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Dr. Perdue Protocols

Arm/Shoulder Procedures

Bicep Tenodesis
Distal Bicep Tendon Repair
Rotator Cuff Repair
Total Shoulder Arthroplasty
Reverse Total Shoulder Arthroplasty
SLAP Repair
Bankart Repair/ Anterior Stabilization
AC Joint Reconstruction
Pec Major Repair

Foot/Ankle Procedures

Achilles Tendon Repair

Hip Procedures

Total Hip Replacement – Lateral Approach
Gluteus Medius Repair

Knee Procedures

ACL Reconstruction
Meniscectomy
Meniscus Repair
MPFL Reconstruction
OC Allograft Femoral Condyle
Quadriceps Patellar Tendon Repair
Total Knee Replacement

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Bicep Tenodesis

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily	Edema and pain control FF140°, ER 40° IR behind back	Sling when not doing exercises No active elbow flexion	PROM of elbow, wrist, hand Codman/Pendulum Shoulder P/AA/AROM as tolerated Gentle isometrics (arm at side) at 2 wks Posterior capsule stretch Posture training
Weeks 4-8 PT 2-3x/week HEP daily	FF 160°, ER 60°	No sling No resisted elbow flexion	Advance P/AA/AROM Active elbow flexion (no resistance) Continue isometrics Progress to bands as tolerated Incorporate joint mobilizations Periscapular strengthening
Weeks 8-12 PT 1-2x/week HEP daily	Full ROM Return to activity	No sling Strengthening only 3x/week to avoid rotator cuff tendinitis	Continue ROM exercises Advance strengthening as tolerated Begin eccentric resisted motion and closed chain exercises Gentle resisted elbow flexion (8 weeks)
Weeks 12+ HEP daily	Maximal ROM Independent HEP	None	Continue above exercises Advance strengthening as tolerated Elbow flexion strengthening (>12 weeks) HEP for maintenance exercises

MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- Clearance from surgeon and therapist
- Minimal to no complaints of pain
- Restoration of sufficient ROM for task completion
- Adequate shoulder girdle endurance for desired activity
- Regular completion of an independent strengthening program at least 3 days per week

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Distal Bicep Tendon Repair

Postop	Goals	Precautions	Exercises
Weeks 0-2 HEP daily	Edema and pain control Protect surgical repair Wrist, hand, shoulder ROM	Splint 90° flexion at all times No active supination	Gentle wrist and hand ROM Shoulder pendulum in splint Shoulder PROM exercises
Weeks 2-6 PT 2-3x/week HEP daily	Edema and pain control Protect surgical repair ROM 15-130°	Brace locked at 90° Remove for shower & exercises No active elbow flexion No active supination	Gradually increase elbow ROM: **Week 2:** 45-100° **Week 4**: 30-115° **Week 6**: 15-130° Active extension, passive flexion Continue wrist, hand, shoulder ROM Scapular strengthening Gripping exercises Triceps isometrics (**week 5**)
Weeks 6-12 PT 2-3x/week HEP daily	Full ROM Protect surgical repair	**Weeks 6-9:** DC brace at 8 weeks No active elbow flexion **Weeks 9-12:** No brace No lifting objects >1lb	**Weeks 6-9:** Full elbow ROM Active extension, AA/P flexion Continue wrist, hand, shoulder ROM Begin cuff/deltoid isometrics **Weeks 9-12:** Begin biceps isometrics Active flexion against gravity (week 9) Resistive strengthening cuff/deltoid Upper body ergometry (week 10)
Weeks 12-24 PT 1-2x/week HEP daily	Improve strength	No brace	**Weeks 12-16:** ROM and stretching exercises Elbow flexion resistive strengthening **Weeks 16-24:** Progress strengthening as tolerated Plyometrics and sport specific exercises
Weeks 24+ HEP daily	Return to play Unrestricted activity	Return to sport (MD directed)	Maintain ROM and strength

