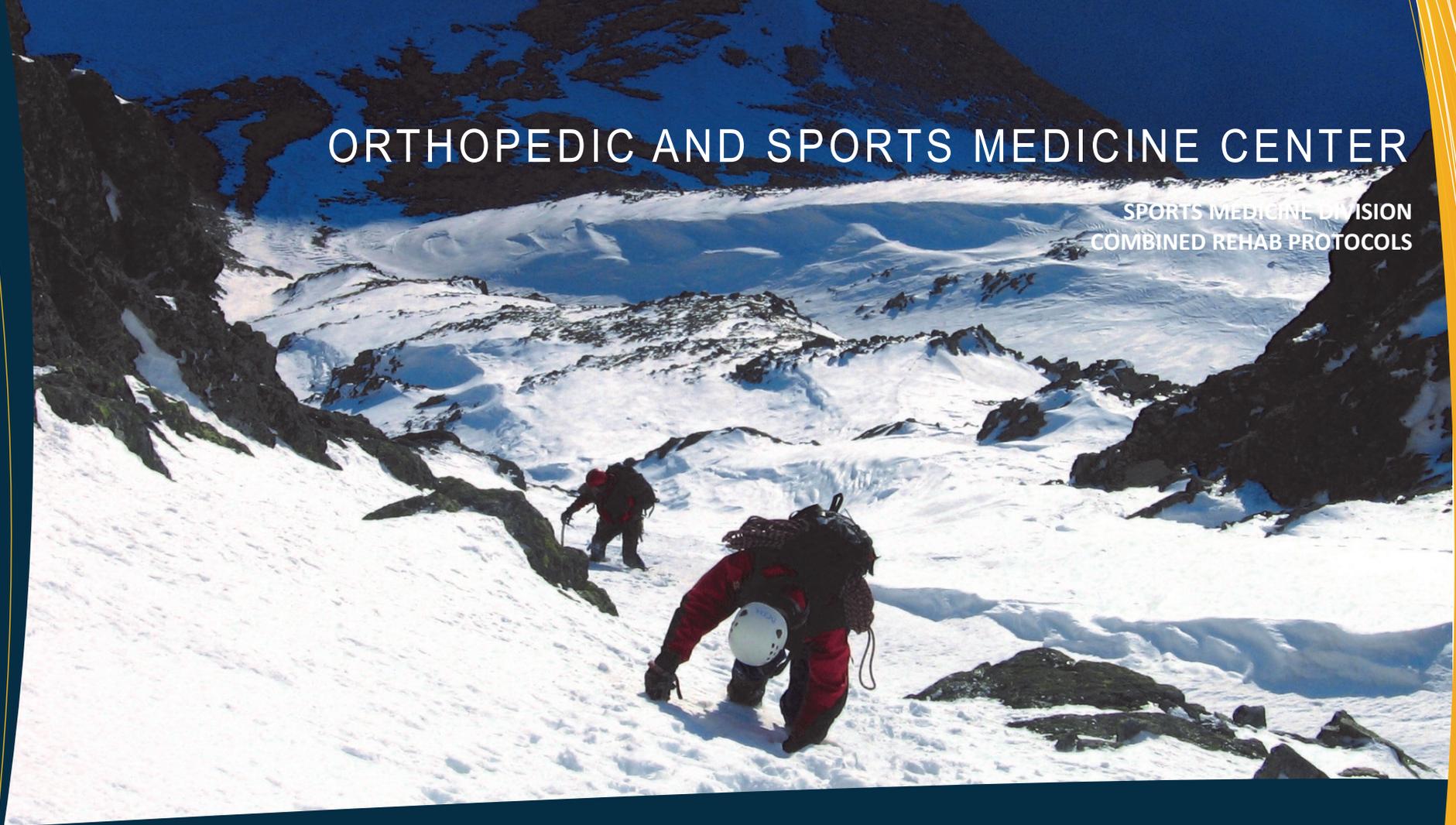


ORTHOPEDIC AND SPORTS MEDICINE CENTER

SPORTS MEDICINE DIVISION
COMBINED REHAB PROTOCOLS



Tibial Plateau or Distal Femoral Fracture

Rehab Protocol

Edited: May, 2015



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TIMELINE

GOALS

EXERCISES/METHODS

BRACING

Early Post-operative-
Day 1-week 4

TTWB
Brace 0-90

Control swelling, inflammation
Obtain terminal knee extension/
hyperextension
Obtain SLR without lag
Initiate regaining knee flexion

Limit hamstring strengthening and gastrocsoleus strengthening to therabands only.

Extension: Heel prop, calf (with ext) and GENTLE hamstring and gastroc stretches, Quad sets (electrical stimulation prn), 3 way SLR with brace, superior patellar mobs

Flexion: inferior patellar mobs, passive knee flexion, wall slides, seated knee flexion stretches passively

Scar mobilization once incision is healed.

- Immobilizer for 2 weeks
- IROM 0-90 for 4 weeks

ROM RESTRICTIONS

- 0-90 for 4 weeks

WEIGHT BEARING

- TTWB for 6 weeks
Progression should only occur after 6 week xrays confirm bone healing
- 25-50% Week 7
- 50-75% Week 8
- 100% Week 9+

Milestones to reach by end of week 4:
Full knee extension
SLR without quad lag
90 degrees of knee flexion

Weeks 4-6
Weight Bearing: Toe touch
Knee flexion: Plus 10 degrees per week until full ROM

Quad control in open kinetic chain

Continue as above.
Initiate biking with minimal resistance, aquatic program once incision has healed, core stability

Weeks 6-10
Weight Bearing: Initiate partial weight bearing by week 7 and increase 25% every 3 days. Able to initiate one crutch gait training by week 8.
Brace: Remove for sleep by 8 weeks.
Wean crutches and full weight bearing by week 8-10.

