

ACL Reconstruction

Dr. Erickson

Time Frame	Treatment	Goals
Phase I (Surgery to 4 weeks after surgery)	<ul style="list-style-type: none"> ● Begin POD#1, 2 times per week <ul style="list-style-type: none"> ○ Dressing Change: ○ Instruction in signs and symptoms of infection ○ Instruction in cryotherapy ● Instruction in HEP including Quad sets, SLR x 4, and heel slides. ● WBAT (Weight bear as tolerated) with knee locked in extension. ● Ambulate with crutches, wean off as able. ● Brace to be worn for 4 weeks. Wean from brace locked to brace unlocked to no brace as patient establishes leg control, pain control and safe gait mechanics ● ROM: Goal 0-90 in one week. Moving towards full flexion at after 4 weeks. ● Pain and swelling control ● Additional exercises: <ul style="list-style-type: none"> ○ Seated knee flexion ○ Ankle pumps progressing to resisted ankle ROM ○ Patellar mobilizations ○ Mini squats ○ Weight shifting drills ○ Blood flow restriction and NMES as indicated <p><u>For a meniscal Repair:</u></p> <ul style="list-style-type: none"> ● No weightbearing in flexion. Don't push through compression type pain when working on flexion ROM. <p><u>For Meniscal Root Repair:</u></p> <ul style="list-style-type: none"> ● TDWB (Touch down weight bearing) locked in extension for six weeks ● No weight bearing in flexion for 6 weeks ● ROM goal only 1from 0-90 degrees 	<ul style="list-style-type: none"> ● Protect the healing graft ● Regain extension and flexion ROM ● Restore quadriceps function and leg control ● Independent in HEP ● Independent in cryotherapy ● Independent in donning and doffing of knee brace. ● Progression Criteria: <ul style="list-style-type: none"> ○ 4+ weeks and all of the following: ○ Good quad set and open chain leg control ○ Full knee extension ○ Near normal gait without crutches ○ Minimal knee effusion

<p>Phase II (after meeting phase I criteria, usually 4 weeks after surgery)</p>	<ul style="list-style-type: none"> ● Appointments usually 1-2 times per week ● Precautions: <ul style="list-style-type: none"> ○ Full weight bearing ○ Avoid over-loading the graft by utilizing low amplitude and low velocity movements ○ No active inflammation or reactive swelling ● Suggested exercise: <ul style="list-style-type: none"> ○ ROM exercises <ul style="list-style-type: none"> ▪ Supine wall slides, heel slides, knee to chest ▪ Stationary bike with low resistance ○ Gait drills: forward and backward march, soldier walk, sidestep, step overs, hurdle walk <ul style="list-style-type: none"> ▪ Double leg balance drills- balance board, tandem balance, progressing to stationary single leg balance drills ○ Weight acceptance and control: Shallow squat with lateral shifting ○ Closed chain strengthening for quads and glutes: double leg squat progressions, split squats, step backs, leg press <ul style="list-style-type: none"> ▪ Emphasis on appropriate and controlled forward knee travel ○ Progress speed of movement without adding impact to improve rate of force development and mechanics prior to impact progression ○ Heel raises with emphasis on active knee extension ○ Bridging ○ Hip and core strengthening ○ NMES and BFR as indicated ○ Cardiovascular: Deep water running, Elliptical trainer, stationary bike at a low resistance 	<ul style="list-style-type: none"> ● Normalize gait ● Avoid overstressing the graft ● Closed chain leg control for non-impact movement control ● Progression Criteria: <ul style="list-style-type: none"> ○ Normal gait ○ Symmetric weight acceptance for squats to 60 degrees ○ No reactive swelling after exercise or activity that lasts more than 12 hours
<p>Phase III (begin after meeting phase II criteria, usually 11-12 weeks after surgery)</p>	<ul style="list-style-type: none"> ● Sessions every 1-2 weeks ● Precautions: No reactive swelling or joint pain persists beyond 12 hours ● Suggested exercises: <ul style="list-style-type: none"> ○ Low amplitude low velocity agility drills: Forward and backward skipping, side shuffle, skaters quick stepping, carioca, cross overs, backward jog, forward jog ○ Closed chain strengthening for quadriceps and glutes: progressing from double leg strengthening to single leg strengthening. Lunge progressions and single leg squat progressions 	<ul style="list-style-type: none"> ● Progression Criteria: <ul style="list-style-type: none"> ○ Normal jogging gait ○ Good single leg balance ○ Less than 30% deficit on Biodex ○ If patients have not achieved >70% quadriceps symmetry, they should not progress impact

