

**100,000-200,000**  
**CASES FOR ACL INJURIES OCCUR**  
**IN THE UNITED STATES ANNUALLY**

## HIGHEST RISK SPORTS



**SOCCER**

**FOOTBALL**

**BASKETBALL**

**VOLLEYBALL**

**SKIING**

**WRESTLING**

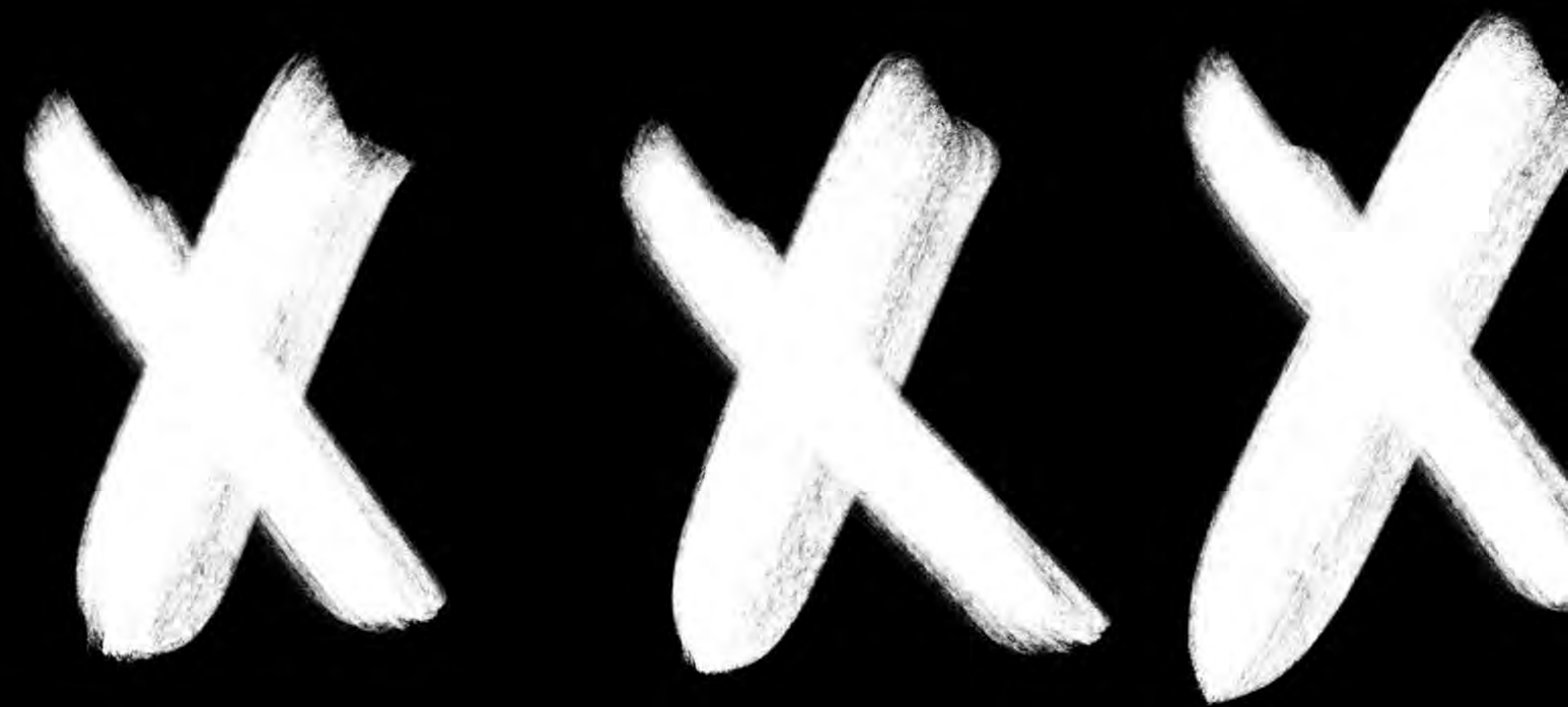
## PHASES OF GRAFT HEALING:

*INCORPORATION (WEEK 0-3)*

*REVASCULARIZATION (WEEK 3-16)*

AT WEEKS 8-10, THE GRAFT IS AT ITS WEAKEST POINT, SO IT IS IMPORTANT TO AVOID STRESSING THE GRAFT

*HEALING/MATURATION (WEEK 16-1 YEAR)*



MOST INJURIES OCCUR IN ATHLETES IN LATE TEENS AND EARLY 20s BUT VERY COMMON IN ALL AGES OF *CUTTING* AND *PIVOTING* ATHLETES

