

Appendix B

Labral Repair

- Partial weight bearing (touch down) six weeks.
- Encourage, but limit hip flexion to 90 degrees.
 - Flexion inhibits adhesions within anterior capsule.
 - Flexion beyond 90 degrees starts to stress the repair site.
- Avoid external rotation!
 - 6 weeks
 - External rotation stresses anterior labrum and capsular repair.
 - Especially cautious in bed (bolster with pillow).

****This is a guideline for progression. It needs to be tailored to the individual. It is a “one size fits all” progression and may need to be adjusted to best fit the patient.***

Phase I: Initial Exercise (Weeks 1-3)

- Week 1
 - Ankle Pumps
 - Glut, quad, HS, adduction
 - Heel slides, active-assist range of motion
 - Log rolling (Internal rotation only)
 - Pelvic tilt
 - Double leg bridges
 - Seated heel raises
 - Seated knee extension
 - Prone positioning – POE, prone knee flexion
 - Standing abduction, adduction, extension, flexion without resistance
 - Upper body ergometer, upper body strengthening
 - Pain dominant hip mobilization- grades I
- Week 2 (in addition to above)
 - Standard stationary bike without resistance at (10min.if tolerated; **no more than 90 degrees of hip flexion**)
 - Supine marching (90 degrees), modified dead bug (90 degrees)
 - Superman
 - Abduction isometrics
 - 4 way theraband resistance on affected side (start very low resistance)
 - Ankle PNF
 - Pool water walking, ROM, march steps, lateral steps, backward walking, mini-squats, heel raises, hamstring and hip flexor stretches
- Week 3
 - Active range of motion with gradual end range stretch within tolerance
 - 3 way leg raises- abduction, adduction, extension
 - Seated physioball progression- active knee extension

Goals

- Protect integrity of repaired labrum
- Restore ROM within restrictions
- Diminish pain and inflammation
- Prevent muscular inhibition
- Normalize gait using two crutches (TDWB weight bearing)

Criteria for progression to Phase II

- Minimal pain with phase I exercises
- 90 degrees of pain-free flexion
- Minimal range of motion limitations with internal rotation, extension and abduction
- Normal heel to toe gait with two crutches (TDWB weight bearing)

Phase II: Intermediate exercises (Weeks 4-6)

- Weeks 4 and 5
 - Gradually increase resistance with stationary bike
 - Front and side standing weight shifts
 - Crunches
 - Pool water exercise- flutter kick swimming, 4way hip with water weights, step-ups
- Week 6
 - Gradually wean off of crutches if no gait deviations
 - Passive ROM (gradually incorporate gentle external rotation and flexion short of pain→limit to 20 degrees of ER and 105 degrees of flexion)
 - Clamshells
 - Manual PNF
 - Crunches
 - Leg Press (minimal resistance→gradually increasing resistance to patient tolerance)
 - Weight shifts- standing, sitting supported, anterior/posterior, laterals, physioball
 - ¼ Mini squats, standing heel lifts, wall mini-squats, physioball mini-squats with co-contraction
 - Superman (quadruped position)
 - Standing theraband/pulley flexion, adduction, abduction and extension or Multi-hip
 - Standing heel raises
 - Single leg bridges/stabilization/alternate kick outs
 - Elliptical machine

Goals

- Protect integrity of repaired tissue
- Increase ROM
- Normalize gait with no crutches
- Progressively increase muscle strength

Criteria for progression to Phase III

- 105 degrees of flexion and 20 degrees of external rotation
- Pain-free/normal gait pattern
- Hip flexion strength >60% of the uninvolved side
- Hip adduction, extension, internal and external rotation strength >70% of the uninvolved side