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Rotator Cuff Repair

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1x/week HEP daily	Edema and pain control Protect surgical repair Sling immobilization	Sling at all times including sleep Remove for hygiene & exercises	Codman & Pendulum Sidelying scapular stabilization Elbow, wrist, hand ROM Gripping exercises Cryotherapy prn PROM as tolerated (except for internal rotation which will start at week 3)
Weeks 4-12 PT 2-3x/week HEP daily	Protect surgical repair Restore ROM Gradual return to light ADL's below 90° elevation Normal scapulohumeral rhythm below 90° elevation	Sling except shower & exercises DC sling at 6 weeks No ER >40° until 6 weeks No FF >120° until 6 weeks	**Weeks 4-6:** Joint mobilizations Scapular stabilization Deltoid, biceps, triceps isometrics Wand activities in all planes with control (**6 weeks**) Begin supine rhythmic stabilization (**week 6**) **Weeks 7-12** Advance scapular stabilization Improve scapulohumeral rhythm below 90° Progress AA/PROM to FF 155°, ABD 135°, ER 45°, ABER 90°, ABIR 45° AROM plane of scapula (supine → standing) Begin ER & IR isometrics Hydrotherapy if available Incorporate PNF patterns for combined motions
Weeks 12-26 PT 2-3x/week HEP daily	Full ROM Normalize scapulohumeral rhythm throughout ROM Restore strength 5/5	Avoid painful ADL's Avoid rotator cuff inflammation Avoid excessive passive stretching OK to begin running/cycling	A/AA/PROM no limits Continue scapular stabilization Advance scapulohumeral rhythm Endurance: upper body ergometer (UBE) Begin resistive strengthening for scapula, biceps, triceps, and rotator cuff Add functional activities /return to function Begin tubing resistance for IR/ER in neutral, progressing to 90/90 IR/ER
Weeks 26+ PT 1-2x/week HEP daily	Full ROM and strength Improve endurance Prevent re-injury	Avoid painful activities No contact/racket/throwing sports Return to sport (MD directed)	Advance eccentric training Initiate plyometrics Sport specific activities

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Total Shoulder Arthroplasty

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily	Edema and pain control Protect subscap repair Elevation to 90 degrees **Week 1**: FF 100°, ER 0° **Week 2**: FF 120°, ER 10° **Week 4:** FF 150°, ER 20°	Sling when not doing exercises Limit ER to neutral x2 weeks No ER >20° (**weeks 2-6**) No active IR No backward extension (BE) No scapular retractions Limit abduction 75° No resisted elbow flexion	Elbow, wrist, hand ROM Codman/Pendulum PROM by PT/PTA Scapular mobility and stability (side-lying) Deltoid isometrics Posture training Cryotherapy prn Grip exercises
Weeks 4-8 PT 2-3x/week HEP daily	Protect subscap repair FF 160°, ER 45° (**week 6**)	DC sling No resisted IR/BE No resisted scapular retractions Avoid painful ADL's	Advance P/AA/AROM Cane/pulley Rhythmic stabilization at 120° Begin AA→AROM IR/BE Submaximal isometrics ER/FF/ABD Closed chain kinetic exercises Scapular stabilization Incorporate gentle joint mobilizations Periscapular strengthening (prone row, serratus punch, prone extensions, etc.)
Weeks 8-12 PT 1-2x/week HEP daily	FF 160°, ER 60°, IR T12 Scapulohumeral rhythm UE strength 4/5	No sling Avoid painful ADL's Avoid activities that encourage scapula hiking or poor mechanics Limit strengthening to 3x/week to avoid rotator cuff tendinitis	Progress ROM/flexibility exercises Advance strengthening as tolerated Rhythmic humeral head stabilization Begin resisted IR/BE (isometrics→light bands→weights) Increase end ROM with passive stretch Begin eccentrics, plyometrics, and closed chain exercises when appropriate Begin light functional activities Flexion and extension strengthening/ resistance training to begin at week 10 Incorporate PNF patterns for combined motions- (No combined ER and abduction above 80 degrees)
Weeks 12+ HEP daily	Maximal ROM Independent HEP	None	Progress strengthening, flexibility, and endurance Begin light resistance in all planes (initial focus on endurance, progressing to strength) Increase functional activities/ training for

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Reverse Total Shoulder Arthroplasty

