Outpatient Physical Therapy Management of a Female Athlete with a Left Anterior Cruciate Ligament Reconstruction and Left Medial Meniscectomy: A Case Report

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Background

- The anterior cruciate ligament (ACL) is a structure within the knee that prevents anterior translation of the tibia on the femur as well as checks lateral rotation of the tibia and extension of the knee.[1]
- The ACL is typically injured in non-contact sports by a sudden deceleration prior to a change of direction or landing motion.[2]
- Female athletes are more than twice as likely to sustain an injury to the ACL.[3]
- An ACL injury is often accompanied by an injury to the meniscus of the same knee.[4]

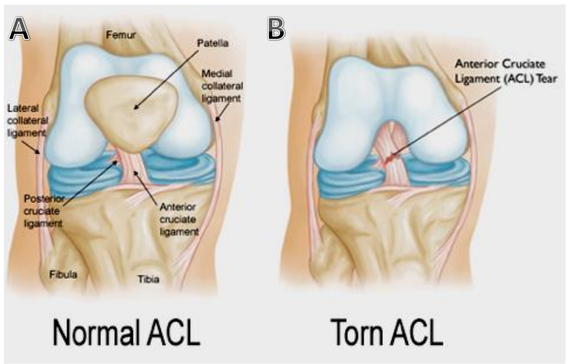

Figure 3
A: Non-injured anterior cruciate ligament in a normal knee with surrounding structures.
B: Torn anterior cruciate ligament.
Available at: http://www.orthopedicsurgerysandiego.com/wp-content/uploads/2014/09/acl-tear-san-diego.png

Purpose

- The purpose of this case report is to provide a comprehensive account of the physical therapy treatment provided to a young female athlete after left anterior cruciate ligament reconstruction.

Patient History

- Patient was an 18 year old female lacrosse and track athlete.
- AS sustained a left ACL and medial meniscus injury while playing lacrosse at the high school level.
- AS underwent a left ACL reconstruction and left medial meniscectomy one prior to the initial evaluation.
- AS has a history of a right ACL injury three years prior to this event which was complicated by an infection after reconstruction.

Examination

Systems Review	
Cardiovascular/Pulmonary	
Not Impaired	
Integumentary	
Impaired	Incision on the anterior left knee over patella- clean and dry.
	Multiple small incisions around left knee from graft and scope sites- clean and dry.
	Bruising along the posterior, lateral, and medial aspects of the knee.
Musculoskeletal	
Impaired	Gross strength impairments of the left knee.
	Gross range of motion impairments of the left knee.
	Gait impaired due to pain and use of knee brace to stop knee flexion.
Neuromuscular	
Impaired	Decreased balance due to pain and impaired strength.
Communication, Affect, Cognition, and Learning Style	
Not Impaired	

Interventions

- Therapeutic exercise
- Neuromuscular reeducation
- Manual therapy
- Coordination, communication, documentation
- Patient instruction

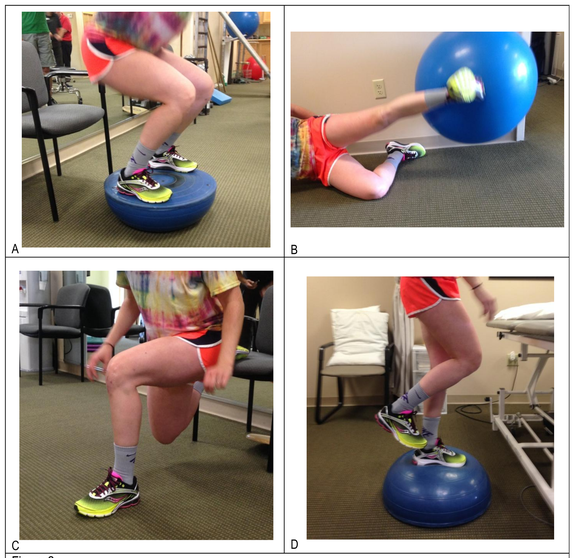

Figure 2
A: Patient performing squat on Bosu ball
B: Patient performing side lying hip abduction with therapy ball
C: Patient performing Rear foot elevated Squat
D: Patient performing single leg balance on Bosu Ball

Goals

Short Term Goals	Long Term Goals
The patient will be able to reach 0 degrees of active knee extension within 6 weeks of starting Physical Therapy.	Patient will be able perform all necessary agility maneuvers and functional activities required to participate in Women's Lacrosse and Track for her college within 6 months.
Patient will be able to reach 140 degrees of active knee flexion within 6 weeks of starting Physical Therapy.	
Patient will have a verbal pain rating no greater than 2/10 during functional activities within 6 weeks.	
Patient will be able to ambulate independently without the aid of crutches or a brace within 6 weeks.	
Patient will be able to reciprocally negotiate stairs independently without an assistive device within 6 weeks.	
Patient will be able to drive without issue and not on any pain medication within 6 weeks.	

Outcomes

Tests and Measures		
	Evaluation	**Discharge**
Active Range of Motion (goniometry)		
Knee Extension AROM	Lacking 5 degrees	0 Degrees
Knee Flexion AROM	30 Degrees (AAROM)	140 Degrees
Joint Mobility		
Patellar Mobility/Tracking	Tracking slightly laterally Limited Mobility	Normal Tracking Normal Mobility
Knee Strength		
Quad Set	1/5	5/5
Quadriceps Manual Muscle Test	Not Performed	-5/5
Hamstrings Manual Muscle Test	Not Performed	-5/5
Sensation		
Light Touch	Left Lower Extremity: Intact	Left Lower Extremity: Intact
Functional Assessment Tool		
Lower Extremity Functional Scale	4/80	56/80
Special Tests		
Homan's Sign	Negative	Negative
Pain		
Numeric Pain Scale	3/10 with nerve block(day 1) 7/10 after nerve block done	0/10

AROM: Active Range of Motion
AAROM: Active Assistive Range of Motion

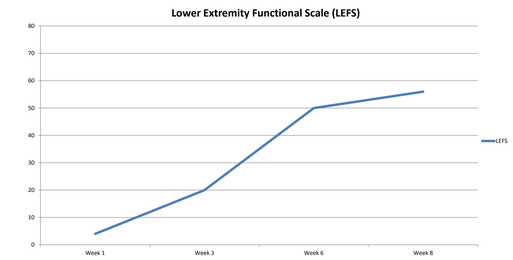

Figure 3

Discussion

- Achieved to normal knee range of motion.
- Achieved nearly full strength in surrounding musculature.
- Increased subjective Lower Extremity Functional Scale from four to fifty six.
- Was still limited by surgeon's protocol but should make full recovery and return to sport with continued rehabilitation.

References

1. Magee DJ. Orthopedic physical assessment. Elsevier Health Sciences; 2008.
2. Boden BP, Dean GS, Feagin JA, Garrett WE. Mechanisms of anterior cruciate ligament injury. Orthopedics. 2000;23(6):573-8.
3.Beynnon BD, Vacek PM, Newell MK, et al. The Effects of level of competition, sport, and sex on the incidence of first-time noncontact anterior cruciate ligament injury. Am J Sports Med. 2014;42(8):1806-1812.
4. Lohmander LS, Englund PM, Dahl LL, Roos EM. The long-term consequence of anterior cruciate ligament and meniscus injuries: osteoarthritis. Am J Sports Med. 2007;35(10):1756-69.