Phase III: Advanced exercises

- Week 7
 - Restore full passive range of motion
 - Clamshells with resistive tubing/band
 - Single leg balance-firm to soft surface with external perturbation (ball catch, sports specific/simulated ex.)
 - Physioball hamstring ex.- hip lift, bent knee hip lift, curls, balance
 - Knee extensions, hamstring curls
 - Theraband PNF
 - Sidestepping with resistance (pause on effected limb), sports cord walking forward and backward (pause on effected limb)
 - Unstable surface squats
- Week 8
 - Full squats
 - Single stability ball bridges
 - Step-ups with eccentric lowering
 - Lunges progress from single plane to tri-planar lunges, add med balls for resistance and rotation
 - Theraband walking patterns-forward, side stepping, carioca, monster steps, backward, ½ circles forward/backward- 25yds. Start band at knee height and progress to ankle height
 - Side steps over cups/hurdles (with ball toss and external sports cord resistance), increase speed
 - Single leg body weight squats, increase external resistance, stand on soft surface

Goals

- Restoration of muscular endurance/strength
- Restoration of cardiovascular endurance
- Optimize neuromuscular control/balance/proprioception

Criteria for Progression to Phase IV

- Hip flexion strength >70% of the uninvolved side
- Hip adduction, abduction, extension, internal and external rotation >80% of the uninvolved side
- Cardiovascular fitness equal to pre-injury level
- Demonstration of initial agility drills with proper body mechanics

Phase IV: Sports specific training rehab clinic based progression

- Weeks 9-11
 - All phase 3 exercises
 - Single leg pickups, add soft surface
 - Pool running (progress from chest deep to waist deep), treadmill jogging
 - Step drills, quick feet step ups (4-6 inch box) forward, lateral, carioca
 - Plyometrics, double leg and single leg shuttle jumps
 - Theraband walking patterns 1rep of six exercises x 50yds, progress to band at knee height and ankle height

Sports specific training on field or court

- Weeks 12 and on
 - Running progression
 - Sport specific drills
 - Traditional weight training

Criteria for full return to competition:

- Full range of motion
- Hip strength equal to uninvolved side, single leg pick up with level pelvis
- Ability to perform sport-specific drills at full speed without pain
- Completion of functional sports test

Microfracture

- Partial weight bearing (50%) for up to eight - ten weeks.

Phase I: Initial Exercise (Weeks 1-3)

- Week 1
 - Ankle Pumps
 - Gluteal, quadriceps, hamstring, adduction, abduction isometrics
 - Heel slides, active-assist range of motion
 - Pelvic tilt, supine marching, trunk rotation, modified dead bug
 - Seated knee extension, hip flexion, ER/IR in pain-free range
 - Prone positioning – POE, superman
 - Upper body ergometer, upper body strengthening
 - Pain dominant hip mobilization- grades I,II
- Week 2
 - Standard stationary bike without resistance at (10min.if tolerated)
 - Standing abduction, adduction, extension without resistance, standing abduction isometrics
 - Ankle PNF
 - Pool water walking, ROM, march steps, lateral steps, backward walking, mini-squats, heel raises, hamstring and hip flexor stretches
- Week 3
 - Active range of motion with gradual end range stretch within tolerance
 - Clamshells
 - 3 way leg raises- abduction, adduction, extension
 - Seated physioball progression- active hip/knee
 - IR/ER isometrics

Goals

- Protect integrity of healing microfracture
- Restore ROM within patient tolerance
- Diminish pain and inflammation
- Prevent muscular inhibition
- Normalize gait using two crutches with strict protective weight bearing of no more than the weight of the leg.

Criteria for progression to Phase II

- Minimal pain with phase 1 exercises
- Minimal range of motion limitations
- Demonstrates restricted weight bearing during gait

Phase II: Intermediate exercises (Weeks 4-6)

- Weeks 4-6
 - Double leg bridges
 - Crunches
 - Pool water exercise- flutter kick swimming, 4way hip with water weights, step-ups

Goals

- Protect integrity of healing tissue
- Restore pain-free range of motion
- Progressively increase muscle strength and endurance
- Continue to respect weight bearing precautions

Criteria for progression to Phase III

- Minimum pain with phase 2 exercises

Phase III: Advanced exercises (Weeks 7-10)