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily	Edema and pain control Protect subscap repair Elevation to 90 degrees **Week 1**: FF 90°, ER 0° **Week 2**: FF 120°, ER 0°	Sling when not doing exercises DC sling at **4 weeks** Limit ER to neutral x2 weeks No ER >30°, active IR (**weeks 2-6**) No backward extension (BE) No scapular retractions Limit abduction 75° No resisted elbow flexion	Grip exercises Cryotherapy prn Elbow, wrist, hand ROM Codman/Pendulum PROM by therapist Scapular mobility and stability (side-lying) Deltoid isometrics Posture training
Weeks 4-8 PT 2-3x/week HEP daily	Protect subscap repair FF 150°, ER 45° PROM: flexion to 140 deg, abduction to 120 degrees, internal rotation to 60 degrees Able to actively elevate arm to 90 deg in supine	No resisted IR/EXT Avoid EXT/IR/Adduction No resisted scapular retractions Avoid painful ADL's External rotation ROM limited to 20 degrees at **5-6 weeks**	Advance P/AA/AROM Cane/pulley Passive IR in 60° abduction Rhythmic stabilization at 120° Submaximal isometrics ER/FF/ABD Closed chain kinetic exercises Scapular stabilization Anterior deltoid/teres strengthening Periscapular strengthening
Weeks 8-12 PT 1-2x/week HEP daily	Full ROM Improve strength Improve endurance	No sling Avoid painful ADL's	Begin light functional activities Begin AA→AROM IR/EXT Advance strengthening as tolerated Closed chain scapular rehab Functional strengthening focused on anterior deltoid and teres Maximize scapular stabilization Deltoid strengthening open and closed chain Incorporate PNF patterns for combined motions Begin tubing resistance for IR/ER in neutral Add gym machines as appropriate
Weeks 12+ HEP daily	Maximal ROM Independent HEP	None	Progress strengthening, flexibility, and endurance

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SLAP Repair

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily	Edema and pain control Protect surgical repair Sling immobilization FF 90°, ER 20°	Sling except shower & exercises Max FF 90°, ER 20° Support elbow during exercises to limit stress on repair	Elbow, wrist, hand ROM, grip AA/PROM FF plane scapula 90° AA/PROM ER 20° arm at side Sidelying scapular stabilization Submaximal deltoid & cuff isometrics Cryotherapy prn Pendulum exercises
Weeks 4-8 PT 2-3x/week HEP daily	Protect surgical repair FF 145°, ER 60° Improve IR & ER strength Scapulohumeral rhythm	Sling except shower & exercises DC sling at **6 weeks** No ER >30° until 6 weeks No backward extension Avoid cuff inflammation	AAROM FF and ER Scapular stabilization Begin pulleys Hydrotherapy Scapular strengthening in protected arcs Humeral head stabilization exercises IR & ER isometrics Begin isotonic IR & ER at 6 weeks Posture training Periscapular strengthening (prone row, serratus punch, prone extensions, etc.)
Weeks 8-14 PT 2-3x/week HEP daily	Full ROM Scapulohumeral rhythm Restore strength 5/5	No sling Avoid painful ADL's Avoid rotator cuff inflammation	A/AA/PROM no limits Rotator cuff/periscapular stabilization Humeral head rhythmic stabilization Scapular stabilization/latissimus strength Upper body ergometry Isokinetic training Advance strengthening as tolerated Eccentric and closed chain exercises **12wk**
Weeks 14-18+ PT 1x/week HEP daily	Full ROM and strength Improve endurance Prevent re-injury	No sling Avoid painful activities OK to cycle/run at 12 weeks Pain free plyometrics No contact/racket/throwing sports	Advance UE strengthening as tolerated Begin plyometrics Sport specific activities Throwing/racquet program 4-5 months Functional activities/ return to function
Weeks 18+	Return to play	No restrictions Return to sport (MD directed)	Maintain ROM, strength, and endurance

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Bankart Repair/ Anterior Stabilization

Postop	Goals	Precautions	Exercises
Weeks 0-4 HEP daily	Edema and pain control Protect surgical repair Sling immobilization	Sling at all times including sleep Remove to shower (arm at side) ER to neutral	Elbow, wrist, hand ROM Gripping exercises
Weeks 4-8 PT 2-3x/week HEP daily	Protect surgical repair FF 145°, ER 30°	Sling except shower & exercises DC sling at **6 weeks** No ER >30° No backward extension Avoid anterior capsule stretch	AAROM FF and ER Scapular stabilization Submaximal biceps, triceps, deltoid ER, and IR isometrics Gentle gradual ER: 0° abduction → max 30° 90° abduction → max 50° Posture training
Weeks 8-12 PT 2-3x/week HEP daily	Full ROM Scapulohumeral rhythm Restore strength 5/5	No sling Avoid painful ADL's Avoid rotator cuff inflammation Avoid excessive passive stretching	AAROM IR Rotator cuff/periscapular stabilization Humeral head rhythmic stabilization Resistive exercise for scapula, biceps, triceps, and rotator cuff below horizontal plane
Weeks 12-18 PT 1x/week HEP daily	Full ROM and strength Improve endurance Prevent re-injury	No sling Avoid painful activities OK to cycle/run at 12 weeks No contact/racket/throwing sports	Advance UE strengthening as tolerated ER/IR in 90/90 position Begin upper body ergometer (UBE) Initiate plyometrics Sport specific activities Throwing/racquet program 4-5 months
Weeks 18+ HEP daily	Return to play	No restrictions Return to sport (MD directed)	Maintain ROM, strength, and endurance