Begin to normalize gait weeks 6-8
Knee flexion 100 degrees to full ROM
Normalized gait
Quad control with functional movements including step up/down, squat, partial lunge(not to exceed 60 degrees)

Closed chain quad strengthening (squats, SAQs, TKEs, step ups and downs) with brace from 0 to 30 degrees.
Gait drills with brace
Sit and reach
Hip and core strengthening
Upper body circuit training, Stair master, slide board, Stationary bike with resistance

Milestones to reach by end of week 10:
Pain free initiation of weight bearing
Full knee extension ROM
Flexion greater than 110°
Min to no swelling

OTHER RESTRICTIONS AND KEY CONSIDERATIONS

TIMELINE

GOALS

EXERCISES/METHODS

<p>Weeks 10-16</p>	<p>Normalize gait Single leg stance balance</p>	<p>Balance drills with brace Lunges, static squat holds with RNT/dynamic, Single leg stance static and dynamic balance Cord training, drills, ladder Core training Elliptical Alter G</p>
<p>Weeks 16-24</p> <p>See footnote for complicated fracture</p>	<p>Good dynamic neuromuscular control and no pain with multiplanar activities Initiation of impact activities when 65% strength is reached compared to uninvolved</p>	<p>Single leg squat, single leg deadlift, Bosu squats Running prep: double line hops, single line hops, straight up/down hops, ½ speed running on treadmill with 1:1 run/rest ratio, trampoline bounding, shuttle jumps, slideboard/fitter, plyometric progression, single plane sport specific training</p>
<p>Weeks 24+</p>	<p>Sports specific progression and training Control when landing from sagittal, frontal, and transverse planes</p>	<p>Initiate return to running program Movement control exercises Specific balance and proprioceptive drills Return to sport testing</p>

SHOWERING

1. May Shower day 1 after surgery
2. Must “waterproof” surgical site for 5 days after surgery
3. No submerging wounds for 4 weeks

WOUND CARE

1. Remove everything except steri strips the day after surgery
2. Place clean gauze or op-site on wounds daily for 5 days

MEDICATIONS

1. Pain medicine only as needed. Wean off as soon as possible
2. Don't over-use NSAIDS
3. Aspirin 325mg twice daily for 1 month for DVT prophylaxis

*Hold initiation of Week 16-24 progression until Week 20 for complicated/slow healing fractures.

RETURN TO PLAY CRITERIA

Pre-RTP Criteria before testing can commence	<p>Full AROM</p> <p>Resolution of pain</p> <p>No/Trace joint effusion present</p> <p>MMT grossly 5/5 strength in LE</p> <p>LEFS: $\geq 75/80$ (95%)</p> <p>Lysholm Knee Rating: $\geq 95\%$</p> <p>1RM SL Leg Press $\geq 90\%$ contralateral side</p> <p>1RM SL Hamstring Curl $\geq 90\%$ contralateral side</p>
Lower Limb Symmetry Index (LSI): LSI % (mean score of 3 trials on injured limb/ mean score of 3 trials on uninjured limb) x 100	<p>SL Hop: $\geq 90\%$</p> <p>SL Triple Hop: $\geq 90\%$</p> <p>SL 6 meter Timed Hop: $\geq 90\%$</p> <p>SL Cross-over Hop: $\geq 90\%$</p> <p>Overall Score: $\geq 90\%$</p>
Vail Sports Tests:	<p>Passing Score $\geq 46/54$ (85%)</p>
Tuck Jump Assessment (TJA):	<p>perfect score on the TJA or improvement of 20 percentage points from the initial score</p>
Single Leg Squat: No Errors in Form (Errors listed right)	<p>Arm strategy: removal of hand off the waist</p> <p>Trunk alignment: leaning in any direction</p> <p>Pelvis plane: loss of horizontal plane</p> <p>Knee position: tibial tuberosity medial to second toe or tibial tuberosity medial to medial border of foot</p> <p>Steady stance: subject stepped down on non-tested limb, or foot wavered from side-to-side</p>
Modified Star Balance Excursion Test (Y Balance Test):	<p>SEBT % = ((mean score of 3 trials in anterior distance + mean score of 3 trials in posterior lateral distance + mean score of 3 trials in posterior medial distance)/ leg length of stance limb) x 100. Passing Score $\geq 94\%$</p>
Core Testing: (ongoing research): $\geq 90\%$ of all standard timed tests:	<p>Right Single Leg Bridge: Men 95 seconds; Females 75 seconds</p> <p>Left Single Leg Bridge: Men 99 seconds; Females 78 seconds</p> <p>Flexor Endurance Test: Men 136 seconds; Females 134 seconds</p> <p>Extensor Endurance Test: Males 160 seconds; Females 185 seconds</p> <p>Lower Abdominal Muscle Testing: Males 5/5; Females $\geq 4/5$ $(75 \square = 3/5, 60 \square = 3+/5, 45 \square = 4-/5, 30 \square = 4/5, 15 \square = 4+/5, 0 \square = 5/5)$</p>

RTP INSTRUCTIONS

RTP evaluation can progress throughout treatment as appropriate

PRE-RTP

Complete all testing in Pre-RTP section. Only Continue on when able to pass

SESSION 1

LSI, Vail Sports, TJA

SESSION 2

Single leg squat, Y Balance, Core Testing