

FUNCTIONAL ASSESSMENT FOLLOWING ACL RECONSTRUCTION

CRITERIA TO START PLYOMETRIC/RUNNING/AGILITY PROGRAM: (should be achieved 10-16 weeks from surgery)

- MMT at least 5/5
- ROM equal to uninvolved side or at least 0-125 degrees
- Normal gait pattern at least 20 minutes without symptoms
- No pain, crepitus, edema or giving way
- Hamstring and quadriceps strength at least 70% of uninvolved LE isokinetically
- Leg press test within 75-80% of uninvolved LE
- Reach test with 75-80% of uninvolved LE
- Lateral step test with 75-80% of uninvolved LE
- Land with good control and correct form on mat jumps
- Clearance from MD

CRITERIA TO RETURN TO SPORTS:

- Completion of running and agility/plyometric program without symptoms and good form
- Isokinetic testing:
 - Quadriceps strength 85-90%
 - Hamstrings 100% for patellar tendon graft, 85% or greater for hamstring tendon graft
 - Quad torque to body weight ratio
 - Males: @180 degrees/sec 65-75%, @300 degrees/sec 45-55%
 - Females: @180 degrees/sec 50-60%, @300 degrees/sec 35-45%
 - Hamstring to Quadriceps ratio 65% or better
- Functional hop tests 85% compared to uninvolved LE
 - Single leg hop for distance, single-leg triple crossover hop, 6 meter timed hop
- Leg press 85% of uninvolved leg
- Vertical jump 85% of uninvolved leg
- Edgren test measuring lateral change of direction looking for knee control, knee position or compensation
 - Excellent < 2.0 seconds
 - Average < 2.5 seconds
 - Needs improvement > 2.6 seconds
- LEFT test
 - Good: Males 90 seconds
Females < 25 years old 100 seconds
Females > 25 years old 120 seconds
 - Average: Males 100 seconds
Females < 25 years old 101 seconds
Females > 25 years old 121 seconds
 - Below average: Males 125 seconds
Females < 25 years old 140 seconds
Females > 25 years old 180 seconds

Patient:

Date of surgery:

Date of test:

HOP TESTS:

TEST	PARAMETER	UNINVOLVED	INVOLVED	% DEFICIT
Single leg hop for distance	Distance in inches	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	
Single leg 20 ft crossover hop	Time in seconds	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	
Single leg 20 ft timed hop	Time in seconds	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	
Single leg Vertical Jump	Distance in inches	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	

STRENGTH TESTS:

TEST	PARAMETER	UNINVOLVED	INVOLVED	% DEFICIT
Isokinetic testing	% of uninvolved lower extremity			-Quadriceps -Hamstrings
Isokinetic testing	Quad torque to body weight ratio		@180 degrees/sec: @300 degrees/sec:	
Leg press	1 rep max comparing to uninvolved lower extremity			

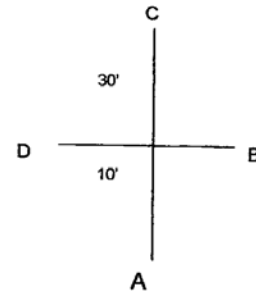
FUNCTIONAL TESTS:

TEST	PARAMETER	UNINVOLVED	INVOLVED	% DEFICIT
Excursion test forward reach	Distance in inches	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	
Excursion test lateral reach	Distance in inches	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	Trial 1 _____ Trial 2 _____ Trial 3 _____ Mean= _____	
Lateral Step test	# of heel touches in 15 sec off a 6 inch step			
LEFT test (see attached form and grading scale)	Time in seconds			
Modified Edgren Test	Time in seconds			

SUMMARY:

RECOMMENDATIONS:

LEFT Test



Procedure:

1. Forward sprint (A-C-A)
2. Retro sprint (A-C-A)
3. Side shuffle right (A-B-C-D-A)
4. Side shuffle left (A-D-C-B-A)
5. Carioca right (A-B-C-D-A)
6. Carioca left (A-D-C-B-A)
7. Figure 8s right (A-B-C-D-A)
8. Figure 8s left (A-D-C-B-A)
9. 45 degree cuts right – plant outside foot (A-B-C-D-A)
10. 45 degree cuts left – plant outside foot (A-D-C-B-A)
11. 90 degree cuts right – plant outside foot (A-B-D-A)
12. 90 degree cuts left – plant outside foot (A-D-B-A)
13. Cross over 90 degree cuts right – plant inside foot (A-B-D-A)
14. Cross over 90 degree cuts left – plant inside foot (A-D-B-A)
15. Forward sprint (A-C-A)
16. Retro sprint (A-C-A)

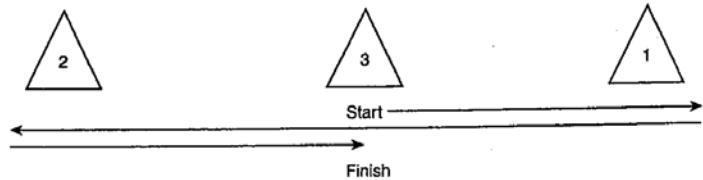
Norms

Males	Females < 25 yoa	Females >25 yoa
90 sec – good	100 sec – good	120 sec – good
100 sec – avg	120 sec – avg	150 sec – avg
125 sec – below avg	140 sec – below avg	180 sec – below avg

Reference: Tabor et al, 1998 (abstract)
Gundersan Lutheran sports medicine

Modified Edgren Test

Equipment: Three cones and a stopwatch. Place two cones 12-feet apart and one cone in the center.



In this example, the athlete *starts by shuffling right* from the center cone. This means he or she covers only a 6-foot distance before changing direction and shuffling left to cone 2. In the above example, the greater challenge will be to change direction at cone 2 after shuffling the full 12-foot distance. It is important to test the athlete starting in both directions and note any differences. Differences could be quantitative, or numbers-based (time) or qualitative, such as "awkward arm movements" or poor control of the body's center of gravity. The Edgren Side-Step test is performed as follows:

1. The athlete shuffles right and touches the base of the cone with his or her right hand.
2. Then the athlete shuffles left past the center cone and touches the base of cone 2 with his or her left hand.
3. Then the athlete shuffles right and finishes at the center cone (cone 3).

The athlete's foot needs to pass the lateral cones when shuffling left/right. The clock starts on his or her first move and stops when his or her foot passes the center cone at the finish. Perform this test initiating both right and left directions. The difference should not be greater than 0.2 second.

Rate	Score
Excellent	≤2.0 seconds
Average	≤2.5 seconds
Needs Improvement	>2.6 seconds

Reference: Sports Specific Rehabilitation
Robert Donatelli