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AC Joint Reconstruction

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1x/week HEP daily	Edema and pain control Protect surgical repair Sling immobilization	Sling at all times including sleep Remove for hygiene & exercises	Sidelying scapular stabilization Elbow, wrist, hand ROM Gripping exercises
Weeks 4-8 PT 1-2x/week HEP daily	Protect surgical repair Restore ROM	Sling except shower & exercises No ER >45° until 6 weeks No FF >120° until 6 weeks	Sidelying scapular stabilization Supine deltoid, biceps, triceps, rotator cuff isometrics (gravity eliminated) Supine PROM: FF 120°, ER 45°
Weeks 8-16 PT 2-3x/week HEP daily	Full ROM Normalize scapulohumeral rhythm throughout ROM Restore strength 5/5	DC sling at 8 weeks Avoid painful ADL's Avoid rotator cuff inflammation Avoid excessive passive stretching OK to cycle/run at 12 weeks	AROM as tolerated in PRONE position AA/PROM no limits Continue scapular stabilization Begin resistive strengthening for scapula, biceps, triceps, and rotator cuff (supine → vertical position at 12 weeks) Endurance: Begin UBE at 12 weeks
Weeks 16-24 PT 1-2x/week HEP daily	Full ROM and strength Improve endurance Prevent re-injury	Avoid painful activities No contact/racket/throwing sports Return to sport (MD directed)	Advance eccentric training Initiate plyometrics Advance endurance training Sport specific activities Throwing/racquet program ~5 months Contact sports 6+ months

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Pec Major Repair

Postop	Goals	Precautions	Exercises
Weeks 0-6 PT 1-2x/week HEP daily		**0-2 weeks**: Immobilized at all times day and night Off for hygiene and gentle exercise according to instruction sheets **2-6 weeks**: Worn daytime only **0-3 weeks**: No ROM Limit 90° flexion, 45° ER, 20° extension, 45° abduction	**0-2 weeks**: Elbow/wrist ROM, grip strengthening at home only **2-6 weeks**: Begin PROM activities Limit 45° ER, 45° abduction Codman's Posterior capsule mobilizations; avoid stretch of anterior capsule
Weeks 6-12 PT 2-3x/week HEP daily	Begin A/AAROM, passive ROM to tolerance full ER, 135° flexion, 120° abduction	No immobilizer No resisted IR/Adduction	Continue previous exercise Begin active assisted exercises Deltoid/rotator cuff isometrics at **8 weeks** Begin resistive exercises for scapular stabilizers, biceps, triceps and rotator cuff Initiate closed-chain scapula
Weeks 12-16 PT 2-3x/week HEP daily	Gradual return to full AROM		Continue and advance previous exercise Emphasize external rotation and latissimus eccentrics, glenohumeral stabilization Plank/push-ups @ **16 wks** Begin muscle endurance activities (upper body ergometer) Cycling/running okay at **12 weeks**
Months 4-5 PT 1x/week HEP daily	Full and pain-free		Aggressive scapular stabilization and eccentric strengthening Begin plyometric and throwing/racquet program, continue with endurance activities Maintain ROM and flexibility
Weeks 18+ HEP daily	Full and pain-free		Progress previous activities Return to full activity as tolerated

Utilize exercise arcs that protect the anterior capsule from stress during resistive exercises and keep all strengthening exercises below the horizontal plane in phase II
Limited return to sports activities until cleared by MD.

