

MICROFRACTURE TROCHLEAR GROOVE/PATELLA

	Time Frame (Weeks)	Guidelines	Goals
PHASE I	0 to 2	CRUTCHES: NWB x 1-2 weeks per MD instructions BRACE: 0°-20° x 6 weeks CPM: 8 hours/day x 6 weeks EXERCISE PROGRESSION <ul style="list-style-type: none"> Gait training Extension - heel props for full extension Flexion - off table or wall slides Quadriceps setting using NMES as needed Multi-plane straight leg raises Bilateral calf raises RECOMMENDED LOADING <ul style="list-style-type: none"> Short but frequent bouts of ROM, quad activation 3+x/day 	<ul style="list-style-type: none"> Reduce inflammation Normalize patella mobility with manual mobilizations Full extension, passive and active Good quadriceps activation No extension lag straight leg raise 90° - 100° of knee flexion, progressing to full as tolerated
	2 to 6	EXERCISE PROGRESSION <ul style="list-style-type: none"> Continue with 0-1 week program Extension-continue heel props or prone hangs (as needed) Flexion-wall or heel slides Ball bridge and/or isometric hamstring activation CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking Short walks using both crutches Pool program once incisions are completely healed RECOMMENDED LOADING <ul style="list-style-type: none"> Short but frequent bouts of ROM, quad activation 3x/day 	<ul style="list-style-type: none"> Reduce inflammation Full knee extension/hyperextension Good quadriceps control with no extension lag 100° – 120° of knee flexion, progress as tolerated
PHASE II	6 to 8	BRACE OPEN AS FOLLOWS <ul style="list-style-type: none"> ⇒ 0° to 45° for 3 days ⇒ 0° to 60° for 3 days ⇒ 0° to 90° for 3 days ⇒ Wean out of brace by WEEK 8-9 EXERCISE PROGRESSION <ul style="list-style-type: none"> Extension – continue heel props, prone hangs as needed Flexion – continue with end range heel slides Bilateral squat progression – <u>limited and pain-free</u> range Step-up progression – <u>limited and pain-free</u> range Hamstring activation with bridge on floor, ball or box Proprioception drills CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking Treadmill/outdoor walking, focus on proper gait mechanics Swimming, deep water program RECOMMENDED LOADING <ul style="list-style-type: none"> ROM: 2-3x/day Strength: 1x/day open chain; 3x/week closed chain Cardiovascular: 20-30 minutes/day low/moderate intensity 	<ul style="list-style-type: none"> Full knee extension/hyperextension Knee flexion - full as tolerated Normalize gait mechanics Normalize patellofemoral joint and scar mobility

	Time Frame (Weeks)	Guidelines	Goals
PHASE II (CONTINUED)	8 to 12	<p>EXERCISE PROGRESSION</p> <ul style="list-style-type: none"> Controlled movement series - warm-up Leg press, hamstrings curls (light resistance) <p>CARDIOVASCULAR EXERCISE</p> <ul style="list-style-type: none"> Increase intensity/duration Stationary biking Treadmill/outdoor walking, slow progression based on previous load tolerance Arc trainer or elliptical <p>ACTIVITY PROGRESSION</p> <ul style="list-style-type: none"> Outdoor biking Higher intensity interval work with CV program <p>RECOMMENDED LOADING</p> <ul style="list-style-type: none"> ROM: 2x/day Strength: 2-3x/week with closed chain loading Cardio: 30+ minutes 5x/week, low/moderate intensity 	<ul style="list-style-type: none"> Reduce inflammation Full ROM Normal gait
PHASE III	12 to 24	<p>MOVEMENT PREP</p> <ul style="list-style-type: none"> Foam roller Controlled movement series <p>EXERCISE PROGRESSION</p> <ul style="list-style-type: none"> Weighted squat progression Single leg closed chain progression. Pain and swelling must dictate advancement. Lateral band walk Integrate core program with LE program <p>ACTIVITY PROGRESSION</p> <ul style="list-style-type: none"> Outdoor biking Higher intensity interval work with CV program <p>RECOMMENDED LOADING</p> <ul style="list-style-type: none"> ROM: 1-2x/day Strength: 3x/week on closed chain loading Cardio: 20-45 min. 5x/week, moderate intensity intervals 	<ul style="list-style-type: none"> Control inflammation with increasing loads Full knee flexion and extension with terminal stretch Progressive strengthening Increase muscular endurance
PHASE IV	6 to 9 MONTHS	<p>EXERCISE PROGRESSION</p> <ul style="list-style-type: none"> Increase loads from phase II Continue core program integration Movement Prep; foam roller, controlled movement series <p>NON-IMPACT CARDIOVASCULAR EXERCISE</p> <ul style="list-style-type: none"> Stationary biking Arc trainer or elliptical Swimming <p>RUNNING PROGRESSION</p> <ul style="list-style-type: none"> Basic ladder series – approximately 6 MONTHS Skipping – 6 MONTHS Walk/jog interval – 6-9 MONTHS Linear acceleration/deceleration – 6-9 MONTHS Sprinting – 6-9 MONTHS Change of direction and lateral agility – 6-9 MONTHS 	<ul style="list-style-type: none"> Control inflammation with increasing loads Progressive strengthening Increase muscular strength, power and endurance

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PHASE IV (CONTINUED)	6 to 9 MONTHS	<p>JUMP PROGRESSION (GRADUAL 6-12 MONTHS)</p> <ul style="list-style-type: none"> • Low amplitude bilateral single response jumps • Bilateral multiple response jumps • Unilateral single response jumps • Unilateral multiple response jumps <p>SPORTS SPECIFIC ACTIVITY PROGRESSION</p> <ul style="list-style-type: none"> • Non-contact and non-reactive field/court progression - 6-12 MONTHS <p>SPORTS TEST AND RETURN TO ACTIVITY</p> <ul style="list-style-type: none"> • Follow-up examination with physician • Sports test for return to competition: 9-12 MONTHS <p>RECOMMENDED LOADING</p> <ul style="list-style-type: none"> • ROM: global stretching • Strength: 2-3x/week with increasing resistance • Cardiovascular: 20-45 minutes 5x/week. Alternate impact and non-impact days using sound recovery principles. 	