

REHABILITATION GUIDELINES FOR ACL RECONSTRUCTION WITH HAMSTRING AUTOGRAFT

PHASE I (WEEKS 1-4)

DATES:

Appointments	Physical therapy 2 x per week
Rehabilitation Goals	<ul style="list-style-type: none"> • Protect graft during re-vascularization and fixation x 8-12 weeks • Control inflammation • Regain full knee PROM • Restore normal gait pattern • Patient education in rehab progression
Precautions	<p>Brace:</p> <ul style="list-style-type: none"> • locked in extension at all times until 1st PT visit • weeks 1-3: Unlock brace to 90 degrees as quad control allows • weeks 3-4: Wean from brace if patient demonstrates good quad control and normal gait mechanics • weeks 4-8: use brace in crowds, on uneven terrain etc. <p>WB:</p> <ul style="list-style-type: none"> • PWB with 2 crutches x 1 week • FWB with crutches weeks 1-4 progress as patient demonstrates good quad control, normal gait mechanics and no extension lag • NO limits on ROM progress as tolerated • Avoid hyperextension >10 degrees
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • Patellar mobilizations • Gastroc/soleus stretches • Heel slides as tolerated • SLR all planes with brace in full extension and no extension lag • Quad sets, SAQ, LAQ with NMES as needed • Single leg balance progression (floor, foam, stability disc) • Mini squats • If good quad control: Lateral high stepping over cones • Lateral lunges (begin with 30 degrees knee flexion and 45 degrees hip flexion) • Core stabilization exercises • Aquatic therapy once incision is healed for gain and increased WB

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Cardiovascular Exercises	<ul style="list-style-type: none"> • Upper body ergometer • Stationary bike when ROM allows
Progression Criteria	<ul style="list-style-type: none"> • Good quad set, SLR without extension lag • Full extension/hyperextension • 90 degrees knee flexion • Minimal swelling/inflammation • Normal gait on level surfaces

PHASE II (WEEKS 4-12)

DATES:

Appointments	Physical therapy 2x per week
Rehabilitation Goals	<ul style="list-style-type: none"> • Restore normal gait with stairs • Maintain full extension • Regain full flexion by week 6 • Protect graft and graft fixation • Increase hip, quadriceps and calf strength • Increase proprioception • Increase core strength
Precautions	<ul style="list-style-type: none"> • If necessary, continue to wean from crutches/brace; use 1 crutch until gait normalizes
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • ROM/flexibility as appropriate for patient • Initiate CKC quad strengthening (wall sits, step ups, mini squats, leg press 90-0 degrees, lunges); progress as tolerated • CKC TKE with tubing • 4 way hip, hamstring, calf exercise progression • Balance exercises (SLS on various surfaces/with perturbations, ball toss, balance beam, mini trampoline with medicine ball lifts in various directions) • Progress core strengthening (front planks, side planks with hip ABD) • Hamstring curls (gradually add resistance at week 12) • Aquatic therapy for waist deep running
Cardiovascular Exercises	<ul style="list-style-type: none"> • Stair Master • Nordic Track • elliptical, • stationary bike progressive time and resistance

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Progression Criteria	<ul style="list-style-type: none"> • No patellofemoral pain • Minimum of 120 degrees knee flexion • Minimal swelling/inflammation
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PHASE III (12 – 18 WEEKS)

DATES:

Appointments	Physical therapy 1-2x per week
Rehabilitation Goals	<ul style="list-style-type: none"> • Full ROM • Improve LE strength, endurance and proprioception to prepare for sports • Normalize running mechanics • Progressive resistance for hamstring strengthening • Strength 85% of uninvolved leg by week 14
Precautions	<ul style="list-style-type: none"> • Avoid overstressing graft fixation • Protect patella-femoral joint
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • Initiate eccentric quad strengthening • Continue to progress hip, quad, hamstring and calf strengthening • Progress proprioceptive activities: slide board, balance activities with sport specific equipment • Functional exercises at 14 weeks: <ul style="list-style-type: none"> - timed ground clock - timed one legged squat to 70 degrees - lateral shuffle - carioca - Y balance test • Initiate treadmill running at week 12 • Initiate running on land at week 16 – 18
Cardiovascular Exercises	<ul style="list-style-type: none"> • Aquatic: running, swimming (no breaststroke) • Running progression treadmill to land
Progression Criteria	<ul style="list-style-type: none"> • Strength and proprioception at least 70% of uninvolved leg and sufficient to initiate agility drills • Full, pain free ROM, no significant swelling • No patellofemoral irritation • Normal running gait • MD clearance for return to functional progression

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PHASE IV (12-18 WEEKS)

DATES:

Appointments	Physical therapy 1-2x per week
Rehabilitation Goals	<ul style="list-style-type: none"> • Symmetric performance of basic and sport specific agility drills • Single leg hop and 3 hop tests 85 % of uninvolved leg • Quad/hamstring strength at least 85 % of uninvolved leg • Gradual return to sports by 6-7 months
Precautions	<ul style="list-style-type: none"> • Initiate sports brace if recommended by physician
Suggested Therapeutic Exercises	<ul style="list-style-type: none"> • Initiate plyometrics (patient/sports specific) • Progress running distance • Agility progression <ul style="list-style-type: none"> - cutting - cariocas - figure 8's - 1 and 2 leg jumping, bounding - acceleration/deceleration - ladder drills • Sport specific drills
Progression Criteria	<ul style="list-style-type: none"> • No patellofemoral or soft tissue complaints • Necessary ROM, strength, endurance and proprioception to safely return to work or athletics • MD clearance to resume partial or full activity at month 6 or 7 • Gradual return to sports after cleared by MD and with continued HEP for maintain strength and endurance

References:

http://www.brighamandwomens.org/Patients_Visitors/pcs/rehabilitation-services/Physical-Therapy-Standards-of-Care-and-Protocols/Knee%20-%20ACL%20Hamstring%20Tendon%20Autograft,%20protocol.pdf

<http://www.sosmed.org/protocols/pt-protocols/ACL-HAMSTRING.pdf>

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April 2016

MD name and date: Approved by MD

April 2016

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