



Anterior Cruciate Ligament Reconstruction Rehabilitation Protocol Guideline

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Reviser (Title): Director – Rehabilitation	Owner (Title): Orthopaedic Supervisor, Rehabilitation	

PURPOSE:

The following protocol is a guideline based on surgical recommendations and the principles of tissue healing time. It is meant to be a guide for rehabilitation but may be adjusted based on the specifics of your surgery and the progression of your specific case. Expect full return to sports that require cutting, pivoting, jumping and sprinting around 9 months post-op.

PERSONS AFFECTED: Physical Therapists



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GUIDELINE:

Phase I: Maximum Protection Phase

Time	Weeks 0-2
Goals	<ul style="list-style-type: none"> • Achieve range of motion guidelines • Normalize patellar mobility • Control post-operative pain and inflammation
Precautions	<ul style="list-style-type: none"> • Weight bearing as tolerated <ul style="list-style-type: none"> • Remove brace when able to consistently perform straight leg raise without lag • Crutch use until no longer limping <ul style="list-style-type: none"> • Around 1-2 weeks • No limit to range of motion
Treatment Recommendations	<ul style="list-style-type: none"> • Emphasize patient compliance with home program and precautions • Achieve full knee extension: heel prop, prone hang • Knee flexion range of motion activities: seated and supine heel slides • Quad activation with neuromuscular electrical stimulation: Quad set, straight leg raise • Progressive hip strengthening • Bilateral leg press 0-70° • Gait training with visible quad activation • Proprioceptive training including single limb stance • Cryotherapy • Blood flow restriction therapy as indicated
Physical Therapy	<ul style="list-style-type: none"> • Begin physical therapy in first week when possible • 1-2x/week with daily home program
Criteria for Advancement	<ul style="list-style-type: none"> • Straight leg raise without lag • Full knee extension range of motion • Knee flexion range of motion > 0-90°



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Phase II: Gait Training and Progressive ROM

Time	Weeks 2-4
Goals	<ul style="list-style-type: none"> • Progress range of motion • Good patellar mobility • Minimal effusion • Restore normal gait • Ascend 8-inch step with good control • Progressive quadriceps strengthening
Precautions	<ul style="list-style-type: none"> • Avoid descending stairs reciprocally until adequate quad control • Avoid pain with exercise and ADLs • Avoid top 30° resisted knee extension
Treatment Recommendations	<ul style="list-style-type: none"> • Continue phase I activities as indicated • Continue neuromuscular electrical stimulation for quad activities • Progress range of motion • Initial low resistance stationary bike • Leg press 0-80° arc and mini squats • Forward step-up • Open chain quadriceps – 90°-30° only • Heel raises • Continue blood flow restriction therapy as indicated
Physical Therapy	Continue physical therapy 1-2x/week with home program
Criteria for Advancement	<ul style="list-style-type: none"> • Range of motion $\geq 0^\circ$-125° • Normal gait pattern • Good patellar mobility



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Phase III: Early Strengthening

Time	Weeks 4-12
Goals	<ul style="list-style-type: none">• Restore full range of motion• Able to descend 8-inch step with good control• Improve ADL endurance• Improve flexibility• Monitor for patellofemoral joint pain
Precautions	<ul style="list-style-type: none">• 90°-30° resisted knee extension• Avoid pain with exercise• Avoid running, jumping, and cutting
Treatment Recommendations	<ul style="list-style-type: none">• Squat – 90°• Step down to single leg squat• Progress to gym strengthening• Open chain quadriceps – 90°-30° only• Hamstring strengthening• Advance proprioceptive training
Physical Therapy	Continue physical therapy 1x/week with home program
Criteria for advancement	<ul style="list-style-type: none">• Range of motion within normal limits• Descend 8-inch step with good control and without pain• Isokinetic test within 75% limb symmetry for quadriceps and hamstring strength



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Phase IV: Advanced Strengthening and Plyometrics

Time	Weeks 12-24
Goals	<ul style="list-style-type: none">• Demonstrate ability to run pain free• Maximize strength and flexibility• Hop test with 75% limb symmetric
Precautions	<ul style="list-style-type: none">• Avoid sport activity until adequate strength development and physician clearance
Treatment Recommendations	<ul style="list-style-type: none">• Start forward running once within 75% limb symmetry with isokinetic testing• Advance agility program• Start plyometric program when strength base is sufficient
Physical Therapy	Continue physical therapy 2-4x/month with home program
Criteria for Advancement	<ul style="list-style-type: none">• Symptom free running• Noyes Hop Test with 75% limb symmetry• Y balance test with 75% limb symmetry



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Phase V: Return to Sport Progression

Time	Weeks 24-36+
Goals	<ul style="list-style-type: none"> • Pass return to sport battery for Type I sport • Lack of apprehension with sports specific movements • Maximize strength and flexibility to meet demands of sport and activity
Precautions	<ul style="list-style-type: none"> • Avoid sport activity until adequate strength development and MD clearance • ≥9 months for return to Type I sport
Treatment Recommendations	<ul style="list-style-type: none"> • Continue to advance lower extremity strengthening, flexibility, and agility programs • Advance plyometrics with progressing mental and cognitive challenge
Physical Therapy	Continue physical therapy 1-4x/month with home program
Criteria for Discharge/ Return to Sport	<ul style="list-style-type: none"> • Return to sport battery: <ul style="list-style-type: none"> ○ Noyes Hop Test with 90% limb symmetry ○ Isokinetic testing with 90% limb symmetry for quad and hamstring ○ Y balance test with 90% limb symmetry ○ Pass drop jump test ○ Psychological Readiness to Return to Sport Scale >50 • Lack of apprehension with sports specific movements • Flexibility to meet demands of sport or activity • All patient goals met

DEFINITIONS: NA

KEY WORDS: ACL Protocol, Crawford ACL Protocol, Brady ACL Protocol, Herzka ACL Protocol

RESPONSIBILITIES: PT's will use this protocol in addition to clinical judgement to advance rehabilitation.

GUIDELINE DETAILS: as listed above

RELATED DOCUMENTS: NA

EXTERNAL LINKS/RELEVANT REFERENCES: NA



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APPROVING COMMITTEE(S)/ROLE(S): OHSU Rehabilitation Protocol Team

REVISION HISTORY

Revision History Table

Document Number Rev. mmddyy	Final Approval by	Brief description of change/revision
HC-REH-400.45-ROP-FMT Rev 02012024	OHSU Protocol Team	New document