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Achilles Tendon Repair

Postop	Goals	Precautions	Exercises
Weeks 0-2 PT 1-2x/week HEP daily	Edema and pain control Protect surgical repair	NWB with assistive device Immobilization in splint Brace- patient in plantarflexion	No formal PT
Weeks 2-6 PT 2-3x/week HEP daily	DF- neutral Good weight acceptance on involved LE Discontinue crutches by **week 6**	50 % WB in CAM boot Active dorsiflexion, passive plantarflexion, ankle ROM NWB>PWB>WBAT CAM boot donned at all times Gradual removal of wedges **at 4 weeks** postop (No wedges Dr. Skalak)	Gait training Isometrics (DF, PF, Inv, Ever) Seated heel raise Initiate resistance bands Seated BAPS Soft tissue mobilization/ scar massage/ desensitization
Weeks 6-12 PT 2-3x/week HEP daily	Weight bearing in shoes Normalized gait pattern Ascend 8" step	WBAT at **6 weeks** if incision healed DC CAM boot- per MD direction Avoid aggravating activities No running or sport	Continue ROM Stationary bike through heel until 8 weeks Step ups, lateral step ups Mini squats Proprioceptive training Standing heel raises at 8 weeks Leg press
Weeks 12-16 PT 1x/week HEP daily	Progress strength, balance, and gait Return to ADLs	Begin light jogging (**14-16 weeks**) Avoid aggravating activities	ROM/stretching Achilles as needed, other LE muscles Gait: Ensure good gait pattern SLB activities Progress to multiple planes Ankle theraband Begin functional strengthening exercises Leg press - bilateral Leg press calf press (bilateral, progress to unilateral) Progress to WB bilateral calf raises Proprioception activities – i.e. BAPS, balance board Hip and knee PRE's Soft tissue and joint mobs as needed Stairmaster, bike for cardio Lunges Forward running (**14-16 weeks**) Plyometric training

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Total Hip Replacement- AnteroLateral Approach

Postop	Goals	Precautions	Exercises
Week 1 (1-5 days post-op)	Edema and pain control Ambulate with walker or crutches	Observe signs of infection Observe signs of DVT Adhere to weight baring restrictions as indicated by MD No Active Hip Abduction	Elevation, compression socks, calf pumps Cryotherapy Begin ROM activities (active assisted and passive within dislocation precautions) Quad, hamstring, and gluteal isometrics
Week 1-4 (5 days-4 weeks post-op)		Observe signs of infection Observe signs of DVT Adhere to weight bearing restrictions as indicated by MD Stay with in patients pain tolerance No Active Hip Abduction	Begin scar / incision management with incision is closed (2 weeks+) Continue with gait training (progressive assistive devices as appropriate) Balance and proprioceptive training Continue ROM activities Closed chained activities Begin stationary bike
Week 4-10		Active Hip Abduction @ 12 Wks	Normalize gait pattern- Do not allow patient to walk with a limp Continue with progressive resistance exercsies Implement step ups- fwd and lateral Partial lunge Sit to stands Lifting and carrying tasks (gradual progression- non strenuous Gait on uneven surfaces Develop HEP for sustaining independence Aquatic program if incision is healed Work related tasks

HIP PRECAUSTIONS FOR 6 WEEKS:

- No bending /flexing hip past 90 degrees
- No crossing of operated leg past midline
- No internal rotation of operated leg (i.e. toes and knee cap facing forward)
- No lifting greater than 20lbs

MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- **Clearance from surgeon and therapist**
- **Minimal to no complaints of pain**
- **Restoration of sufficient ROM for task completion**
- **Regular completion of an independent strengthening program at least 3 days per week**

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Gluteus Medius Repair

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily		Weight bearing: 2 crutches, 20 pounds weight bearing for 6 weeks ROM: NO Active hip abduction and IR and NO Passive hip ER and adduction for 6 weeks Do not push through pain or pinching, gentle stretching will gain more ROM. Manage scarring around portal sites General precautions: Hip flexor tendonitis, Trochanteric bursitis, synovitis, scar tissue around portals Observe for signs and symptoms of DVT	PROM: Hip flexion to 90 for **3 weeks**, gradually increasing PROM hip abduction as tolerated. PROM Hip extension: **0 for weeks 0-3, gradually progress after week 3** Upright bike NO RESISTANCE (must be pain-free, begin ½ circles, progress to full circles) Joint mobilization: Grade I oscillations for pain management Soft tissue Mobilization Gentle scar massage Gait training: 20% with assistive device Hip isometrics (Begin at 2 weeks): extension, adduction (Begin at 4 weeks): sub max pain free hip flexion Quad sets, Hamstring sets, Lower abdominal activation
Weeks 4-8 PT 2-3x/week HEP daily	Increase to 100% WB with crutches by **8 weeks**	NO active hip abduction or IR. NO passive hip adduction or ER until after **week 6**	Continue with previous exercise Gait training: 20% weight bearing until **6 weeks** Begin PROM IR (gentle, no pain) Begin gentle AROM of hip flexion (avoid hip flexor tendonitis) Joint mobilization: Gr I-II distraction, lateral distraction Soft tissue massage Progress isometric resistance Quad and hamstring isotonic exercise Manual hip flexor stretching (gentle, no pain) Straight leg raise, prone hip (**week 7**) extension, supine bridge Upright bike with resistance (**week 7**) ROM: Passive hip IR, Active assistive hip ER, Active assistive hip abduction, adduction (**week 7**)

