

Hamstring Repair

Core Rehabilitation Guidelines

- Toe-touch weight bearing 20%, with assistive devices for 6 weeks
- Knee brace at minimum for 6 weeks at all times (especially sleeping) locked from 30°-90° knee flexion
 - No active hamstring contraction or stretching
 - No active knee flexion against gravity
 - No combined hip flexion and knee extension
- Anticipate transition from toe-touch to weight bearing as tolerated 6 and 9 weeks postop
- Post-op appointments with Dr. Ramkumar: 2 weeks, 6 weeks, 12 weeks, 6 months, 1 year
- Everyone will progress through the guidelines at their own pace.

Specific Timeline: Weeks 0-6

- Precautions:
 - Toe-touch weight bearing, 20 pounds, with assistive device (crutches or walker)
 - NO active hamstring contraction or stretching
 - NO active knee flexion against gravity
 - NO combined hip flexion and knee extension
 - Brace locked at 30° - 90° knee flexion
- Wound care
- Assessment:
 - Precaution awareness, as listed above
 - Gait pattern with assistive device
 - Wound check
 - Bed mobility and transfers – be aware of potential DVTs from immobilization!
 - Activity modification inside and outside of the home
 - Patient and family education
- Treatment Recommendations:
 - NO formal Physical Therapy until after 6 week follow up
 - Brace at all times, locked at 30° knee flexion
 - Covered for showering
 - Gait training
 - TTWB, 20 pounds, with assistive device (crutches or walker)
 - Bed Positioning
 - Pillow or towel roll under the knee to maintain 30° knee flexion
 - Can sit in a chair with 90° of knee flexion
 - Home Exercise Program
 - Ankle pumps
 - Short arc quads with pillow or towel roll under knee
 - Pelvic tilts
 - Icing, frequently during the day in 20-30minute increments
- Advancement Criteria:
 - 6 week follow up with Dr. Ramkumar

- Brace will be discharged
- Progress weight bearing, with assistive device, after Dr. Ramkumar clearance
- Initiate formal outpatient physical therapy thereafter

Specific Timeline: Weeks 6-12

- Precautions:
 - NO active hamstring contraction or stretching
 - NO active knee flexion against gravity
 - NO increase in symptoms with progressions
- Assessment:
 - Gait pattern with weight bearing progressions and assistive device
 - Scar and soft tissue mobility
 - Range of motion in lower extremity
 - Strength in lower extremity
 - Bed mobility and transfers
 - Functional movement patterns – control, quality, alignment
 - Bilateral squat
 - Single leg stance
 - Activity modification and tolerance inside and outside of the home
 - Precaution awareness, as listed above
- Treatment Recommendations:
 - Discharge brace as per clearance from Dr. Ramkumar
 - Gait training, with assistive device (crutches or walker)
 - Progress weight bearing from TTWB to WBAT over post-op weeks 6-9
 - Assistive device weaning as tolerated
 - Manual therapy
 - Scar massage
 - Soft tissue to hip flexors, adductors, glutes and hamstrings as tolerated
 - Passive range of motion to hip flexion, external and internal rotation
 - Stretching of hip flexors, adductors
 - Stretching
 - Self stretching to hip flexors and adductors
 - Quad rocking - gentle
 - Balance
 - Weight shifting
 - Double leg to single leg
 - Floor, foam, board, etc
 - Functional movements
 - Mini squats for sit to stand
 - Transfers
 - Stair navigation
 - Ergonomics
 - Strengthening
 - Isometric hip abduction, hip adduction and external rotation
 - Clam shells to side-lying hip abduction

