

ANTERIOR INTERVAL RELEASE, MUA, DEBRIDEMENT POST-OPERATIVE PROTOCOL

	Time Frame (Weeks)	Guidelines	Goals
PHASE I	0 to 1	CRUTCHES: 50% partial weight bearing x 2-4 weeks EXERCISE PROGRESSION <ul style="list-style-type: none"> Gait training Extension - heel props or JAS progressive stretching unit Flexion - off table or wall slides Quadriceps setting using NMES (Kneehab) Multi-plane straight leg raises Bilateral calf raises CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking 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 both passive and active Good quadriceps activation No extension lag 100°-120° of knee flexion, progressing to full as tolerated
	2 to 4	EXERCISE PROGRESSION <ul style="list-style-type: none"> Continue with 0-1 week program Extension – continue with heel props, prone hangs and/or JAS 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 a crutch as needed 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 Transition off crutches Full knee extension/hyperextension No extension lag 120°+ of knee flexion
PHASE II	4 to 6	EXERCISE PROGRESSION <ul style="list-style-type: none"> Extension – heel props, prone hangs and/or JAS Flexion – continue with end range heel slides Bilateral squat progression – focus on proper alignment with <u>limited range initially</u> Multi-plane open and closed kinetic chain hip strengthening Step-up progression – focus on proper alignment with <u>limited range initially</u> Hamstring activation with bridge on floor, ball or box Progress to unilateral heel raise off the floor then off a step Proprioception drills CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking Treadmill/outdoor walking, focus on proper gait mechanics RECOMMENDED LOADING <ul style="list-style-type: none"> ROM: 2-3x/day Strength: 1x/day open chain; 3x/week closed chain Cardiovascular: 20 minutes/day with low intensity 	<ul style="list-style-type: none"> Progress off crutches Full knee extension/hyperextension Knee flexion to full as tolerated Normalize gait mechanics Normalize patellofemoral joint and scar mobility

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PHASE II (continued)	6 to 8	EXERCISE PROGRESSION <ul style="list-style-type: none"> Controlled movement series - warm-up Leg press, hamstrings curls (light resistance) Single leg RDL's CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Slowly increase intensity/duration Stationary biking Treadmill/outdoor walking, focus on proper gait mechanics Arc trainer or elliptical RECOMMENDED LOADING <ul style="list-style-type: none"> ROM: 2x/day Strength: 3x/week on closed chain loading Cardiovascular: 20-30 minutes/day, low/moderate intensity 	<ul style="list-style-type: none"> Reduce inflammation Full ROM Normal gait
PHASE III	8 to 12	EXERCISE PROGRESSION <ul style="list-style-type: none"> Movement prep; foam roller, controlled movement series Leg press and squat – gradually increase load Single leg squat/lunge progression (dips, retro, walk and split) *recognize and adjust for degenerative changes or inflammation in the patello-femoral joint Lateral band walk CORE PROGRAM <ul style="list-style-type: none"> Front & side plank – full, may advance to alternating leg lift Bridge – marching or single leg Dead bug progression Quadruped alternating arm-leg CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking Treadmill/outdoor walking, focus on proper gait mechanics Arc trainer or elliptical SPORT SPECIFIC ACTIVITY PROGRESSION <ul style="list-style-type: none"> Outdoor biking – week 10 Swimming free style – week 8-10 RECOMMENDED LOADING <ul style="list-style-type: none"> ROM: 1-2x/day Strength: 3x/week on closed chain loading Cardiovascular: 20-45 minutes 5x/week with moderate intensity and 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	12 wks to 4-6 months	MOVEMENT PREP <ul style="list-style-type: none"> Foam roller Controlled movement series EXERCISE PROGRESSION <ul style="list-style-type: none"> Increasing loads from phase III Core program: Increase load as appropriate CARDIOVASCULAR EXERCISE <ul style="list-style-type: none"> Stationary biking Arc trainer or elliptical Swimming RUNNING PROGRESSION <ul style="list-style-type: none"> Ladder series – WEEK 12 Skipping – WEEK 12 Walk/jog interval – WEEKS 6-8 Linear acceleration/deceleration – WEEKS 14-16 Sprinting – WEEK 16 Change of direction and lateral agility – WEEKS 16-20 	<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)	12 weeks to 4-6 months	<p>JUMPING PROGRESSION</p> <ul style="list-style-type: none"> • Low amplitude bilateral single response jumps • Bilateral multiple response jumps • Unilateral single response jumps <p>SPORTS SPECIFIC ACTIVITY PROGRESSION</p> <ul style="list-style-type: none"> • Interval golf program: WEEK 12 • Field/court progression toward full RTS 4-6 MONTHS <p>SPORTS TEST AND FULL RETURN TO ACTIVITY</p> <ul style="list-style-type: none"> • Follow-up examination with physician • Sports test for return to competition at <u>4-6 MONTHS</u> <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 	<ul style="list-style-type: none"> • Control inflammation with increasing loads • Progressive strengthening • Increase muscular strength, power and endurance