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ACL Reconstruction

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1x/week HEP daily	Full passive extension Minimum 90° knee flexion Patella mobility Edema and pain control SLR without lag Promote independence Protect graft and graft fixation Avoid hyperextension Educate patient on rehab progressions and limitations Restore normal gait pattern	PWB (50%) Brace locked at 0° for ambulation Brace locked at 0° for sleeping Avoid active knee extension 40→0°	Passive extension A/AA knee flexion Short crank ergometry Patella mobilization Quad re-education and SLR Bilateral leg press 5-70° Hip/Core training Quad sets Weight shifts Biking when able (not to be used for gaining ROM)
Weeks 4-8 PT 2-3x/week HEP daily	Full passive extension ROM 0-125° Normalize patella mobility Improve quad control Normalize gait pattern Ascend 8" step with control	WBAT Open brace 0-40°, ambulate with crutches until adequate quad DC crutches when non-antalgic gait Brace locked at 0° for sleep x 4wks Avoid active knee extension 40→0° Avoid reciprocal stairs until adequate quad control DC brace when adequate quad (**6 weeks**)	AAROM knee flexion/extension Emphasize full passive extension Patella mobilization Quad strengthening Initiate step-up program Proprioceptive training Bilateral leg press 0-80° Hip/Core training Single leg balance and proprioceptive training
Weeks 8-16 PT 1-2x/week HEP daily	Full ROM Descend 8" step with control Improve ADL endurance Increase proprioception on various surfaces Impact activities may be initiated when no swelling is present, full knee extension achieved, single leg press 45-60 deg with appropriate posturing. Improve hamstring strength No patellofemoral pain Progressive resistance for hamstring strengthening Strength approximately 70% of non-operative lower	WBAT Avoid painful activities No running (prior to **12 weeks** and need 70-80% quad strength of contralateral limb)	Progress squat/leg press Initiate step-down program Quad isotonics 90-40° arc Advance proprioceptive training Elliptical Retrograde treadmill Prevent deconditioning Kin-com may be started at 12 weeks Functional testing- operative vs. non-operative Measure thigh circumference Initiate forward running program when quad strength is 70-80% of contralateral limb

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Meniscectomy

Postop	Goals	Precautions	Exercises
Acute Phase	Safe ambulation with crutches, walker or cane on level surfaces Demonstrate appropriate up/down stairs protecting operative lower extremity Independent transfers ROM 0-90 degrees Control post-op edema Educate patient on rehab progressions and limitations Good quadriceps contraction		Heel slides Quad sets Gluteal sets Ankle pumps Hip abduction, extension ,SLR Partial squats (30-deg) Extension/ flexion focused ROM activities within parameters
Progressive phase	ROM 0-120 degrees Normal gait pattern		Leg press- ROM Hamstring curls Standing TKE, hip abduction, hip flexion, hip extension Bridges Prone hang Short arc quads to long arc quads Biking and other cardio equipment Lunges
Advanced Activity phase	Independent with ADLs Independent with HEP Meet return to work/ sporting requirements		Squats (increased depth/ weight acceptance) Double and single leg balance activities Pool dips (progression in 2 inch increments) May begin plyometrics/ jumping tasks Begin running program Sport specific drills

DISCHARGE RECOMMENDATIONS:

- Safe normalized gait pattern
- LE strength 80% of contralateral limb
- Independent with HEP
- Normal ADL function

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Meniscus Repair

Postop	Goals	Precautions	Exercises
Weeks 0-4 PT 1-2x/week HEP daily	Full passive extension ROM 0-90° Patella mobility Edema and pain control SLR without lag Promote independence	PWB (50%) Limit knee flexion: 0-90° Brace at 0° for ambulation & sleep Avoid active knee flexion Observe for signs and symptoms of DVT	A/AA/PROM emphasize extension Short crank ergometry Patella mobilization Quad re-education and SLR Hip/Core training
Weeks 4-8 PT 2-3x/week HEP daily	Full passive extension ROM 0-125° Normalize patella mobility Edema and pain control Improve quad control Promote independence Normalize gait Ascend 8" step with control	Progress PWB-WBAT by **8 weeks** Brace open 0-60° for ambulation with crutches abiding with WB restrictions Brace locked at 0° for sleep Limit knee flexion to 125°	AAROM knee flexion/extension Standard ergometry (ROM>115°) Patella mobilization Quad re-education Proprioceptive training Hip/Core training Bilateral leg press 0-60°
Weeks 8-14 PT 1-2x/week HEP daily	Full ROM Descend 8" step with control Improve endurance Protect patellofemoral	WBAT DC brace/crutches when adequate quad and non-antalgic gait No running	Progress squat/leg press Forward step-up/down program Advance proprioceptive training Elliptical, retrograde treadmill
Weeks 14-20 PT 1-2x/week HEP daily	Symptom free running Improve strength/flexibilityHop Test >85% limb symmetry	Avoid painful activities	Forward running program at 16 weeks (when 8" step down OK) Progress squat program <90° flexion Advance agility program Plyometrics when sufficient base
Weeks 20+ PT 1x/week HEP daily	No apprehension with sport specific movements Strength and flexibility to meet sporting demands	Avoid painful activities No sport until MD clearance	Advance flexibility/agility/plyometricsSport specific training

MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- Clearance from surgeon and therapist
- Minimal to no complaints of pain
- Restoration of sufficient ROM for task completion
- Regular completion of an independent strengthening program at least 3 days per week

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MPFL Reconstruction

Postop	Goals	Precautions	Exercises
Weeks 0-6 PT 2-3x/week HEP daily	ROM 0-90° Edema and pain control Limit quadriceps inhibitionSLR without lag Promote independence	WBAT, brace locked at 0° Brace at 0° for ambulation & sleep Observe for signs and symptoms of DVT **Weeks 0-4**: Limit knee flexion: 0-60° **Weeks 4-6**: Limit knee flexion: 0-90° Avoid lateralization of patella (lateral patella glides, SLR for hip flexion, active knee extension exercises)	A/AAROM flexion PROM extension Quad re-education Patella mobilization (avoid lateral) Hip/Core training CPM: **Weeks 0-4**: 0-60° **Weeks 4-6**: 0-90°
Weeks 6-12 PT 2-3x/week HEP daily	ROM 0-130° Minimize effusion & pain Improve quad control Promote independence Normalize gait Ascend 8” step with control	**Weeks 6-8**: ROM 0-110° Brace open 0-60° for ambulation **Weeks 8-10**: ROM 0-120° DC brace when adequate quad **Weeks 10-12**: ROM 0-130° Avoid lateralization of patella No running	Gait training Closed chain quad strengthening Bilateral leg press 0-60° Short crank - standard (ROM>115°) Forward step-up program Advance proprioceptive training Proximal strengthening & Core
Weeks 12-18 PT 1-2x/week HEP daily	Full ROM Normal gait Step-up/down 8” with controlAdequate Core	Avoid painful activities Avoid too much too soon	Progress quad strengthening Progress squat program <90° flexion Forward step-down program Elliptical, retrograde treadmill Endurance training
Weeks 18-24 PT 1x/week HEP daily	Symptom free running Strength and flexibility to meet sporting demands Hop Test >75% contralateral	Avoid painful activities No sport until MD clearance	Forward running program weeks (when 8” step down OK) Advance agility program Advance core strengthening Plyometrics when sufficient baseSport specific training
Weeks 24+ PT 1x/week HEP daily	No limitations No apprehension with sport specific movements Hop Test >85% contralateral	Avoid painful activities No sport until MD clearance	Advance flexibility/agility/plyometricsSport specific training

MILESTONES TO RETURN TO FULL SPORT, WORK, HOBBIES:

- Clearance from surgeon and therapist
- Minimal to no complaints of pain
- Restoration of sufficient ROM for task completion
- Regular completion of an independent strengthening program at least 3 days per week

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OC Allograft Femoral Condyle

