

<b>UCLA OUTPATIENT REHABILITATION SERVICES</b>	
<b>WESTWOOD</b> 1000 Veteran Ave., A level Phone: (310) 794-1323 Fax: (310) 794-1457	<b>SANTA MONICA</b> 1260 15 <sup>th</sup> St, Ste. 900 Phone: (310) 319-4646 Fax: (310) 319-2269
FOR APPTS, CALL: (310) 794-1323	
FAX: (310) 794-1457	
<b>Place label here</b>	
NAME OF PATIENT: _____	
MRN: _____	

**Kristofer J. Jones, M.D.**

Sports Medicine, Shoulder Surgery and Cartilage Restoration  
 UCLA Department of Orthopaedic Surgery  
 David Geffen School of Medicine at UCLA  
 10833 Le Conte Avenue, 76-143 CHS  
 Los Angeles, CA 90095-6902  
 Phone: (310) 825-6095  
 Fax: (310) 825-1311  
 CA License: A126262

**ACL RECONSTRUCTION PHYSICAL THERAPY PRESCRIPTION**

**Diagnosis: s/p ( LEFT / RIGHT ) ACL Reconstruction;**

<b>Other Procedures:</b>	<b>Meniscus Repair ( Medial / Lateral )</b>
	<b>Meniscectomy ( Medial / Lateral )</b>
	<b>Cartilage Procedure</b>
<b>Graft type:</b> _____	Details:
<b>Surgery Date:</b> _____	_____

**General Information:**

The following ACL rehabilitation guidelines are based on a review of the randomized controlled trials related to ACL rehabilitation. For many aspects of ACL rehabilitation there are either no studies that qualify as best evidence or the number of studies is too few for conclusions to be drawn with confidence. In these circumstances, certain aspects of this protocol are based upon the guidance of the Multi-center Orthopaedic Outcome Network panel (MOON).

The guidelines have been developed to service the spectrum of ACL injured individuals (from non-athlete to elite athlete). For this reason, example exercises are provided instead of a highly structured rehabilitation program. **Attending rehabilitation specialists should tailor the program to each patient's specific needs.**

Some treatment methods with supporting evidence (e.g. using a high intensity electric stimulation training program for strength, aqua-therapy, etc.) are not included in the program because not all therapy sites may have this available.

Progression from one phase to the next is based on the patient demonstrating readiness by achieving **functional criteria rather than the time elapsed since surgery**. The time frames identified in parentheses after each Phase are approximate times for the average patient, NOT guidelines for progression. Some patients will be ready to progress sooner than the time frame identified, where others will take longer.

The *recommended* number of visits to the rehabilitation specialist (including visits merely for evaluation/exercise progression) is **16 to 24 visits** with majority of the visits occupying early **(BIW x 6 weeks)**.

### **Phase 0: Pre-Operative Recommendations**

#### **GOALS:**

- Normal gait
- AROM 0-120°
- Strength: 20 SLR with no lag
- Minimal effusion

Education on post-op exercises & need for compliance  
Educated in ambulation with crutches  
Educated in follow-up expectations  
Wound care instructions

Kristofer J. Jones, M.D.

UCLA Department of Orthopaedic Surgery

### **Phase 1: Immediate Post-Operative Phase (Approx. timeframe Surgery-2 weeks)**

#### **GOALS:**

- Full knee extension ROM
- Good quadriceps control ( $\geq 20$  no lag SLR)
- Normal gait pattern
- Minimize pain
- Minimize swelling

#### **Crutch use:**

- \_\_\_ WBAT with crutches (beginning the day of surgery)
- \_\_\_ ***If meniscal repair:***
- \_\_\_ ***TTWB with brace locked in extension for weeks 0-2, advance to full WB at 2 weeks***

#### **Crutch d/c criteria:**

- \_\_\_ Normal gait pattern (Crutches until 4-6 weeks if meniscal repair)
- \_\_\_ Ability to safely ascend/descend stairs w/o pain/instability
- \_\_\_ Reciprocal stair climbing

