

Standard Anterior Cruciate Ligament Reconstruction Rehabilitation Protocol

| Time | Goals | Precautions / Restrictions | Treatment |
|---------------------|--|--|--|
| Weeks 0 – 2 | <ul style="list-style-type: none"> • Protect surgical site • Reduce pain and swelling • Active ROM: 0-90 degree • Full passive extension • Active quadriceps control • Reduce muscle atrophy • Safe use of crutches with near normal gait mechanics | <ul style="list-style-type: none"> • No brace use • WBAT with crutches • No resisted open chain knee extensions for six weeks • No isolated hamstring strengthening for hamstring autograft surgery | <ul style="list-style-type: none"> • ROM (as tolerated) <ul style="list-style-type: none"> ○ PROM – AAROM - AROM ○ Patella mobilizations • Quadriceps recruitment/NMES • Global LE/hip strengthening • Gait training with crutches • Modalities as indicated <ul style="list-style-type: none"> ○ Cryotherapy: 5-7 times per day • Initial Visit: FOTO, LEFS, PSFS • 2 week follow up with MD |
| Weeks 2 – 6 | <ul style="list-style-type: none"> • Full, symmetric and pain-free AROM • SLR without extensor lag • Normalized gait mechanics • DL squat with good mechanics • Progression of quadriceps strength/endurance • Increase functional activities | <ul style="list-style-type: none"> • Open kinetic chain is limited to bodyweight leg extensions (weeks 2-6) • No resisted open kinetic chain exercises • Initiate isolated hamstring strengthening for hamstring autograft surgery (6 weeks) • No running, jumping, cutting, pivoting, or twisting • Avoid painful activities/exercises | <ul style="list-style-type: none"> • AAROM - AROM • Gait training progressing from assistive device • Core stabilization exercises • Closed kinetic chain strengthening as tolerated • Global LE strengthening <ul style="list-style-type: none"> ○ Begin functional strengthening exercises (bridge, mini-squat, step up, etc) • Double limb to single limb balance/proprioception • Aerobic training: <ul style="list-style-type: none"> ○ Walking program when walking with normal gait mechanics ○ Stationary bike • Optional therapies (if available/as indicated): <ul style="list-style-type: none"> ○ BFR therapy ○ Anti-gravity treadmill for walking gait ○ Aquatic therapy once incision is healed and cleared by surgeon (2-4 weeks) ○ NMES • Modalities as indicated • Week 6: FOTO, LEFS |
| Weeks 6 – 12 | <ul style="list-style-type: none"> • Full, symmetric and pain-free ROM • Progress quadriceps strength/endurance • Increase functional activities | <ul style="list-style-type: none"> • May initiate resisted open kinetic chain exercise <ul style="list-style-type: none"> ○ 90-45° at 6 weeks ○ 90-30° at 8 weeks ○ 90-0° at 10 weeks ○ 90-0° with progressive loading at 12 weeks • No running, jumping, cutting, pivoting, or twisting • Avoid painful activities/exercises • Avoid patellofemoral pain | <ul style="list-style-type: none"> • End range flexion and extension • Aerobic training on stationary bike, elliptical, stair climber, UBE • Core stabilization exercises • Progressive double and single limb strengthening • Single to multi-plane exercise • Progression of balance/proprioception • Modalities as indicated • Week 12: FOTO, LEFS, PSFS, ACL-RSI • 6-8 week follow up with MD (SGYM) |

This protocol is not meant to be prescriptive but a recommendation to guide the rehabilitation process.
Each patient’s progress may vary based on specifics of their injury and procedure.