- Short arc quads to straight leg raise (avoid stretch in hamstring)
- Prone gluteal squeezes
- Standing strengthening for lower extremity as tolerated
 - hip abduction, calf raises, side stepping
- Core strengthening
 - Bent knee fall out
 - Hooklying marches/taps
 - Hooklying with upper extremity movements
- Standing strengthening as tolerated - cable column rotations and presses
- Modified side plank (approximately 10-12 weeks)
- Stationary bicycle (~ 8 weeks when less pain with sitting)
- Gentle hamstring isometrics in supine (approximately 10 weeks)
- May begin prone knee flexion if there is no increase in pain (~10-12 weeks)
 - Aquatic therapy, if available
 - Home Exercise Program - dictated by your physical therapist
 - Icing – daily as needed and tolerated
- Advancement Criteria:
 - Compliance with self-care, activities of daily living and activity modification
 - Gait pattern normalized with no assistive device
 - Range of motion within normal limits (except extension)
 - No increased pain with increased activity
 - Single leg stance for 10 seconds with no trunk or hip deviations
 - Perform sit to stand with minimal to no upper extremity support
 - Follow up appointment at approximately 12 weeks with Dr. Ramkumar

Specific Timeline: Weeks 13-Week 24

- Precautions:
 - No increase in symptoms with progressions
 - No sports specific or impact activity
- Assessment:
 - Gait pattern
 - Scar and soft tissue mobility
 - Range of motion in lower extremity
 - Strength in lower extremity
 - Bed mobility and transfers
 - Activity modification and tolerance inside and outside of the home
 - Functional movement patterns – control, quality, alignment
 - Bilateral and single leg squat
 - Single leg stance
 - Precaution awareness, as listed above
- Treatment Recommendations:
 - Continue previous treatment recommendations as needed
 - Manual therapy

- Hamstring stretching – begin with gentle stretching
- Scar massage
- Soft tissue to hip flexors, adductors, glutes, hamstrings as tolerated
 - Passive range of motion to hip
 - Stretching of hip flexors, adductors, glutes, piriformis, hamstrings
 - Manual resistive exercises
 - Manual eccentric training - prone
- Stretching
 - Self stretching to hip flexors, adductors, glutes, piriformis and hamstrings
 - Foam rolling
- Balance and proprioception
 - Double leg to single leg
 - Floor, foam, board, etc
 - Progress to include dynamic activities
- Functional movements
 - Squats for sit to stand
 - Transfers
 - Stair navigation
 - Ergonomics
- Strengthening
 - Hamstring curls
 - Begin standing, with hip in neutral position
 - Progressively add repetitions and resistance over time
 - Bridges
 - Double leg and single leg
 - Dynamic surfaces and stability ball
 - Leg press
 - Double leg and single leg
 - Concentric and eccentric strength
 - Standing strengthening for lower extremity as tolerated
 - Open chain and closed chain (hip abduction, hip extension)
 - Side stepping
 - Step down
 - 4” to 6” to 8” : Watch for compensations
 - Step up
 - 4” to 6” to 8” : Watch for compensations
 - Core strengthening
 - Planks – front and side
 - Progress from modified to full
 - Can use stability ball for dynamic progressions
 - May begin light bilateral lower extremity hopping and agility in preparation for next phase –
- Stationary bicycle
- Elliptical (when patient can demonstrate good mechanics with 6” step up)

- Aquatic therapy, if available
- Home Exercise Program - dictated by your physical therapist
- Icing – daily as needed and tolerated
- Advancement Criteria:
 - Compliance with self-care, activities of daily living and activity modification
 - Pain free or manageable discomfort with ADLs and activity progression
 - Full active and passive range of motion
 - MMT 5/5 for lower extremity
 - Ascend and descend 6”-8” step with good quality and control
 - Single leg stance > 30 seconds without trunk or hip deviations
 - Perform 10 single leg bridges with good quality and control
 - Follow up appointment at approximately 24 weeks with Dr. Ramkumar

