

## University Orthopaedics/Physical Therapy ACL Reconstruction Rehabilitation Timeline

		<i>Timeline</i>
<b>Brace:</b>	Bledsoe Brace locked at 0 degrees Brace unlocked from 0 - 90 degrees Wean from brace indoors Wean from brace use outdoors	0 - 1 week 1 - 4 weeks 1 - 4 weeks 4 - 6 weeks
<b>Weight Bearing:</b>	WBAT with 2 crutches and extension brace 75% WB with 1-2 crutch(s) 100% WB without assistive device	0 - 1 week 1 - 2 weeks 2 - 3 weeks
<b>PROM:</b>	0 - 90 degrees 0 - 105 degrees Full extension - 120 degrees Full PROM	0 - 1 week 1 - 2 weeks 2 - 3 weeks 6 - 8 weeks
<b>Patellar Mobility:</b>	FAIR Mobility GOOD Mobility Normal Mobility	0 - 2 weeks 2 - 4 weeks 6 - 8 weeks
<b>KT-1000:</b>	Test @ 15lbs. - < 2 mm increase vs. uninvolved Test @ 20lbs. - < 2 mm increase vs. uninvolved Test @ 20lbs. - No change from last test / < 2 mm increase vs. uninvolved Test @ 30lbs. - < 2 mm increase vs. uninvolved Test @ 30lbs. - < 3 mm increase vs. uninvolved	Week 2 Week 4 Week 6 Week 6 Week 12 / 16 / 26 / 52
<b>Muscle Control/ Strength</b>	FAIR quadricep contraction GOOD quadricep contraction No Extension lag present ISOMETRIC STRENGTH TEST (@60 degs knee flexion) Quadricep = 65% of uninvolved Hamstring = 75% of uninvolved ISOKINETIC STRENGTH TEST Quadricep = 75%/80%/85%/100% of uninvolved Hamstring = 85%/95%/100%/100% of uninvolved	End of Week 1 End of Week 2 - 3 Week 3 Week 8  Week 12 / 16 / 26 / 52
<b>Functional Tests:</b>	1) Single Leg Hop for Distance 2) Single Leg Hop for Time 3) Cross over Triple Hop for Distance *** Patient must score >85% on two of three tests ***	Week 12 / 16 / 26 / 52

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**University Place Orthopaedics/Physical Therapy**  
**ACL Rehabilitation Protocol**  
*Phase I Weeks 0 -3*

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Control inflammation, effusion</li> <li>• FWB without crutches at 3 weeks (Normal Mechanics)</li> <li>• GOOD quadricep control</li> <li>• Protect ligament/ Allow soft tissue healing</li> <li>• ROM 0 - 120 degrees at 3 weeks</li> <li>• KT-1000 &lt; +2mm increase vs. non-involved</li> </ul>	
<b>Evaluation</b>	<ul style="list-style-type: none"> <li>• Pain</li> <li>• Effusion</li> <li>• Quadricep contraction</li> <li>• Patellar Mobility</li> <li>• Joint arthrometer (KT-1000)</li> <li>• ROM</li> <li>• Gait Mechanics</li> </ul>	<b>Goals</b> Controlled Mild Good Good < +2mm translation 0 -120 degs. Normal
<b>Treatment</b>		
<i>Week 1</i>		
3-4 x's/day	<b>ROM</b> Patellar mobilizations Ankle Pumps PROM - off edge of table for flexion and extension (0-90 degs)	2 minutes @ direction x 50 reps x 20 reps/ Hold 10 secs
3-4x's/day	<b>Strengthening</b> Quadricep setting SLR Flexion (if Fair+ quadricep control) (No extensor lag)	x 20 reps/Hold 10 secs x 20 reps/Hold 3 secs
3-4x's/day	<b>Gait Training</b> Crutch training (progress WBAT) Weight Shifts	5 minutes x 20 reps
	<b>Brace</b> (Bledsoe - locked at 0 degrees)	Worn all the time
<i>Week 2-3</i>		
3-4 x's/day	<b>ROM/Flexibility</b> Patellar mobilizations Ankle Pumps PROM - off edge of table for flexion and extension (0-120 degs) Hamstring/Gastrocnemius/ITB Stretches	2 minutes @ direction x 50 reps x 20 reps/ Hold 10 secs x 3 reps/Hold 20 sec
3-4x's/day	<b>Strengthening</b> Quadricep setting SLR (4-way) (PRE- no weight below knee if extension lag present) Multi-angle Isometric Quadriceps/Hamstrings PRE's a) Knee extension (90-40 degs) b) Knee flexion (standing curls) c) Calf Raises Mini squats (0 -30 degs) Initiate stationary bike w/ low resistance when Knee ROM >105 degs. Leg Press (0 - 70 degs) (start 1/2 BW (B)) Wall Sits (at 50 degs)	x 20 reps/Hold 10 secs x 20 reps/Hold 3 secs x 20 reps/Hold 10 secs 3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec 3 x 10 reps 10 mins+ 3 x 10 reps/Hold 2 sec x 20 reps/ Hold 10 secs
3 -4 x's/day	<b>Balance/Proprioception</b> Balance Board/BAPS - (two foot balance) (Level 2) Single leg balance on level surface	5 minutes x 5 reps / Hold 20 sec
3-4x's/day	<b>Gait Training</b> Cup Walk	x 5 reps / 10 ft.
	<b>Brace</b> (Bledsoe: ROM 0 - 90 degrees)	Worn all the time
pm	<b>Modalities</b> NMES ( for quadricep inhibition) (10 on/20 off) Cold Pack/Interferential Stimulation	12 mins 15 mins

