**OSMS appointments:**

Medical appointment at 12 weeks

Physical therapy continues to home program

**Rehabilitation Goals:**

Restore normal quadriceps control for walking

Restore normal squats/presses

Jogging and running



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Agility exercises (sport cord)

**Precautions:**

Avoid forceful eccentric quadriceps contraction

After 20 weeks, ok to begin impact cardio

After 20 weeks return to sport if quad isometric strength is 85% of uninvolved side on Biodex

**Range-of-Motion Exercises:**

No restriction on ROM

Active knee extension is now permitted

Add directional cutting and/or resistance

**Suggested Therapeutic Exercises:**

AROM for open chain knee flexion and extension

Prone knee flexion

Patellar mobilization

Isotonic knee extension, closed chain preferred

**Cardiovascular Exercises:**

Treadmill walking, including resisted forward & retro walking.

Versaclimber/Nordic Track

Resisted cariocas

Progress light weights based on 3 sets of 10 repetitions.

Single leg jumps, including quadrant jumps

Up to 100% full sprints