VAST MAJORITY OF ACL INJURIES ARE  
*NON-CONTACT*

## PHASES OF GRAFT HEALING

**INCORPORATION**  
*(WEEK 0-3)*

**REVASCULARIZATION**  
*(WEEK 3-16)*

AT WEEKS 8-10, THE GRAFT IS AT ITS WEAKEST POINT, SO IT IS IMPORTANT TO AVOID STRESSING THE GRAFT

**HEALING/MATURATION**  
*(WEEK 16-1 YEAR)*

## PROFESSIONAL ATHLETES WHO SUSTAINED & OVERCAME ACL TEARS

### FOOTBALL

TOM BRADY  
ROB GRONKOWSKI

### MALE SOCCER

RUUD VAN NISTELROOY  
ROBERTO BAGGIO  
ALAN SHEARER

### FEMALE SOCCER

ALEX MORGAN  
MEGAN RAPINOE  
BRANDI CHASTAIN

### FEMALE TRACK & FIELD

KARA WINGER  
ENGLISH GARDNER  
TALIYAH BROOKS

**\*FEMALE ATHLETES ARE 2-8X MORE LIKELY TO HAVE ACL INJURIES**

# ACL RECONSTRUCTION

## PHYSICAL THERAPY PROTOCOL

At UAMS | Health and Train · Recover · Move, our goal is to create an environment that is safe for the healing structures, exciting for the patient, and able to provide an open and transparent line of communication with the therapist and physician. If you ever have any questions or concerns, please feel free to give us a call and we would be more than happy to discuss any concerns or questions you might have.

**OUR PROTOCOL CAN BE DIVIDED INTO PHASES. HOWEVER, THERE WILL BE OVERLAP BETWEEN PHASES DUE TO SPECIFIC TISSUE HEALING TIMELINES AND CRITERION BASED GOALS.**

*PRE OP PHASE - INJURY RECOVERY AND READINESS FOR SURGERY*

*PHASE 1*

**RECOVERY FROM SURGERY**

*PHASE 2*

**STRENGTH AND NEUROMUSCULAR CONTROL**

*PHASE 3*

**LANDINGS, RUNNING, AND AGILITY**

*PHASE 4*

**RETURN TO SPORT**

**PLEASE USE YOUR BEST CLINICAL REASONING WHEN NAVIGATING TIMELINE RESTRICTIONS AND CRITERION BASED GOALS TO ADVANCE TO THE NEXT PHASE.**

**BEFORE WE DIVE INTO THE DETAILS OF THE SEPARATE PHASES, WE WOULD LOVE TO ANSWER SOME COMMON QUESTIONS OUR PATIENTS OFTEN ASK WHEN CONSIDERING THIS SURGERY AND REHABILITATION PROCESS:**

### **HOW OFTEN AND WHEN WILL I SEE THE PHYSICIAN?**

In general, you will follow up with the physician anywhere from one day to two weeks after surgery, then again around 6-8 weeks, 3-4 months, and 7-8 months.

### **WHEN WILL I BEGIN PHYSICAL THERAPY?**

In general, you will begin physical therapy around 2-7 days after surgery.

### **WHEN DOES THE DRESSING COME OFF?**

Dressing is removed at your first follow up appointment with your doctor or at your first physical therapy appointment. The bandage over the incision should stay in place until your first follow up visit at around 2 weeks after surgery.

### **IF I HAVE STITCHES, WHEN DO THE STITCHES COME OUT?**

Stitches are removed by your doctor at your first postoperative visit within 2 weeks after surgery.

### **WHEN CAN I SHOWER?**

Do not get the dressing wet until after your first postoperative visit with your doctor. In most cases you can shower around 2 weeks after surgery.

### **HOW LONG WILL I HAVE TO USE CRUTCHES? WEAR A BRACE?**

For isolated ACL tears, you should be off crutches by 2 weeks after surgery. The time will vary if the meniscus was repaired. Your physical therapist will unlock the brace as quadriceps muscle strength returns. You can stop wearing the brace at 6 weeks after surgery.

### **DO I HAVE TO SLEEP IN THE BRACE?**

Yes, for 6 weeks with it locked in extension.

### **WILL I GET A CPM (CONTINUOUS PASSIVE MOTION) MACHINE?**

Most surgeons do not use CPM routinely after ACL reconstruction. There is no evidence that it improves motion, and it is not covered by insurance.

### **WHEN CAN I DRIVE?**

Driving can begin when you are no longer taking pain medications, when you have recovered all of your range of motion, and when you have regained appropriate quadriceps function (4-6 weeks after surgery). This may be accelerated in left sided surgery.

