## 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).
- 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.
- Minimum three months before progression of functional activities as tolerated.

## PHASE 1: Initial Exercises (Weeks 1-3)

WEEK 1



Seated knee extensions



Ankle pumps



## PHASE 1: Initial Exercises (Weeks 1-3)





Adductor isometrics

Glut sets



Quad sets



Heel slides, active-assisted range of motion



Hamstring sets



Log rolling



## PHASE 1: Initial Exercises (Weeks 1-3)





Pelvic tilt





Trunk rotation



Prone knee flexion



Double leg bridges



Standing abduction without resistance



## PHASE 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: 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: 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: Initial Exercises (Weeks 1-3)



Hip flexion, IR/ER in pain-free range



Leg raise - Abduction



Clamshells



Leg raise - Extension



### PHASE 1: 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 restircted weight bearing during gait

## **PHASE 2:**

# Intermediate Exercises (Weeks 4-6)





Stiffness dominant hip mobilization – grades III, IV (inferior glides into progressive hip flexion, IR/ER log roll mobilization)

## WEEK 3

### WEEKS 4-6



### **PHASE 2:**

# Intermediate Exercises (Weeks 4-6)

### Other Exercises Weeks 4-6

- Pool water exercises flutterkick swimming, 4 way hip with water weights, step-ups
- Continue to perform standing SLR with increasing resistance.

### 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

 $\Box$  Minimum pain with phase 2 exercises

### WEEKS 4-6



# PHASE 3:

Advanced Exercises (Weeks 7-10)

Superman (quadruped position)

Clamshells with resistive tubing/band

• Pool water exercises – flutterkick swimming, 4 way hip with water weights, step-ups

## PHASE 3: Advanced Exercises (Weeks 7-10)

1/4 Mini squats



Standing heel lifts

## **Other Exercises Week 7**

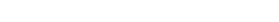
- Standing theraband/pulley flexion, adduction, abduction and extension or multi-hip







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## PHASE 3: Advanced Exercises (Weeks 7-10)

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

### **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)
- Initiate elliptical machine.





WEEK 8





## PHASE 3: Advanced Exercises (Weeks 7-10)

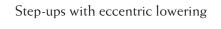
Sidestepping with resistance (pause on affected limb), sports cord walking forward and backward (pause on affected limb)

### • Knee extensions, hamstring curls

Single stability ball bridges

**Other Exercises Week 9** 

## PHASE 3: Advanced Exercises (Weeks 7-10)





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







### PHASE 3:

# Advanced Exercises (Weeks 7-10)

Theraband walking patterns - forward, sidestepping, carioca, monster steps, backward, 1/2 circles forward/backward – 25 yds. 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

## Goals for Phase 3

resistance, stand on soft surface

- □ 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

- $\Box$  Running progression
- $\hfill \square$  Sport specific drills
- $\Box$  Traditional weight training

### Criteria for full return to competition

- $\hfill \square$  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
- $\hfill\square$  Completion of functional sports test