



Purpose:

This guideline is designed to return the individual to their full activities as quickly and safely as possible following an ACL Reconstruction. Modifications to this guideline may be necessary dependent on physician specific instruction or other procedures performed. This evidence-based ACL Reconstruction guideline is criterion-based; timeframes and visits in each phase will vary depending on many factors. The therapist may modify the program appropriately depending on the individual's goals for activity following ACL Reconstruction.

This guideline is intended to provide the treating clinician with a frame of reference for rehabilitation. It is not intended to substitute clinical judgment regarding the patient's post-operative care based on exam/treatment findings, individual progress, and/or the presence of concomitant procedures or post-operative complications. If the clinician should have questions regarding post-operative progression, they should contact the referring physician.

Precautions:

- Monitor of patellofemoral irritation and arthrofibrotic knee
- Avoid open chain quadriceps strengthening from 40° to terminal extension until 10-12 weeks for B-T-B grafts and 14-16 weeks for hamstring grafts
- Follow delayed protocol progression for Meniscus Repair guidelines with ROM and weight bearing precautions if indicated
- Avoid isolated hamstring strengthening for 6 weeks post-op with posterior horn Meniscus Repair and Hamstring Grafts
- If a patient has a concomitant injury/repair (such as Meniscus Repair) treatment may vary-consult with physician
 - May need to follow more conservative protocol in regard to ROM, weight bearing, and rehab progression
- If autograft used for repair treatment may vary-consult with physician

Delayed Protocol for ACL with Meniscal Repair or otherwise specified:

- ROM:
 - 0-90° at by 10 days
 - 0-110° by week 3
 - 0-130/135° by week 6
- WB (Dr. Dean):
 - TT to ¼ WB to 2 weeks
 - ½ WB to 4 weeks
 - Full WB at 6 weeks
 - If Meniscal Repair, TTWB 4-6 weeks

Additions to Protocol for ACL with MCL Repair:

- TTWB with brace locked in extension for 2 weeks
- After 2 weeks, progress to full WB with hinged brace worn during exercise to avoid medial joint stress
- Delay hip adductor strengthening for 4 weeks
- Continue with ACL protocol unless physician specifies otherwise



PHASE	SUGGESTED INTERVENTIONS	MILESTONES FOR PROGRESSION
<p>Phase I Weeks 0-1</p>	<p>Precautions:</p> <ul style="list-style-type: none"> • Teach crutches for gait and stairs as needed • Patient Education: <ul style="list-style-type: none"> – Keep knee straight and elevated when sitting or lying down – Do not rest with towel placed under knee – Do not pivot on surgical side – Do not actively kick knee out straight – Support surgical side with transfers <p>Therapy:</p> <ul style="list-style-type: none"> • Begin supine exercises, including: <ul style="list-style-type: none"> – Ankle pumps – Quad sets – Heel slides – 4-way SLR – Patella mobilizations • Pain and edema control, as needed 	<p>Goals:</p> <ul style="list-style-type: none"> • Skin healing • 70° PROM
<p>Phase II Weeks 1-4</p>	<p>WB Status:</p> <ul style="list-style-type: none"> • B-T-B graft: 50% for first 3 weeks, progress to FWB • WB in locked brace (full extension), unlocked with excellent quad control <p>Therapy:</p> <ul style="list-style-type: none"> • Begin extension stretching with prone hangs and heel props, standing/seated gastrocnemius and soleus stretches • May use Blood Flow Restriction Therapy • Aquatic therapy as appropriate • Stationary bike, sweeps to full circles • Patellar mobilizations (highly emphasized in the early post-op phase following patellar tendon autograft) • Gait training • B mini squats 0-60°; wall slides, ball squats • B calf raises • 4-way hip strengthening <ul style="list-style-type: none"> – No extension for hamstring grafts 	<p>Goals:</p> <ul style="list-style-type: none"> • Healing • Pain and edema control, modalities PRN • Full weight bearing by 4 weeks • ROM at 10 days: from 0-90° • Ambulation without assistive device when quad control is achieved and gait normalized • Quad contraction with superior patella glide and full active extension <p>Criteria to Advance:</p> <ul style="list-style-type: none"> • Healing appropriate for stage to move on • Independent SLR without brace and no extensor lag • Normal walking with brace unlocked • Control of post-op pain (0-2/10 with ADLs in brace) • Restoration of full extension • PROM: 0-110°



	<ul style="list-style-type: none"> • Clam, fire hydrant • B leg press, flexion up to 90° • Multi-angle isometrics at 90° and 60° knee extension • When FWB, progress step-ups starting @ 2" • Lunges on step, progressing to level ground • Treadmill both forward and backwards, no incline • Balance and proprioception: weight-shifting, single leg stance • Perturbation training on rocker board/Bosu ball starting week 3 <ul style="list-style-type: none"> – Bilateral → unilateral • Standing hamstring curl (after 6 weeks with Hamstring Graft) • Lumbopelvic strengthening: <ul style="list-style-type: none"> – Bridge variations, hip hikes • Edema controlling treatments • NMES for quad activation 	
<p>Phase III Weeks 4-8</p>	<p>WB Status:</p> <ul style="list-style-type: none"> • WBAT <ul style="list-style-type: none"> – WB status and gait progression determined by physician and based on radiographic evidence of implant incorporation <p>Therapy Additions:</p> <ul style="list-style-type: none"> • SFMA to identify movement limitations and physical risk factors • Continue closed chain exercises • Single leg progression partial WB: <ul style="list-style-type: none"> – Single leg press up to 90° – Step up and step up with march – Lateral step ups and steps downs – Single leg squats to 45° – Single leg wall slides • Lateral step downs and lateral lunges • Initiate open chain knee extension at 4-6 weeks with no weight (pain free) • Retro ambulation up to 10% incline • Sport cord resisted retro ambulation and lateral movements • Core strengthening • Baps • Balance: <ul style="list-style-type: none"> – Foam roller 	<p>Goals:</p> <ul style="list-style-type: none"> • Swelling reduction • Full ROM • Climb stairs reciprocally • DC brace if patient demonstrates good quad control <p>Criteria to Advance:</p> <ul style="list-style-type: none"> • Normal Gait pattern • Pain control • Edema managed • Full knee extension • Symmetrical joint position sense (<5° margin of error) • Symmetrical knee ROM 0-130+° of flexion