### **WHEN CAN I RUN?**

Running begins around 3-4 months post-op. Prior to this the graft has not incorporated enough to tolerate forces generated while running. Running is a major milestone in recovery. Using a treadmill, elliptical and exercise bike will be initiated prior to running.

### **WHEN WILL IT BE SAFE TO RETURN TO MY SPORT?**

Each athlete will return to sport at a personal time that best suits them. The average time to return to sport is around 9 months. There are certain points of rehabilitation that are based on time from surgery. Other milestones are based on functional progress. Each athlete takes a different amount of time to reach the functional milestones. The rate of a subsequent ACL injury was approximately 7 times higher in athletes who returned to knee-strenuous sport earlier than 9 months after ACL reconstruction compared with athletes who returned to sport at or later than 9 months.

### **DO I HAVE TO WEAR A SPORT BRACE?**

While braces are not routinely recommended for use following ACL reconstruction, certain athletes prefer to wear them. Functional ACL braces that are not bulky and allow you to participate in your sport with confidence can be prescribed following surgery. The majority of athletes do not wear ACL braces once they return to sport.

# PRE-OP PHASE

INJURY RECOVERY AND READINESS FOR SURGERY



## THINGS TO AVOID

QUICK SIDE TO SIDE MOTIONS, CUTTING, AND PIVOTING

## GOALS

ELIMINATE SWELLING  
REGAIN FULL RANGE OF MOTION AND 90% STRENGTH IN THE QUADRICEPS AND HAMSTRING  
MAINTAIN AMBULATION WITH RECIPROCAL GAIT PATTERN

## REHABILITATION

TEST UNINVOLVED LEG FOR STRENGTH (DYNAMOMETER) AND SINGLE LEG HOP TEST

# PHASE 1 - RECOVERY FROM SURGERY

DAY 1 - WEEK 2

## GOALS

- Full knee extension range of motion by week 2
- 90 degrees of knee flexion range of motion by week 2
- Minimize quadriceps muscle arthrogenic muscle inhibition
- Decrease swelling
- Quadriceps lag test: patient sitting on edge of table, clinician moves knee into full extension, patient required to maintain full active extension
- Independent ambulation
- Patient must pass these goals in order to move on to phase 2



## THINGS TO AVOID

**DO NOT** rest your leg with your knee in a bent position (i.e. DO NOT place a pillow under your knee)

**DO NOT** move your leg fully with your arms/opposing leg - try to use your leg muscles as much as you can to move your leg



# REHABILITATION

AMBULATION WITH CRUTCHES, DISCONTINUE CRUTCHES BY WEEK 2

BRACE AS NEEDED FOR QUADRICEPS CONTROL - LOCKED IN EXTENSION FOR 2 WEEKS, THEN BEGIN GRADUALLY UNLOCKING AS QUADRICEPS STRENGTH RETURNS, DISCONTINUE BRACE AT WEEK 6

SLEEP WITH BRACE LOCKED FULLY STRAIGHT FOR 6 WEEKS

## RANGE OF MOTION

ANKLE PUMPS

HAMSTRING & CALF STRETCHING

LOW LOAD LONG DURATION  
EXTENSION STRETCHING

HEEL SLIDES

## NEUROMUSCULAR REEDUCATION

WEIGHT SHIFTS WITH QUADRICEPS FIRING  
WHEN WEIGHT BEARING ON SURGICAL LEG

SINGLE LEG BALANCE WITH EYES OPEN,  
EYES CLOSED, UNSTABLE SURFACE,  
PERTURBATIONS

GAIT TRAINING

## STRENGTH

BLOOD FLOW RESTRICTION WITH 80% ARTERIAL LIMB OCCLUSION TO PROXIMAL THIGH, 4 SETS OF 30/15/15/15 WITH 30 SECOND REST BETWEEN SETS

Week 1-3: quadriceps isometric contractions

Week 1-4: hamstring isometric contractions

MULTI ANGLE KNEE EXTENSION ISOMETRICS AT 60 AND 90 DEGREES

WEEK 1-4: CLOSED KINETIC CHAIN (CKC) QUADRICEPS 0-60 DEGREES  
Leg press, squats, step ups forward and lateral

WEEK 2-8: OPEN KINETIC CHAIN (OKC) QUADRICEPS  
90-45 degrees  
Start with 1 lb, increase 1 lb per week

PATELLAR TENDON GRAFT  
Week 1- 4: OKC standing hamstring curls

HAMSTRING GRAFT  
Week 1- 4: OKC hamstring isometrics

STRAIGHT LEG RAISE 3-WAY (FLEXION, ABDUCTION, EXTENSION)

CALF RAISES, DOUBLE LEG AND SINGLE LEG

## MANUAL

PATELLAR  
MOBILIZATIONS  
(INFERIOR, MEDIAL,  
LATERAL)