#### **Knee Immobilizer:**

- \_\_\_ Brace locked in extension until able to perform SLR independently (1<sup>st</sup> visit)

#### **Cryotherapy:**

- \_\_\_ Cold with compression/elevation (e.g. Cryocuff, ice w/ compressive stocking)
- \_\_\_ 1<sup>st</sup> 24 hours or until acute inflammation is controlled: every hour for 15 minutes
- \_\_\_ After acute inflammation is controlled: 3x per day for 15 minutes
- \_\_\_ Crushed ice in the clinic (post-acute stage until D/C)

### **EXERCISE SUGGESTIONS**

#### **ROM:**

- \_\_\_ Extension: Low load, long duration (5 minutes) stretching

E.g. heel prop, prone hang minimizing co-contraction & nociceptor response

\_\_\_ Flexion: wall slides, heel slides, seated assisted knee flexion

***Flexion limited to 90° to protect meniscal repair if performed***

\_\_\_ Bike: Rocking for range (no resistance, motion-focused)

\_\_\_ Patellar mobilization: medial/lateral mobilization initially followed by superior/inferior direction while monitoring reaction to effusion & ROM

\_\_\_ **Muscle Activation/Strength:**

\_\_\_ Quadriceps sets emphasizing vastus lateralis and vastus medialis activation

\_\_\_ SLR emphasizing no lag

\_\_\_ Electric Stimulation: Optional if unable to perform no lag SLR

D/C use when able to perform 20 no lag SLR

\_\_\_ Double leg quarter squats

\_\_\_ Standing theraband resisted terminal knee extension (TKE)

\_\_\_ Hamstring sets & Hamstring curls

\_\_\_ Side lying hip adduction/abduction (Avoid adduction moment in this Phase with concomitant grade II-III MCL injury)

\_\_\_ Quad/ham co-contraction supine

\_\_\_ Prone hip extension

\_\_\_ Ankle pumps with theraband

\_\_\_ Heel raises (calf press)

\_\_\_ **Cardiopulmonary:**

\_\_\_ UBE or similar exercise is recommended

\_\_\_ **Scar Massage** (only when incision is fully healed)

**CRITERIA FOR PROGRESSION TO PHASE 2:**

- No lag SLR  
Crutch/immobilizer/ D/C

Normal gait

ROM: no greater than 5° active  
extension lag, 110° active flexion

Kristofer J. Jones, M.D.

UCLA Department of Orthopaedic Surgery

**Phase 2: Early Rehabilitation Phase (Approx. timeframe: 2-6 weeks)**

**GOALS:**

- Full ROM  
Improve muscle strength  
Progress neuromuscular retraining

**EXERCISE SUGGESTIONS**

\_\_\_ **ROM:**

\_\_\_ Low load, long duration (assisted prn)

\_\_\_ Heel slides/wall slides

\_\_\_ Heel prop/prone hang (minimize co-contraction/nociceptor response)

\_\_\_ Bike (rocking-for-range riding with low seat height)

\_\_\_ Flexibility stretching all major groups

\_\_\_ **Strengthening:**

\_\_\_ **Quadriceps:**

• Quad sets

Step ups

Leg press

Mini squats/wall squats

Knee extension from 90° to 40°

Shuttle Press *without jumping action*

\_\_\_ **Hamstrings:**

- - Hamstring Curls
- Resistive SLR with sports cord
- - \_\_\_ Hip Musculature: Hip adduction/abduction: SLR or with equipment
    - \_\_\_ Standing heel raises: progress from double to single leg support
    - \_\_\_ Seated calf press against resistance
    - \_\_\_ *Multi hip machine in all directions with proximal pad placement*

\_\_\_ **Neuromuscular training:**

- - \_\_\_ Wobble board
    - \_\_\_ Rocker board
    - \_\_\_ Slide board
    - \_\_\_ Fitter
- \_\_\_ Single leg stance with or without equipment (e.g. instrumented balance System)
- \_\_\_ **Cardiopulmonary:** \_\_\_ Bike \_\_\_ Elliptical Trainer \_\_\_ Stairmaster
- \_\_\_ UBE or similar exercise is recommended