- Week 7
 - Standing theraband/pulley flexion, adduction, abduction and extension or Multi-hip
 - Superman (quadruped position)
 - Clamshells with resistive tubing/band
- Week 8
 - Gradually wean off crutches
 - ¼ Mini squats, standing heel lifts, wall mini-squats, physioball mini-squats with co-contraction
 - Manual PNF
 - Leg Press (minimal resistance → gradually increasing resistance to patient tolerance)
 - Single leg bridges/stabilization/alternate kick outs
 - Elliptical machine
- Week 9
 - Single leg balance-firm to soft surface with external perturbation (ball catch, sports specific/simulated ex.)
 - Physioball hamstring ex.- hip lift, bent knee hip lift, curls, balance
 - Knee extensions, hamstring curls
 - Theraband PNF
 - Sidestepping with resistance (pause on effected limb), sports cord walking forward and backward (pause on effected limb)
 - Unstable surface squats
 - Single stability ball bridges
- Week 10
 - Step-ups with eccentric lowering
 - Lunges progress from single plane to tri-planar lunges, add medicine balls for resistance and rotation
 - Theraband walking patterns-forward, side stepping, carioca, monster steps, backward, ½ circles forward/backward- 25yds. Start band at knee height and progress to ankle height
 - Side steps over cups/hurdles (with ball toss and external sports cord resistance), increase speed
 - Single leg body weight squats, increase external resistance, stand on soft surface

Goals

- Restoration of muscular endurance/strength
- Restoration of cardiovascular endurance
- Optimize neuromuscular control/balance/proprioception

Criteria for Progression to Phase IV

- Single leg mini-squat with level pelvis
- Cardiovascular fitness equal to pre-injury level
- Demonstration of initial agility drills with proper body mechanics

Phase IV: Sports specific training rehab clinic based progression

- Weeks 11-13
 - All phase 3 exercises
 - Single leg pick-ups, add soft surface
 - Pool running (progress from chest deep to waist deep), treadmill jogging
 - Step drills, quick feet step ups (4-6 inch box) forward, lateral, carioca
 - Plyometrics, double leg and single leg shuttle jumps
 - Theraband walking patterns 1rep of six exercises x 50yds, progress to band at knee height and ankle height
- Weeks 14 and on (Sports specific training on field or court)
 - Running progression
 - Sport specific drills
 - Traditional weight training

Criteria for full return to competition:

- Full range of motion
- Hip strength equal to uninvolved side, single leg pick up with level pelvis
- Ability to perform sport-specific drills at full speed without pain
- Completion of functional sports test

Femoroplasty

Weight bearing as tolerated → use crutches to normalize gait and protect re-contoured head-neck junction.

- Crutches are used for four weeks unless labral repair performed – then TDWB.

Phase I: Initial Exercise (Weeks 1-3)

- Week 1
 - Ankle Pumps
 - Glut, quad, HS, adduction, abduction isometrics
 - Heel slides, active-assist range of motion
 - Pelvic tilt, supine marching, trunk rotation, modified dead bug
 - Seated knee extension, hip flexion, IR/ER in pain-free range
 - Prone positioning – Prone on elbow, superman
 - Standard stationary bike without resistance at 3 days post-op (10min.if tolerated)
 - Upper body ergometer, upper body strengthening
 - Pain dominant hip mobilization- grades I,II
- Week 2 (in addition to above)
 - Weight shifts- standing, sitting supported, anterior/posterior, laterals, physioball
 - ¼ Mini squats, standing heel lifts, wall mini-squats, physioball mini-squats with co-contraction
 - Quadruped rocking
 - Double leg bridges
 - Standing abduction, adduction, extension, flexion to 90degrees without resistance, theraband resistance on unaffected side, standing abduction isometrics
 - Ankle PNF
 - Ankle resistance with dead bug
 - Pool water walking, ROM, march steps, lateral steps, backward walking, mini-squats, heel raises, hamstring and hip flexor stretches
 -