OVERPRESSURE INTO  
EXTENSION IF  
EXTENSIONS STILL  
LACKING AT WEEK 2

## OUTCOME MEASURES

INTERNATIONAL KNEE DOCUMENTATION  
COMMITTEE (IKDC) SUBJECTIVE KNEE FORM

## MODALITIES

NMES  
CRYOTHERAPY

## SUMMARY

Depending on your needs and circumstances, physical therapist visits will be approximately 1-2 days per week

The overarching theme of this phase is achieving full knee extension range of motion, and quadriceps strength in both non weight bearing and weight bearing

Home exercise program should be performed every day

# PHASE 2 - STRENGTH AND NEUROMUSCULAR CONTROL

WEEK 3 - WEEK 12

## GOALS

### FULL KNEE RANGE OF MOTION

Symmetrical extension (including hyperextension)  
120 degrees of knee flexion by week 6

### SINGLE LEG BALANCE

**Single leg stance:** 43 seconds eyes open, 9 seconds eyes closed

### STRENGTH

**Calf raises:** single leg calf raise full range, 0-2-0-2 tempo x 85%

**Single leg leg press:** 90 degrees of knee flexion, 1 repetition maximum equal to 1.5x bodyweight

**Squat:** 90 degrees of knee flexion, 1 repetition maximum equal to 1.5x bodyweight

### FUNCTION

**Functional alignment test:** stand on 20cm (8in) box, squat to 60 deg, 0-2-0-2 tempo x 5 repetitions

**Single leg rise test:** sit at 90 degrees of knee flexion, arms crossed, stand and sit, 85% of unaffected extremity or 10 repetitions

**PATIENT MUST PASS THESE GOALS IN ORDER TO MOVE ON TO PHASE 3**

## THINGS TO AVOID

**DO NOT** perform full knee range of motion with OKC knee extension (i.e. loaded OKC terminal knee extension)

**DO NOT** run!

We will NOT begin running during this phase

## REHABILITATION

### CARDIOVASCULAR

BIKE  
RECUMBENT STEPPER  
ELLIPTICAL (WEEK 7-8)  
ROWER (WEEK 7-8)

### OUTCOME MEASURES

INTERNATIONAL KNEE DOCUMENTATION  
COMMITTEE (IKDC) SUBJECTIVE KNEE FORM  
TAMPA SCALE OF KINESIOPHOBIA (TSK-11)

### NEUROMUSCULAR REEDUCATION

SINGLE LEG ACTIVITIES WITH UNSTABLE SURFACE, PERTURBATIONS, ETC.

DECELERATION BEGINNING AT WEEK 8 TO PREPARE FOR JUMPING/RUNNING  
Plyometric leg press - double leg to single leg

## STRENGTH

**WEEK 4-8: CLOSED KINETIC CHAIN (CKC) QUADRICEPS INCREASE 10 DEGREES PER WEEK (FROM 60 DEGREES) UNTIL FULL BY WEEK 8**

Leg press, box squat, and goblet squat

**WEEK 2-8: OPEN KINETIC CHAIN (OKC) QUADRICEPS**

90-45 degrees of knee extension

Start with 1 lb, increase 1 lb per week

**WEEK 8-12: OKC QUADRICEPS**

Gradually increase ROM to full by week 12

Reduce weight back to 3 lbs while increasing range

Increase 15 degrees per week until 12, and 3 lbs per week until week 12

At week 12, you should be at 90-0 degrees and 12 lbs, from there continue to increase 1 lb per week

**PATELLAR TENDON GRAFT**

Week 4-12: OKC hamstring curls with increasing resistance

Week 4-12: CKC hamstring progress resistance as tolerated

Good mornings, Romanian deadlift (double leg to single leg), and bridge with sliders

**HAMSTRING GRAFT**

Week 4-12: OKC hamstring curls with light resistance, slowly increase resistance until week 12

Week 4-12: CKC hamstring no heavy resistance until week 12

**BLOOD FLOW RESTRICTION WITH 80% ARTERIAL LIMB OCCLUSION TO PROXIMAL THIGH, 4 SETS OF 30/15/15/15 WITH 30 SECOND REST BETWEEN SETS**

**Patellar tendon graft**

Week 3-12: leg press double leg to single leg

Week 4-12: hamstring curl starting with light resistance and progressing slowly

**Hamstring graft**

Week 4-12: OKC hamstring curls with light resistance, slowly increase resistance by 1 lb per week until week 12