**CRITERIA FOR PROGRESSION TO PHASE 3:**

- - Full ROM
  - Minimal effusion/pain
  - Functional strength and control in daily activities

**PHASE 3: Strengthening & Control Phase (Approx. timeframe: 7-12 weeks)**

**GOALS:**

- - Maintain full ROM
  - Running without pain or swelling
  - Hopping without pain, swelling, or giving way

**EXERCISE SUGGESTIONS**

\_\_\_ **Strengthening:**

- - Squats
    - Hamstring curl
    - Shuttle
- Leg press
- Knee extension 90° to 0°
- Sports cord
- Step ups/down
- Lunges
- Wall squats

\_\_\_ **Neuromuscular training:**

- - Wobble board/rocker board/roller board
  - Instrumented testing systems

Perturbation training

Varied surface

•

\_\_\_ **Cardiopulmonary:**

Straight line running on treadmill or in a protected environment (No cutting or pivoting)

All other cardiopulmonary equipment

**CRITERIA FOR PROGRESSION TO PHASE 4:**

•

Running without pain or swelling

Hopping without pain or swelling (bilateral and unilateral)

Neuromuscular training and strength exercises without difficulty

**PHASE 4: Advanced Training Phase (Approx. timeframe: 13-16 weeks)**

**GOALS:**

•

Running patterns (Figure-8, pivot drills, etc.) at 75% speed w/o difficulty

Jumping w/o difficulty

Hop tests at 75% contra-lateral values (Cincinnati hop tests: single leg hop for distance, triple hop for distance, crossover hop for distance, 6 meter timed hop)

**EXERCISE SUGGESTIONS**

\_\_\_ **Aggressive Strengthening:**

•

Squats

Lunges Plyometrics

\_\_\_ **Agility Drills:**

•

Shuffling

Vertical jumps

Hopping

Carioca

\_\_\_ Running patterns at 50-75% speed (e.g. Figure 8)

\_\_\_ Initial sports specific drill pattern at 50-75% effort

\_\_\_ **Neuromuscular training:**

•

Wobble board/rocker

board/roller board

Instrumented testing systems

Perturbation training

Varied surface

\_\_\_ **Cardiopulmonary:**

Running / Swimming / Elliptical / Biking / Upper Extremity CV Workout

**CRITERIA FOR PROGRESSION TO PHASE 5:**

•

Maximum vertical jump without pain or instability

75% of contra-lateral on hop tests

Figure 8 run at 75% speed without difficulty

**PHASE 5: Return to Sport Phase (Approx. timeframe: 17-20 weeks)**

**GOALS:**

•

85% contra-lateral strength

85% contra-lateral on hop tests

Sport-specific training without pain, swelling, or difficulty

**EXERCISE SUGGESTIONS**

\_\_\_ **Aggressive Strengthening:**

Lunges      Squats  
                 Plyometrics

\_\_\_ **Sport Specific Activities:**

- Interval training programs
- Sprinting
- Pivot and drive in basketball
- Spiking in volleyball

Skill/biomechanical analysis with coaches &  
  sports medicine team  
Running patterns in football  
Change in direction  
Kicking in soccer

**RETURN TO SPORT EVALUATION RECOMMENDATIONS:**

- - \_\_\_ Hop tests: single leg hop, triple hop, cross over hop, 6 meter timed hop
  - \_\_\_ Isokinetic strength test (60°/second)
  - \_\_\_ Deceleration shuttle test

**RETURN TO SPORT CRITERIA:**

- - \_\_\_ No functional complaints
  - \_\_\_ Confidence when running, cutting, jumping at full speed
  - \_\_\_ 85% contra-lateral values on hop tests

**Treatment:** \_\_\_\_\_ **times per week**    **Duration:** \_\_\_\_\_ **weeks**    \_\_\_ **Home Program**

\*\*Please send progress notes.

**Physician's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Kristofer J. Jones, M.D., Attending Orthopaedic Surgeon**