	<ul style="list-style-type: none"> – Single leg stance (knee slightly flexed) with reaches ⇒ Static progressed to dynamic, level progressed to unsteady surface – Lateral step overs • Lumbar locked bridging • Address/Improve mobility and motor control deficits: <ul style="list-style-type: none"> – Ankle DF, hip flexion, hip extension • Prone and standing quad stretch • 8 weeks: <ul style="list-style-type: none"> – Elliptical, stair climber, flutter kick swimming, pool jogging • Joint position retraining 	
<p>Phase IV Weeks 8-12</p>	<p>WB Status:</p> <ul style="list-style-type: none"> • Full; patient should exhibit normalized gait <p>Therapy Additions:</p> <ul style="list-style-type: none"> • Open chain knee extension continued with low load (avoiding anterior knee pain) • Treadmill, forward and backwards, on incline of 20% grade • Step-ups progressed to 8" as tolerated: <ul style="list-style-type: none"> – Forward, lateral and backwards • Slowly progress hamstring strength for Hamstring Grafts • Shock absorption activities • Deep squat with Reactive Neuromuscular training bands & lunge with Reactive Neuromuscular training bands • Testing @ 8 weeks post-op: <ul style="list-style-type: none"> – FMS – Y-balance • Begin sub-max sport specific training in the sagittal plane • Bilateral partial WB plyometrics progressed to FWB plyometrics • Offset squats • DB eccentric step ups (forward and lateral) • Plank progressions • Leg press progressions • Eccentric focused program • Higher level proprioceptive progressions • Week 10-12: <ul style="list-style-type: none"> – Front/back squats 	<p>Goals:</p> <ul style="list-style-type: none"> • Full ROM • Full weight bearing • Ability to do 10 controlled single leg squats to 45° <p>Criteria to Advance:</p> <ul style="list-style-type: none"> • Patient to be instructed in appropriate home exercise program • No episodes of instability



	<ul style="list-style-type: none"> – Multidirectional lunge progression – Leg extension 90°-0° 	
<p>Phase V Weeks 12-16</p>	<p>Therapy:</p> <ul style="list-style-type: none"> • Nordic hamstring curl • Reverse hamstring curl • Front/back squat • Progress single leg squat • Progress weight with previous exercises • Initiate functional movement progressions • B leg jumps on leg press or total gym, progress to single leg as tolerated to learn controlled land • If patients strength within 80% of uninvolved leg, and or successful completion of basic functional assessment add: <ul style="list-style-type: none"> – Side lunges – Lateral shuffles – Jumping rope – Light jogging – B plyometrics: up to 6" on leg press – Landing/stabilization exercises – Interval running program if second half of goals are met – Plyometric and agility program • Provider refer to isokinetic testing 	<p>Goals:</p> <ul style="list-style-type: none"> • Restore strength • Normal 8" step down • Half speed running • Controlled landing from 12" box bilaterally and 6" box unilaterally • Controlled rotational jumps and landings • 25 single leg squats to 45° • Controlled landing for jumps up to 6" • Less than 30% difference with single leg press or isotonic testing • Less than 25% difference with functional assessment • Less than 30% difference with kinetic testing <p>Criteria to Advance:</p> <ul style="list-style-type: none"> • Patient to be instructed in appropriate home exercise program • If achieve second half of goals above, may begin straight line running
<p>Phase VI Weeks 16-20</p>	<p>Therapy:</p> <ul style="list-style-type: none"> • Twisting jumps • Backwards running up to 20-30% incline • Lateral hops over cones, blocks, etc. • Single leg jumps up to 6" box • Figure 8 running • Zigzag cutting (45° angles) • Lateral shuffles with resistance • Jump down activities beginning 6" progressing to 12" • Deceleration training exercises 	<p>Goals:</p> <ul style="list-style-type: none"> • Half speed running forward and backward • Normal hip strategy to control LE • Adequate shock absorption strategies <p>Criteria to Advance:</p> <ul style="list-style-type: none"> • DC to independent exercise program once goals are achieved • Patient to be instructed in appropriate home exercise program
<p>Phase VII Weeks 20-24</p>	<p>Therapy:</p> <ul style="list-style-type: none"> • Single leg plyometrics • Resisted running • Sport specific training, including: 	<p>Goals:</p> <ul style="list-style-type: none"> • Return to prior level of function <p>Return to Sport:</p>



	<ul style="list-style-type: none">– Full speed running, cutting, and stopping• May require additional bracing before returning to full sports play<ul style="list-style-type: none">– Physician to determine• Return to play testing if returning to sport• Completion of single leg hop test and triple hop test• Drop down jump test• Non-contact practice → full practice → full play (~9mo)	<ul style="list-style-type: none">• Pass return to play testing<ul style="list-style-type: none">– Physician Approval– Full ROM– No pain or swelling– Normal running– Adequate drop jump mechanics– Adequate lateral shuffle mechanics– Adequate cutting mechanics
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