**POSITIVE SHIN ANGLE**

**Single leg squat with a positive shin angle**

Working towards single leg rise test

**Step down with a positive shin angle**

Working towards functional alignment test

**Lunges**

Forward, backwards, lateral with a positive shin angle

**Step up**

Forward and lateral with a positive shin angle and eccentric lowering

**Lateral step overs**

**Banded side steps**

**Barbell squat and deadlift by week 8**



## SUMMARY

Depending on your needs and circumstances, physical therapist visits will be approximately 1-2 days per week

The overarching theme of this phase is to regain full strength back to pre injury levels

External loads should be increasing each week

Athletes should be back in the weight room by the end of this phase with minimal to no restrictions on strength training exercises, but continue to avoid plyometric exercises



# PHASE 3 - LANDINGS, RUNNING, AGILITY

WEEK 12 - WEEK 20



## GOALS

### RESTORE FULL STRENGTH AND BALANCE

Single leg rise test: squat to 90 degrees, arms crossed x 22 reps  
Balance: Y balance 95%  
Single leg leg press: 90 degrees of knee flexion, 1 repetition maximum equal to 1.8x bodyweight  
Squat: 90 degrees of knee flexion, 1 repetition maximum equal to 1.8x bodyweight

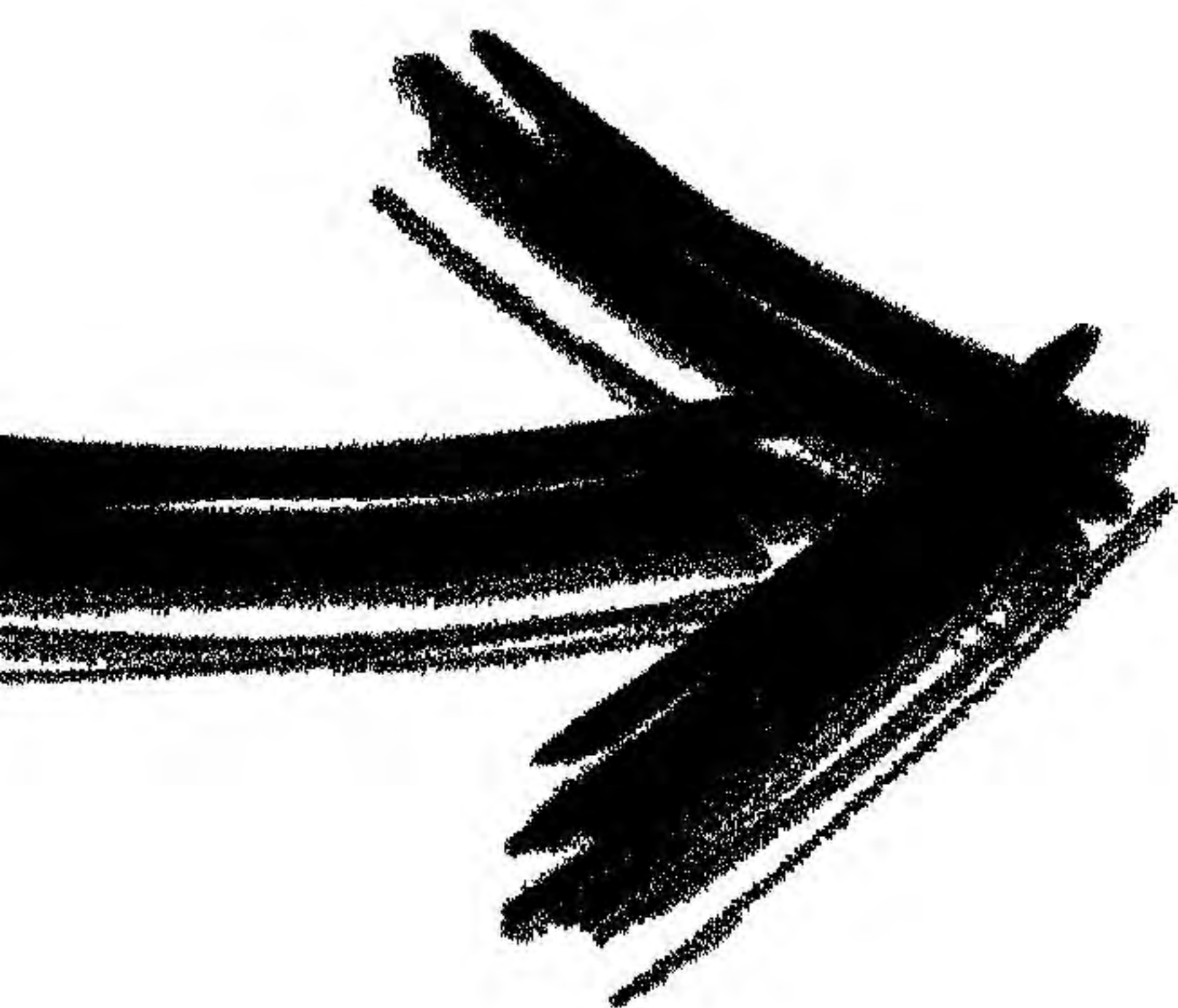
### EXCELLENT HOP PERFORMANCE

Single hop distance: 95% or equal to pre operative testing  
Triple hop: 95% or equal to pre operative testing  
Triple crossover hop: 95% or equal to pre operative testing  
Side hop: 40 cm distance, 30 seconds, 95% or equal to pre operative testing  
Begin running at week 14 if hop testing is 80%