- Week 3
 - Continue stationary bike with minimal resistance- 5min. increase daily
 - Single leg sports cord leg press (long sitting) limiting hip flexion
 - Shuttle leg press 90degree hip flexion with co-contraction of adductors
 - Active range of motion with gradual end range stretch within tolerance
 - Stiffness dominant hip mobilization-grades III,IV
 - IR/ER isometrics
 - Double leg bridges to single leg bridges
 - Clamshells
 - 3 way leg raises- abduction, adduction, extension
 - Kneeling hip flexor stretch (short of pain)
 - Quadraped 4point support, progress 3point support, progress 2point support
 - Seated physioball progression- active hip/knee

Goals

- Restore ROM
- Diminish pain and inflammation
- Prevent muscular inhibition
- Normalize gait

Criteria for progression to Phase II

- Minimal pain with phase 1 exercises
- Minimal range of motion limitations
- Normalized gait with one or two crutches

Phase II: Intermediate exercises (Weeks 4-6)

- Weeks 4 and 5
 - Wean off of crutches after 4 weeks
 - Gradually increase resistance with stationary bike
 - Single leg heel raise
 - Straight leg raises (if tolerated)
 - Crunches
 - Standing theraband/pulley weight flexion, adduction, abduction, extension, multi-hip machine
 - Single leg balance- firm to soft surface
 - Manual PNF
 - Clamshells with theraband
 - Pool water ex.- flutter kick swimming, 4way hip with water weights, step-ups
 - Forward and lateral walking over cups and hurdles (pause on effected limb), add ball toss while walking (week 5)
 - Initiate elliptical machine (week 5)
- Week 6
 - Single leg balance-firm to soft surface with external perturbation (ball catch, sports specific/simulated ex.)
 - Leg Press (gradually increasing weight)
 - Physioball hamstring ex.- hip lift, bent knee hip lift, curls, balance
 - Superman on physioball- 2point on physioball
 - Knee extensions, hamstring curls
 - Theraband PNF
 - Sidestepping with resistance (pause on effected limb), sports cord walking forward and backward (pause on effected limb)
 - Unstable surface squats

Goals

- Restore pain-free range of motion
- Initiate proprioception exercises
- Progressively increase muscle strength and endurance

Criteria for progression to Phase III

- Minimum pain with phase 2 ex.
- Single leg stance with level pelvis

Phase III: Advanced exercises

- Weeks 7-8
 - Full squats
 - Single stability ball bridges
 - Step-ups with eccentric lowering
 - Lunges progress from single plane to tri-planar lunges, add medicine balls for resistance and rotation
 - Theraband walking patterns-forward, side stepping, carioca, monster steps, backward, ½ circles forward/backward- 25yds. Start band at knee height and progress to ankle height
 - Side steps over cups/hurdles (with ball toss and external sports cord resistance), increase speed
 - Single leg body weight squats, increase external resistance, stand on soft surface

Goals

- Restoration of muscular endurance/strength
- Restoration of cardiovascular endurance
- Optimize neuromuscular control/balance/proprioception

Criteria for Progression to Phase IV

- Single leg mini-squat with level pelvis
- Cardiovascular fitness equal to pre-injury level
- Demonstration of initial agility drills with proper body mechanics

Phase IV: Sports specific training rehab clinic based progression

- Weeks 9-11
 - All phase 3 exercises
 - Single leg pick ups, add soft surface
 - Pool running (progress from chest deep to waist deep), treadmill jogging
 - Step drills, quick feet step ups (4-6 inch box) forward, lateral, carioca
 - Plyometrics, double leg and single leg shuttle jumps
 - Theraband walking patterns 1rep of six exercises x 50yds, progress to band at knee height and ankle height

Sports specific training on field or court

- Weeks 12 and on
 - Running progression
 - Sport specific drills
 - Traditional weight training

Criteria for full return to competition:

- Full range of motion
- Hip strength equal to uninvolved side, single leg pick up with level pelvis
- Ability to perform sport-specific drills at full speed without pain
- Completion of functional sports test