	<ul style="list-style-type: none"> ○ Open chain strengthening for quadriceps isolation ○ Single leg balance exercise and progressions, progressing from stationary to deceleration in to holding posture and position. ○ At 12-14 weeks initiate low amplitude landing mechanics: Medicine ball squat catches, shallow jump landings, etc. ○ Hip strengthening: Neuromuscular control in prevention of hip adduction and landing stance. ○ Core strengthening: Preventing frontal plane trunk lean during landing and single leg stance. ○ Cardiovascular: Stationary bike with moderate resistance, deep water running and swimming, elliptical trainer at moderate intensity ○ Return to jog program should not be utilized as cardiovascular training, just movement re-training and impact progression. 	<p>drills to protect their joint surfaces from excessive compressive forces</p> <ul style="list-style-type: none"> ○ No reactive swelling after exercise or activity
<p>Phase IV (after meeting phase III criteria, usually 16-20 weeks after surgery)</p>	<ul style="list-style-type: none"> ● Appointments every 2-4 weeks ● Precautions: No reactive swelling or joint pain that lasts more than 12 hours ● Suggested therapeutic exercise: <ul style="list-style-type: none"> ○ Progressive agility drills: Forward and backward skipping, side shuffle, skaters quick stepping, carioca, cross overs, backward jog, forward jog. Increase amplitude and velocity ○ Landing mechanics – progressing from higher amplitude double leg to sling leg landing drills. Start uni-planar and gradually progress to multi-planar. Start with vertical challenges and drills prior to horizontal challenges and drills. ○ Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities ○ Unanticipated movement control drills, including cutting and pivoting ○ Agility ladder drills ○ Strength and control drills related to sport specific movements ○ Sport/work specific balance and proprioceptive drills 	<ul style="list-style-type: none"> ● Normal multi-planar high velocity movement without side-to-side differences or compensations ● Normal double leg and single leg landing control without side-to-side differences or compensations ● Running without a limp ● Progression Criteria: <ul style="list-style-type: none"> ○ Progressive testing. Less than 20% difference on Biodex ○ Normal multi-planar low to medium velocity without side-to-side differences or compensations. ○ Normal double leg landing control without side-to-side

	<ul style="list-style-type: none"> ○ Hip strengthening – especially orientated at neuromuscular control in prevention of hip adduction and landing stance ○ Core strength and stabilization- especially orientated at preventing frontal plane trunk lean during landing and single leg stance ○ Stretching for patient specific muscle imbalances ○ Cardiovascular: progressive running program. Design to use sport specific energy systems. 	<p>differences or compensations</p> <ul style="list-style-type: none"> ○ Running without a limp
<p>Phase V (after meeting phase IV goals)</p>	<ul style="list-style-type: none"> ● Physician appointment 9 months after surgery (earliest return to sport after 9 months) · Rehab every 2-3 weeks ● Precautions: post-activity soreness should resolve within 24 hours. Avoid post-activity swelling ● Suggested Therapeutic Exercise: <ul style="list-style-type: none"> ○ Progressing effort and complexity of hopping <ul style="list-style-type: none"> ▪ Addition of multi-planar hop ○ Practice of cutting and pivoting, other change of direction ○ Starting with planned, wide cuts (open angle) gradually decreasing angle of cuts (sharper turns) progressing effort and speed <ul style="list-style-type: none"> - Add multiple pre-planned cuts in a row - - Change of direction from forward run to drop step and vice versa - - Gradually progressing from closed drills to open cutting drills under self-direction - - Advancing reactive nature of cutting with visual and verbal cues - - Promote visual scanning and reaction to sports-specific cues. ○ Cardiovascular: Replicate sport specific energy demands 	<ul style="list-style-type: none"> ● Sprint without a limp ● Confidence and control with cutting and pivoting activities ● Confidence and control with single leg plyometrics, including good mechanics ● Graduated return to sport ● Progression Criteria: <ul style="list-style-type: none"> ○ Patient may return to sport after receiving clearance from the orthopedic surgeon and the physical therapist/athletic trainer. Progressive testing will be completed. The patient should have less than 10% difference in Biodex strength test, force plate jump, vertical hop tests and functional horizontal hop tests