**University Place Orthopaedics/Physical Therapy**  
**ACL Rehabilitation Protocol**  
*Phase 2 Weeks 4 - 8*

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Control inflammation &amp; effusion to prevent scarring</li> <li>• Normal patellar mobility</li> <li>• Week 8 - Isometric strength test (Quad- 65%/ Hamstring- 75%)</li> <li>• Discharge brace for indoor use by week 4/outdoor use by week 6</li> <li>• ROM - Full PROM by 8 weeks</li> <li>• KT-1000 &lt; +2mm increase vs. non-involved @ 30 lbs translation</li> </ul>	
<b>Evaluation</b>	<ul style="list-style-type: none"> <li>• Pain</li> <li>• Effusion</li> <li>• Isometric Muscle strength (Cybex 6000)</li> <li>• Patellar Mobility</li> <li>• Joint arthrometer</li> <li>• ROM</li> <li>• Gait Mechanics</li> </ul>	<b>Goals</b> Eliminated None to Mild Q=65% / H.S.= 75% Normal < +2mm translation Full PROM Normal
<b>Treatment</b>		
<i>Week 4 - 8</i>  1-2 x's/day	<b>ROM/Flexibility</b> Patellar mobilizations PROM - wall slides for flexion, prone hang for extension Hamstring/Gastrocnemius/ITB/Quadricep Stretches	2 minutes @ direction x 15 reps/Hold 10 secs x 3 reps/Hold 20 sec
1 -2 x's/day	<b>Strengthening</b> Cable column 4-way hip or SLR 4-way w/ weights PRE's a) Knee extension (90-30 degs) b) Knee flexion (standing curls) c) Calf Raises Leg Press (0 - 70 degs) Wall Sits (at 50 degs) Lateral Step Downs (eccentric 4" and progress height) Initiate Isokinetics at 10 weeks (if KT-1000 < +2mm) Stationary Bike (increase resistance) Stair Master	3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec 3 x 10 reps/Hold 2 sec x 20 reps/ Hold 15 secs 2 x 20 reps  15+ minutes 10+ minutes
1 -2 x's/day	<b>Balance/Proprioception</b> Balance Board / BAPS - (two foot balance) (progress height) Single leg balance on trampoline--> to ball toss Blue Band resistive walking (fwd & bwd) (lateral)	5 minutes 3 minutes 7 reps each
1-2 x's/week	<b>Gait Training</b> Hydrotrack	15 mins+
	<b>Brace</b> (Bledsoe: ROM 0 - 120 degrees)	Inside till Good Quad control Outside till 6 weeks
pm	<b>Modalities</b> Cold Pack/Interferential Stimulation	15 mins