### RUN 1 MILE CONSECUTIVELY WITHOUT PAIN OR EFFUSION

### BEGIN SPRINTING AND AGILITY ONCE PATIENT CAN RUN 1 MILE

### PATIENT MUST PASS THESE GOALS IN ORDER TO MOVE ON TO PHASE 4



## THINGS TO AVOID

May NOT return to sport practice participation - may perform sport specific drills with athletic trainer, strength coach, etc

Activities involving contact - may perform sport specific drills but must remain non contact

## REHABILITATION

COLLABORATE WITH ATHLETIC TRAINER AND STRENGTH COACH FROM HIGH SCHOOL, COLLEGE, OR PROFESSIONAL ORGANIZATION

### PLYOMETRICS

BODY WEIGHT JUMPING BETWEEN WEEKS 10 - 12 AND IF PHASE 2 GOALS ARE MET

MAY IMPLEMENT JUMP PROGRAM I.E. SPORTS METRICS

BOX JUMPS, DEPTH JUMPS, SINGLE LEG JUMPS, ETC.

EMPHASIS ON POWER AND EXPLOSIVENESS, AS WELL AS LANDINGS WITH ANTERIOR TIBIAL TRANSLATION

SPRINTING AND AGILITY AT MONTH 4 AND IF PATIENT CAN RUN 1 MILE CONSECUTIVELY (LEVEL 5 ON RUNNING PROGRAM BELOW)

Acceleration/deceleration, shuttle runs, ladder drills, pivoting, crossovers

### STRENGTH

CONTINUE STRENGTHENING AS IN PHASE 2

EMPHASIS ON QUADRICEPS ECCENTRIC STRENGTH/DECELERATION

### CARDIOVASCULAR

SWIMMING AT WEEK 12

RUNNING AT WEEK 14 (3.5 MONTHS) AND IF HOP TESTING IS 80%

ENHANCE INTENSITY AND DURATION OF ALL MODES OF CARDIOVASCULAR TRAINING

## NEUROMUSCULAR REEDUCATION

REACTION DRILLS I.E. WITH PLYOMETRICS

LANDING WITH PERTURBATIONS

SPORT SPECIFIC TRAINING - EXERCISES AND TRAINING ACTIVITIES THAT ARE SPECIFIC TO OFF SEASON TRAINING

## OUTCOME MEASURES

INTERNATIONAL KNEE DOCUMENTATION COMMITTEE (IKDC) SUBJECTIVE KNEE FORM

TAMPA SCALE OF KINESIOPHOBIA (TSK-11)