Specific Timeline: Weeks 25-36

- Precautions:
 - No increase in pain or discomfort with increasing activity
- Assessment:
 - Scar and soft tissue mobility
 - Range of motion in lower extremity
 - Strength in lower extremity
 - Activity modification and tolerance inside and outside of the home
 - Functional testing and movement patterns – control, quality, alignment
 - Bilateral and single leg squat
 - Step up and down
 - Single leg gluteal bridge
 - Precaution awareness, as listed above
- Treatment Recommendations:
 - Continue previous treatment recommendations as needed
 - Manual therapy
 - Hamstring stretching
 - Manual resistive exercises
 - Manual eccentric training - prone
 - Scar and soft tissue massage
 - Stretching
 - Continue from previous phase
 - Balance and proprioception
 - Progress to include dynamic activities
 - Functional movements
 - Continue from previous phase and progress as needed
 - Strengthening
 - Continue previous strengthening as needed
 - Hamstring curls
 - progressively add reps and resistance over time
 - Hamstring curls on dynamic surfaces and stability ball
 - Double leg to single leg

- Deadlifts
 - Double leg to single leg
 - Progressively add resistance/weights
- Bridges
 - Double leg and single leg
 - Dynamic surfaces and stability ball
 - Lunges in multiple directions
- Lower extremity and Core strengthening
 - Dynamic strengthening and progressive strengthening as tolerated
- Agility
 - Light jump rope
 - Agility ladder
 - Double leg and single leg movements and hops
- Running progression
 - After demonstration of good mechanics with full lateral plank for 60 seconds each side and 10 single leg squats (or 30 sec step down test, within 10% of non-surgical leg on 8" box)
 - Use AlterG if available
 - Intervals of walk/jog on treadmill or outdoors
- Sports specific and multiplanar activity (as tolerated)
 - Forward and lateral bounding
 - Bilateral and single LE
 - Cutting and pivoting
 - Forward and backwards skips
 - Plyometrics
 - Squat jumps, box jumps, split jumps
- Stationary bicycle or elliptical for cross training
- Home Exercise Program - dictated by your physical therapist
- Icing – daily as needed
- Advancement Criteria:
 - Compliance with self-care, activities of daily living and activity modification
 - Pain free or manageable discomfort with activity progression
 - Pain free and unrestricted ADLs
 - MMT 5/5 or hand-held dynamometer strength within 10% of non-surgical LE
 - Functional testing and movement patterns – control, quality, alignment
 - Bilateral and single leg squat; Forward step down; Single leg gluteal bridge
 - Sport specific testing within 10% and/or use of clinical judgment
 - Star Excursion Test
 - T-Test of agility
 - Hop testing
 - Objective strength testing (hand-held dynamometer)
 - Objective movement and agility testing
- Collaboration with appropriate performance specialists, trainers, coaches and teams

Specific Timeline: Weeks 37-52+

- Precautions:
 - No increase in pain or discomfort with increasing activity
 - No increase in pain with sports specific activity
 - Monitor for form and fatigue
- Assessment:
 - Range of motion in lower extremity
 - Strength in lower extremity
 - Objective measures (hand-held dynamometer)
 - Activity modification and tolerance inside and outside of the home
 - Functional testing and movement patterns – control, quality, alignment
 - Bilateral and single leg squat
 - Step up and down
 - Single leg gluteal bridge
 - Sports specific movement patterns, if applicable and dictated by sport
 - Bilateral and single leg hops and jumps
 - Cutting, pivoting
 - Plyometrics
 - Return to sport testing, if applicable
 - Precaution awareness, as listed above
- Treatment Recommendations:
 - Continue previous treatment recommendations as needed
 - Initiate and progress through interval sports programs, if applicable
 - Emphasize proper form and endurance with sports progressions
- Discharge Criteria:
 - Collaboration with appropriate performance specialists, trainers, coaches and teams
 - Pain free or manageable discomfort with activity and sports progression
 - Pain free and unrestricted ADLs
 - MMT 5/5 or hand-held dynamometer strength within 10% of non-surgical LE
 - Full active and passive range of motion
 - Functional testing and movement patterns – control, quality, alignment
 - Bilateral and single leg squat
 - Forward step down
 - Single leg gluteal bridge
 - Sport specific testing within 10% and/or use of clinical judgment, if applicable
 - Star Excursion Test
 - T-Test of agility
 - Hop testing
 - Objective strength testing (hand-held dynamometer)
 - Objective movement and agility testing
 - Completion of interval sports programs with no increase in pain or fatigue