Postop	Goals	Precautions	Exercises
Weeks 0-2 HEP daily	Full passive extension Edema and pain control Promote independence	TTWB (20%) Brace locked at 0° except for approved exercises Observe for signs and symptoms of DVT	Quad sets/SLR Calf pumps Passive leg hangs to 90° Stretches: hamstring and gastroc
Weeks 2-6 PT 1-2x/week HEP daily	Full passive extension 120° knee flexion Prevent quad inhibition Edema and pain control Promote independence	TTWB (20%) Brace locked at 0° except for approved exercises	AA/PROM pain free Towel extension Patella mobilization Quad re-education SLR in all planes Hip/Core resisted exercises LE flexibility exercises
Weeks 6-12 PT 2-3x/week HEP daily	Full ROM Normal gait pattern Ascend 8" step with control Normal patella mobility Improve ADL endurance	Progress WB 25% per week until full DC brace when adequate quad Avoid descending stairs reciprocally Avoid painful activities No running	Continue above exercises Gait training Closed chain activities: wall sits, mini-squats, toe raises, stationary bike, leg press 0-60° Proprioception training Initiate step-up program
Weeks 12-20 PT 2-3x/week HEP daily	Return to normal ADLs Improve endurance Descend 8" step with control 85% limb symmetry Improve strength/flexibility	WBAT Avoid painful activities No running Forward step down test at 4 months Isokinetic testing at 4 months	Continue and advance above Progress squat program Leg press (emphasize eccentrics) Retrograde treadmill Initiate step down program Advance to elliptical, bike, pool Open chain extension to 40°
Weeks 20+ PT 1x/week HEP daily	No apprehension with sport specific movements Maximize strength and flexibility to meet sporting demands	Avoid painful activities No running until: Strength >70% contralateral No agility training until: Strength >90% contralateral No RTP until: Passes RTP evaluation MD clearance	Continue and advance above Begin forward running Begin plyometric program

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Quadriceps/ Patellar Tendon Repair

Postop	Goals	Precautions	Exercises
Weeks 0-6 **PT 2-3x/week** **HEP daily**	Edema and pain control Protect surgical repair Maintain full extension Limit quad inhibition ROM 0-60°	Brace locked in extension when not performing exercises (includes ambulation and sleep) PWB (50%) x4 weeks then advance to WBAT No active knee extension Avoid prolonged standing/walking Observe for signs and symptoms of DVT **Knee flexion progression:** **Weeks 0-2**: 0-45° **Weeks 2-4**: 0-60° **Weeks 4-6**: 0-90°	Brace education CPM (MD directed) Seated A/AA knee flexion within limits Passive knee extension Quadriceps re-education & isometrics SLR brace locked in extension Scar mobilization Patella mobilization Gait training
Weeks 6-12 **PT 2-3x/week** **HEP daily**	ROM 0-125° No extensor lag Normalize gait Ascend 8" step	WBAT Brace locked ambulation & sleep Unlock 0-60° ambulation (week 8) No WB with flexion >90° **Notify MD if knee flexion** <90° by 8 weeks <110° by 10 weeks	Gait training with flexion stop at 60° once patient demonstrates good quad control A/AA knee flexion Pool ambulation (if wound OK) Patellar mobilizations Short crank regular bike (flexion >110°) Leg press (bilateral 0-90°) Initiate forward step-up program Initiate squat program (wall slide) Proprioceptive exercises Retro-ambulation
Weeks 12-18 **PT 2-3x/week** **HEP daily**	Full ROM Descend 8" step Return to normal ADLs	WBAT DC brace Avoid aggravating activities Avoid reciprocal stair decent No running or sport Swimming OK at **12 weeks**	Continue flexion ROM Incorporate quadriceps flexibility exercises Advance closed chain exercise Initiate step-down program Progress squat program Isokinetic/isotonic knee extension Advanced proprioceptive training Agility training Elliptical
Weeks 18-26 **PT 1-2x/week** **HEP daily**	No apprehension with sport specific movements Maximize strength Improve endurance Gradual return to activity	WBAT Avoid aggravating activities Return to sport (MD directed) Running/jumping at 20 weeks	Advance agility program/sport specific Plyometric program Forward running

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Total Knee Replacement

Postop	Goals	Precautions	Exercises
Post-op to week 3	Safe ambulation with crutches, walker or cane on level surfaces ROM 0-90+ degrees Control post-op edema Good quadriceps contraction	Protect integrity of incision Observe for signs and symptoms of DVT	Heel slides Quad sets Gluteal sets Ankle pumps Hip abduction Extension/ flexion focused ROM activities within parameters Patellar mobilizations
Week 3 to Week 6	ROM 0-120 degrees Progressing proper gait patterns with/without AD Scar management	Avoid tendonitis	Leg press- ROM Hamstring curls Standing TKE, hip abduction, hip flexion, hip extension Bridges Prone hang Short arc quads Biking Pool walking
Week 6-12	Independent with ADLs Safe ambulation on uneven surfaces with/ without assistive device Normalized gait pattern without assistive device Independent with HEP Meet return to work requirements Increase quadricep strength		Squats (increased depth/ weight acceptance) Double and single leg balance activities Forward/ lateral step ups Pool dips Leg press- low weight x high reps progression Long arc quads

DISCHARGE RECOMMENDATIONS:

- Safe normalized gait pattern without assistive device
- Ascend and descend stairs in reciprocal pattern
- No extension lag
- Normal ADL function