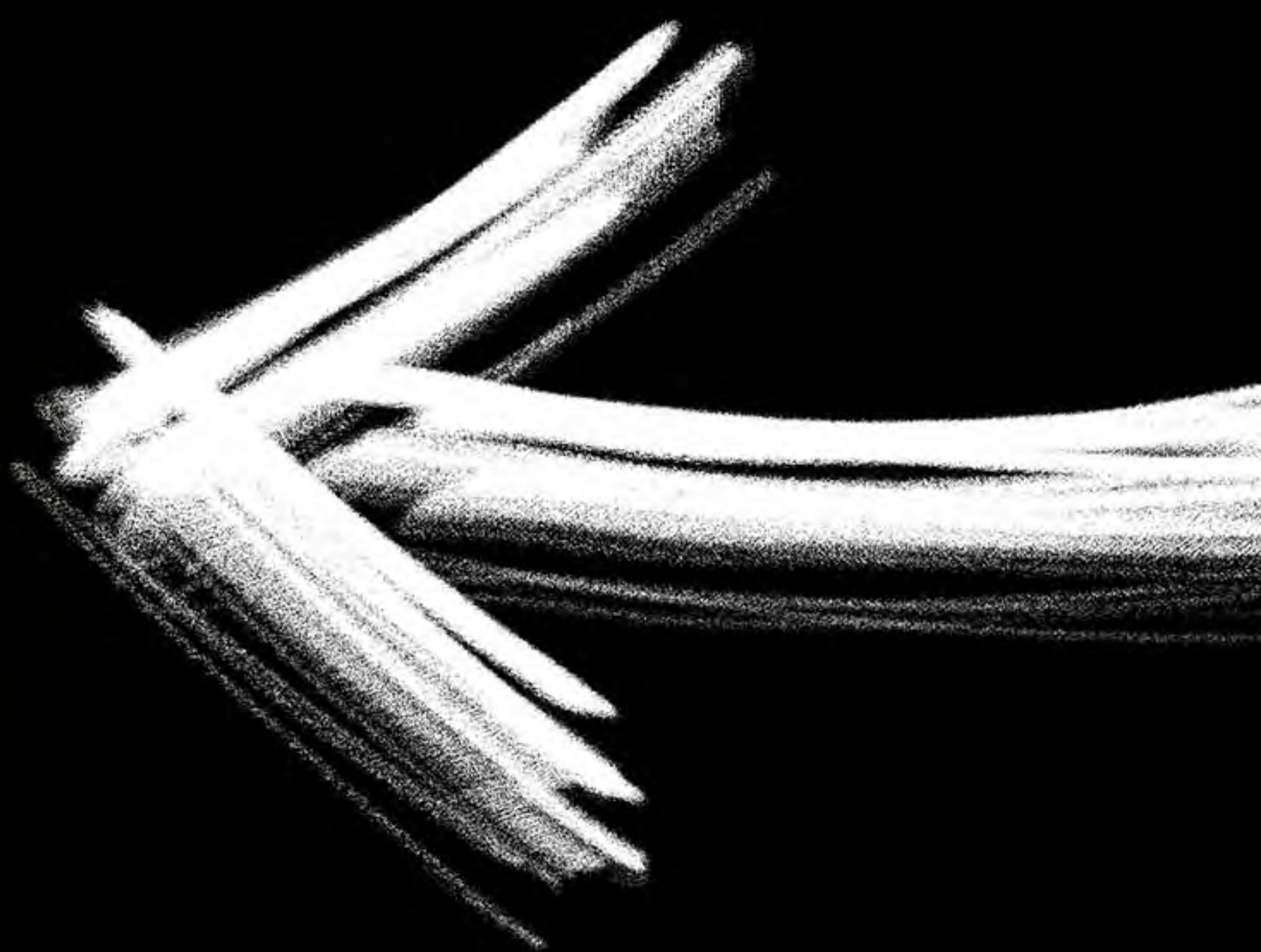
ACL - RETURN TO SPORT INVENTORY

## SUMMARY

Depending on your needs and circumstances, your physical therapist will collaborate with your athletic trainer, strength and conditioning coach, personal trainer, etc. to expand rehabilitation to outside of the physical therapy clinic

The overarching theme at the end of this phase is to prepare the athlete to return to practice

In this phase, there are multiple milestones that have timeline AND criterion goals that must be met in order to progress



## RUNNING PROGRAM

**LEVEL 1** : Jog straights (0.06mi) / walk curves (0.06mi) (1 mile total)

**LEVEL 2** : Jog straights / jog 1 curve every other lap (1 mile total)

**LEVEL 3** : Jog straights / jog 1 curve every lap (1 mile total)

**LEVEL 4** : Jog full lap every other lap (1 mile total)

**LEVEL 5** : Jog all laps (1 mile total)

**LEVEL 6** : Increase to 1.5 miles

**LEVEL 7** : Increase to 2 miles

**LEVEL 8** : Continue gradually increasing distance

PROGRESS TO THE NEXT LEVEL WHEN THE PATIENT IS ABLE TO PERFORM ACTIVITY FOR 1 MILE WITHOUT INCREASED EFFUSION OR PAIN. FOLLOW SORENESS RULES BELOW. PERFORM NO MORE THAN 4 TIMES PER WEEK AND NO MORE FREQUENTLY THAN EVERY OTHER DAY. DO NOT PROGRESS MORE THAN 2 LEVELS IN A SEVEN DAY PERIOD.

## SORENESS RULES

Soreness during the warm up that continues during the session = 2 days off, drop down a level

Soreness during the warm up that goes away = stay at that level

Soreness during the warm up that goes away but redevelops during session = 2 days off, drop down a level

Soreness the day after (not muscle soreness) = 1 day off, do not advance program





# PHASE 4 - RETURN TO SPORT

WEEK 20+

## GOALS

Leg Symmetry Index > 95% of non-involved extremity or pre op testing (dynamometer, isokinetic, keiser, etc.)