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| Weeks 12-16 | <ul style="list-style-type: none"> • Full, symmetric ROM • No effusion with increased activity • Increase intensity and duration of functional LE strength • Initiate return to jogging program • Begin low level plyometric and agility training | <ul style="list-style-type: none"> • Avoid painful activities/exercises • Jogging program initiated at 12 weeks if cleared by surgeon <ul style="list-style-type: none"> ○ No effusion ○ Full AROM ○ >80% LSI • No jogging on painful or swollen knee | <ul style="list-style-type: none"> • Increase loading capacity for lower extremity strengthening exercises • Continue balance/proprioceptive training • Week 12: begin return to jogging program <ul style="list-style-type: none"> ○ If applicable, start with pool/anti-gravity treadmill • Begin low level plyometric and agility training at 12 weeks • Functional assessment (see attached) • 3-4 month follow up with MD (SGYM) |
| Months 4-6 | <ul style="list-style-type: none"> • Continue to progress functional strengthening • Successful progression of the return to running program • Initiate higher level plyometric and agility training | <ul style="list-style-type: none"> • No jogging on a painful or swollen knee • Avoid painful activities/exercises • Avoid patellofemoral pain • No participation in sports unless specified by care team | <ul style="list-style-type: none"> • Progression of return to jogging program • Gradually increase lifting loads focusing on form, control, and tissue tolerance • Progress as tolerated: <ul style="list-style-type: none"> ○ Core Stability ○ Strength ○ Endurance ○ Proprioception/Balance • Increase intensity of plyometric and agility training • Foot speed and change of direction • Functional assessment at 6 months (see attached) • Month 6: FOTO, LEFS, PSFS, ACL-RSI |
| Months 6 – 9 | <ul style="list-style-type: none"> • Continue to progress functional strengthening • Sport-specific training | <ul style="list-style-type: none"> • No participation in sports unless specified by your care team • Avoid painful activities | <ul style="list-style-type: none"> • Progress as tolerated: <ul style="list-style-type: none"> ○ Core Stability ○ Strength ○ Endurance ○ Proprioception/Balance • Begin sport-specific training • Single-to multi-task • Reactionary drills • Perturbation training • Closed to open environment |
| Months 9+ | <ul style="list-style-type: none"> • Pass return to play criteria (re-test at 12+ months, if necessary) • Begin gradual return to sport | <ul style="list-style-type: none"> • Gradual return to full participation in sports | <ul style="list-style-type: none"> • Progress as tolerated: <ul style="list-style-type: none"> ○ Core Stability ○ Strength ○ Endurance ○ Proprioception/Balance ○ Plyometric training ○ Agility drills ○ Sport-specific activities • Gradual return to sport progression • Month 9: FOTO, LEFS, PSFS, ACL-RSI • Functional assessment (see attached) • 9+ month follow up with MD (SGYM) |

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Anterior Cruciate Ligament Testing Protocol

| Phase | Goals | Surgery | Testing |
|----------------------------|---|--|--|
| Week 12 (SGYM) | <ul style="list-style-type: none"> • Full, symmetric ROM • Y-balance anterior reach asymmetry < 5 cm • Quadriceps strength for isometric test > 80% of uninvolved side | <ul style="list-style-type: none"> • ACL reconstruction • ACL reconstruction with meniscus repair • ACL Allograft (12 week + 6 month recheck) • ACL revision (12 week + 6 month recheck) | <p>TESTING:</p> <ul style="list-style-type: none"> • Knee assessment including assessment for effusion • Passive and active ROM • Y-balance anterior reach • Isometric knee extension at 60° and 90° • FOTO, LEFS, PSFS, ACL-RSI |
| Month 6 (No SGYM) | <ul style="list-style-type: none"> • Full, symmetric ROM • Y-balance anterior reach asymmetry < 3 cm • > 80% LSI for isokinetic testing • 90% LSI for functional testing • ACL-RSI > 56 | <ul style="list-style-type: none"> • ACL reconstruction • ACL reconstruction with meniscus repair • <u>ACL Allograft (9 month)</u> • <u>ACL revision (9 month)</u> | <p>TESTING:</p> <ul style="list-style-type: none"> • Knee assessment including assessment for effusion • Passive and active ROM • Hop Test <ul style="list-style-type: none"> ○ Single Hop ○ Triple Hop • Isokinetic Test (90°, 180°/s) • Y-Balance Anterior Reach • Agility T-Test • FOTO, LEFS, PSFS, ACL-RSI |
| Month 9 - 10 (SGYM) | <ul style="list-style-type: none"> • Full, symmetric ROM • > 90% LSI for isokinetic and functional testing • Y-balance anterior reach asymmetry < 3 cm • ACL-RSI > 56 | <ul style="list-style-type: none"> • ACL reconstruction • ACL reconstruction with meniscus repair • <u>ACL Allograft (12 month)</u> • <u>ACL revision (12 month)</u> | <p>TESTING:</p> <ul style="list-style-type: none"> • Knee assessment including assessment for effusion • Passive and active ROM • Hop Test <ul style="list-style-type: none"> ○ Single Hop ○ Triple Hop ○ Cross-over Hop • Isokinetic Test (90°, 180°/s) • Y-Balance Anterior Reach • Agility T-Test • FOTO, LEFS, PSFS, ACL-RSI |

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