

Microfracture

This protocol should be used as a guideline for progression and should be tailored to the needs of the individual patient.

- **Strict protective weight bearing status for two months (8-9 weeks).**
 - Allow to place weight of leg on ground (neutralizes joint reaction forces).
- **Emphasis on range of motion.**
 - Active assisted motion for home program.
- **Pool program to initiate functional exercises in reduced weight environment.**
- **Emphasis on cycling for range of motion without resistance (as long as this is tolerated by the individual).**
 - If patient has a capsular closure, extension is restricted for 3 weeks.
 - **Modify protocol as necessary**
- **At 2 months, transition to full weight bearing (transition variable).**
 - Some transition immediately to full weight bearing status.
 - Some require transition to 1 crutch or continued support for distances, which may be needed for 1-2 weeks.

PHASE 1:

WEEK 1

Initial Exercises (*Weeks 1-3*)



Seated knee extensions



Ankle pumps

PHASE 1: **WEEK 1**
Initial Exercises (*Weeks 1-3*)



Glut sets



Adductor isometrics



Quad sets



Heel slides, active-assisted range of motion



Hamstring sets



Log rolling

PHASE 1: **WEEK 1**

Initial Exercises (*Weeks 1-3*)



Pelvic tilt



Prone on elbows



Trunk rotation



Prone knee flexion



Double leg bridges



Standing abduction without resistance

PHASE 1:

WEEK 1

Initial Exercises (*Weeks 1-3*)



Standing adduction without resistance



Standing flexion without resistance



Standing extension without resistance



Pain dominant hip mobilization – grades I, II

Other Exercises Week 1

- Upper body ergometer, upper body strengthening

PHASE 1: **WEEK 2**

Initial Exercises (*Weeks 1-3*)



Supine marching, modified dead bug



Theraband resistance on affected side –
Abduction (start very low resistance)



Superman



Theraband resistance on affected side –
Adduction (start very low resistance)



Abduction isometrics



Theraband resistance on affected side – Flexion
(start very low resistance)

PHASE 1:

WEEK 2

Initial Exercises (*Weeks 1-3*)



Theraband resistance on affected side –
Extension (start very low resistance)

Other Exercises Week 2

- Standard stationary bike without resistance at 3 days post-op (10 min. if tolerated)
- Pool exercises (water walking, range of motion, march steps, lateral steps, backward walking, mini-squats, heel raises, hamstring and hip flexor stretches)

PHASE 1:

WEEK 3

Initial Exercises (*Weeks 1-3*)



Hip flexion, IR/ER in pain-free range



Leg raise – Abduction



Clamshells



Leg raise – Extension

PHASE 1:**WEEK 3****Initial Exercises** (*Weeks 1-3*)

Seated physioball progression – active hip/knee

Other Exercises Week 3

- Active range of motion with gradual end range stretch within tolerance
- Leg raise – Adduction

Goals of Phase 1

- Protect integrity of healing microfracture
- Restore range of motion 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 2

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

PHASE 2:**WEEKS 4-6****Intermediate Exercises** (*Weeks 4-6*)Theraband resistance on affected side –
Abduction (start very low resistance)Theraband resistance on affected side –
Adduction (start very low resistance)

PHASE 2:**WEEKS 4-6****Intermediate Exercises** (*Weeks 4-6*)

Theraband resistance on affected side – Flexion
(start very low resistance)



Crunches



Theraband resistance on affected side –
Extension (start very low resistance)

Other Exercises Weeks 4-6

- Initiate elliptical machine
- Pool water exercises – flutterkick swimming, 4 way hip with water weights, step-ups

Goals of Phase 2

- 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 3

- Minimum pain with phase 2 exercises

PHASE 3:**WEEK 7****Advanced Exercises** (*Weeks 7-10*)

Superman (quadruped position)



Clamshells with resistive tubing/band

Other Exercises Week 7

- Standing theraband/pulley flexion, adduction, abduction and extension or multi-hip
- Pool water exercises – flutterkick swimming, 4 way hip with water weights, step-ups

PHASE 3:**WEEK 8****Advanced Exercises** (*Weeks 7-10*)

1/4 Mini squats



Standing heel lifts

PHASE 3:**WEEK 8****Advanced Exercises** (*Weeks 7-10*)

Single leg bridges/stabilization/alternate kickouts

Other Exercises Week 8

- Gradually wean off crutches
- Wall mini-squats
- Physioball mini-squats with cocontraction
- Leg Press (minimal resistance, gradually increasing resistance to patient tolerance)

PHASE 3:**WEEK 9****Advanced Exercises** (*Weeks 7-10*)

Single leg balance – firm to soft surface with external perturbation (ball catch, sports specific/simulated ex.)



Physioball hamstring exercises – hip lift, bent knee hip lift, curls, balance

PHASE 3:**WEEK 9****Advanced Exercises** (*Weeks 7-10*)

Sidestepping with resistance (pause on affected limb), sports cord walking forward and backward (pause on affected limb)



Bosu squats

Other Exercises Week 9

- Knee extensions, hamstring curls
- Single stability ball bridges

PHASE 3:**WEEK 10****Advanced Exercises** (*Weeks 7-10*)

Step-ups with eccentric lowering



Lunges progress from single plane to tri-planar lunges, add medicine balls for resistance and rotation

PHASE 3:**WEEK 10****Advanced Exercises** (*Weeks 7-10*)

Theraband walking patterns – forward, sidestepping, carioca, monster steps, backward, ½ circles forward/backward – 25 yds. Start band at knee height and progress to ankle height



Single leg body weight squats, increase external resistance, stand on soft surface



Side steps over cups/hurdles (with ball toss and external sports cord resistance), increase speed

Goals for Phase 3

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

Criteria for Progression to Phase 4

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

PHASE 4:**WEEKS 11-13****Sports specific training rehab clinic based progression**

Single leg pick-ups, add soft surface

Other Exercises Weeks 11-13

- All phase 3 exercises
- 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 1 rep of six exercises x 50yds, progress to band at knee height and ankle height

FINAL PHASE:**WEEKS 14 & BEYOND****Sports specific training on field or court****Other Exercises Weeks 14 & beyond**

- 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