# University Place Orthopaedics/Physical Therapy

## ACL Rehabilitation Protocol

Phase 3 Weeks 8 - 12

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Prepare patient for independent exercise program</li> <li>• Normal ROM and patellar mobility</li> <li>• Week 12 - TEST Isokinetic strength test (Quad- 75%/ Hamstring- 85%)</li> <li>• Functional/ sport specific training drills</li> <li>• KT-1000 &lt; +3mm increase vs. non-involved @ 30 lbs translation</li> </ul>	
<b>Evaluation</b>	<ul style="list-style-type: none"> <li>• Effusion</li> <li>• Isokinetic Muscle strength (Cybex 6000)</li> <li>• Patellar Mobility/ROM</li> <li>• Joint arthrometer</li> <li>• Balance / Proprioception</li> </ul>	<b>Goals</b>  Eliminated Q=75% / H.S.= 85% Normal < +3 mm translation Good
<b>Treatment</b>		
Week 8 -12		
1-2 x's/day	<b>ROM/Flexibility</b> Patellar mobilizations PROM - wall slides for flexion, prone hang for extension Hamstring/Gastrocnemius/ITB/Quadricep Stretches	2 minutes @ direction x 15 reps/Hold 10 secs x 3 reps/Hold 20 sec
3-4 x's/week	<b>Strengthening</b> Cable column 4-way hip PRE's a) Knee extension (90-30 degs) b) Knee flexion (standing curls) c) Calf Raises Leg Press (0 - 70 degs) Lateral Step Downs (eccentric 8" height) Isokinetics (spectrum 60 deg/sec --> 300 deg/sec) Treadmill (progress to fast walking speed) Stationary Bike (increase resistance) Stair Master	3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 2 x 10-12 reps @ speed 10+ minutes 15+ minutes 15+ minutes
3-4 x's/week	<b>Balance/Proprioception</b> Balance Board / BAPS - (two foot balance) (eyes closed) Single leg balance on trampoline or balance board Blue Band resistive fast walking (fwd & bwd) (lateral)	5 minutes 3 minutes 7 reps each
3-4 x's/week	<b>Functional/Sport Specific Drills</b> Lateral two leg hop Mini jumps ( 4" step) (Forward/Lateral) Single leg hop in place (involved leg)	3 x 20 reps 3 x 20 reps 3 x 20 reps
1-2 x's/week	<b>Gait Training/Endurance</b> Hydrotrack (light jog)	15 mins+
pm	<b>Modalities</b> Cold Pack	15 mins

## University Place Orthopaedics/Physical Therapy ACL Rehabilitation Protocol

### Phase 4 Weeks 12 - 16

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Functional Hop Tests 85% on 2 of 3 tests</li> <li>• Isokinetic Muscle Strength @ 16 weeks (Quad-80%/Hamstring-95%)</li> <li>• Return to Sport Specific Training Drills</li> <li>• KT-1000 &lt; +3mm increase vs. non-involved @ 30 lbs translation</li> </ul>	
<b>Evaluation</b>	<p><i>Reassess at 16 wks</i></p> <ul style="list-style-type: none"> <li>• Clinical Examination (ROM, patellar mob., effusion/girth, etc.)</li> <li>• Isokinetic Muscle strength (Cybex 6000)</li> <li>• Joint arthrometer (KT-2000)</li> <li>• Functional Hop Test</li> </ul>	<p><b>Goals</b></p> <p>Quad- 80%/HS-95% &lt; +3 mm translation 2 of 3 by 85%</p>
<b>Treatment</b>	<p><i>Week 12 - 16</i></p> <p><i>Home/Gym Exercise Program</i></p> <p><b>Flexibility</b> Hamstring/Gastrocnemius/ITB/Quadricep Stretches</p> <p><b>Strengthening</b> Hip Abduction/Adduction Knee extension (90-30 degs) (Cybex) Knee flexion (Cybex) Calf Raises (with resistance) Leg Press (0 - 70 degs) Lateral Step Downs (eccentric 8-12" height) Treadmill (jog --&gt; run) Stationary Bike (increase resistance) Stair Master</p> <p><b>Balance/Proprioception</b> Single leg balance on trampoline or balance board Blue Band resistive jogging (fwd &amp; bwd) (lateral)</p> <p><b>Functional/Sport Specific Drills</b> Lateral two leg hop (4" step) Mini jumps ( 8" step) (forward/lateral) Single leg hop (involved leg) (forward/lateral) Lateral shuffles Figure of Eight's</p> <p><b>Modalities</b> Cold Pack</p>	<p>x 3 reps/Hold 20 sec</p> <p>3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec 3 x 10-15 reps/Hold 2 sec</p> <p>10+ minutes 15+ minutes 15+ minutes</p> <p>3 minutes 10+ reps each</p> <p>3 x 20 reps 3 x 20 reps 10 ft. x 5 reps 20 ft. x 10 reps</p> <p>15 mins</p>

### Phase 5 Weeks 16 - 52

<b>Goals</b>	<ul style="list-style-type: none"> <li>• Isokinetic Muscle Strength- 100% by 52 weeks</li> <li>• Return to Full Sports between 9 - 12 months</li> <li>• KT-1000 &lt; +3mm increase vs. non-involved @ 30 lbs translation</li> </ul>	
<b>Evaluation</b>	<p><i>Reassess at 26 wks</i></p> <ul style="list-style-type: none"> <li>• Clinical Examination</li> <li>• Isokinetic Muscle strength (Cybex 6000)</li> <li>• Joint arthrometer (KT-2000)</li> </ul> <p><i>Reassess at 52 wks</i></p> <ul style="list-style-type: none"> <li>• Clinical Examination</li> <li>• Isokinetic Muscle strength (Cybex 6000)</li> <li>• Joint arthrometer (KT-2000)</li> </ul>	<p><b>Goals</b></p> <p>Quad- 85%/HS- 100% &lt; +3 mm translation</p> <p>100% Q/HS &lt; +3 mm translation</p>