General fitness testing

- Beep test
- Agility T test
- Pro agility (5-10-5) test
- Illinois Agility Test
- Timed run
- Sprint test

Hop testing 95% in fatigued state - 7/10 on a VAS scale i.e. after sport specific exercise, practice, scrimmage

Outcome measures 95%

- International Knee Documentation Committee (IKDC) Subjective Knee Form
- Tampa Scale of Kinesiophobia (TSK-11)
- ACL-Return to Sport Inventory

## REHABILITATION

CONTINUE TO COLLABORATE WITH ATHLETIC TRAINER AND STRENGTH COACH FROM HIGH SCHOOL, COLLEGE, OR PROFESSIONAL ORGANIZATION

BUILD SPORT SPECIFIC LOAD CONCERNING ENERGY EXPENDITURE (ANAEROBIC, AEROBIC) AND SURFACE (FIELD, COURT, ROAD)

ACUTE: CHRONIC WORKLOAD RATIO NEAR 75% OF IN-SEASON WORKLOAD BY MONTH 8 (4-6 WEEK ACCUMULATION PHASE)

RETURN TO PRACTICE NON CONTACT AT MONTH 6 **AND** IF PHASE 3 GOALS ARE MET

RETURN TO PRACTICE CONTACT AT MONTH 7 **AND** ONCE PATIENT CAN PRACTICE NON CONTACT WITHOUT PAIN OR EFFUSION FOR 1 WEEK

RETURN TO PLAY AT MONTH 9 **AND** IF PHASE 4 GOALS ARE MET

### STRENGTH

CONTINUE BARBELL SQUAT/DEADLIFT AND SINGLE LEG STRENGTH

### NEUROMUSCULAR REEDUCATION

JUMP PROGRESSIONS WITH EXTERNAL CUEING FOCUS, FATIGUE PROTOCOLS, PROGRESSING SINGLE LEG AND CHANGE OF DIRECTION

CONTINUE SPORT SPECIFIC TRAINING - EXERCISES AND TRAINING ACTIVITIES THAT ARE USUAL FOR THE ATHLETE WHEN NOT INJURED

## SUMMARY

MULTIDISCIPLINARY COMMUNICATION BETWEEN PHYSICAL THERAPIST, ATHLETIC TRAINER, COACH, AND SURGEON IS REQUIRED TO CLEAR THE ATHLETE TO RETURN TO PLAY

# GRAFT SELECTION & MENISCUS INVOLVEMENT CONSIDERATIONS

## MENISCUS REPAIR

Weight bearing restrictions vary from Weight Bearing As Tolerated to Partial Weight Bearing depending on the complexity of the meniscus tear  
Brace limited to 0-90 degrees for 4 weeks  
Limit Range of Motion (ROM) 0-90 degrees for 4 weeks  
No tibial rotation for 4 weeks

## BOTH PATELLAR TENDON AND HAMSTRING GRAFTS

Week 1-4: Closed Kinetic Chain (CKC) quadriceps 0-60 degrees  
Week 4-8: CKC quadriceps increase 10 degrees per week until full by week 8  
Week 2-8: Open Kinetic Chain (OKC) quadriceps  
90-45 degrees  
Start with 1 lb, increase 1 lb per week  
Week 8-12: OKC quadriceps  
Gradually increase ROM to full by week 12  
Reduce weight back to 3 lbs while increasing range  
Increase 15 degrees per week until 12, and 3 lbs per week until week 12  
At week 12, you should be at 90-0 degrees and 12 lbs, from there continue to progress 1 lb per week

## HAMSTRING GRAFT

Week 1-4: OKC hamstring isometrics  
Week 4-12: OKC hamstring curls with light resistance, slowly increase resistance until week 12  
Week 4-12: CKC hamstring no heavy resistance until week 12

## PATELLAR / QUADRICEPS TENDON GRAFT

Week 1-4: OKC standing hamstring curls  
Week 4-12: OKC hamstring curls with increasing resistance  
Week 4-12: CKC hamstring progress resistance as tolerated

## ALLOGRAFT

**GO SLOW!!**  
Avoid knee hyperextension and end range knee flexion for 12 weeks  
Running is delayed until 4.5 months **AND** if hop testing is 80%  
Sprinting and agility are delayed until month 5-6 **AND** if patient can run 1 mile consecutively  
Return to sport is delayed until 12 months **AND** if all functional testing is 90%

**IF THE PATIENT IS AN ATHLETE RETURNING TO SPORT AND YOU WISH TO CONTACT US ABOUT OUR *SPEED AND AGILITY PROGRESSIONS* AFTER THE PHYSICAL THERAPY PROTOCOL, PLEASE FEEL FREE TO CONTACT US.**

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**ATTN: BLAKELEY KREIS**

**TRM**  
**UAMS Health**