

**RETURN-TO-PLAY CHECKLIST AFTER ACL RECONSTRUCTION - SUMMARY**

Name:	Date:
DOB / Age:	Evaluator:
Date of Surgery:	Graft: <input type="checkbox"/> BTB Auto <input type="checkbox"/> HS auto <input type="checkbox"/> Allograft
Months Post-Op: <input type="checkbox"/> 5 mo <input type="checkbox"/> 6 mo <input type="checkbox"/> 7 mo <input type="checkbox"/> 8 mo <input type="checkbox"/> 9 mo Other _____	Other: _____ Affected Side: <input type="checkbox"/> Right <input type="checkbox"/> Left

**PHYSICAL EXAM**

Effusion	Range-of-Motion	Lachman	Thigh circumference
<input type="checkbox"/> None <input type="checkbox"/> Trace <input type="checkbox"/> Mild <input type="checkbox"/> Moderate	<input type="checkbox"/> Full extension <input type="checkbox"/> Lack of $\leq 5^\circ$ <input type="checkbox"/> Lack of $\geq 10^\circ$  <input type="checkbox"/> Full flexion <input type="checkbox"/> Lack of $\leq 5^\circ$ <input type="checkbox"/> Lack of $\geq 10^\circ$	<input type="checkbox"/> Negative <input type="checkbox"/> 1+ <input type="checkbox"/> 2+	Right (cm)
			Left (cm)
			Difference (cm)

IKDC Subjective Knee Evaluation  
Total \_\_\_\_\_

FUNCTIONAL MOVEMENT SCREEN  
Composite score \_\_\_\_\_

**HOP TESTS**

	Limb Symmetry Index
Single hop	
Timed hop	
Triple hop	
Cross-over hop	

**PRO AGILITY**

Uninvolved side (sec) \_\_\_\_\_  
Involved side (sec) \_\_\_\_\_  
Difference (%) \_\_\_\_\_

**MOVEMENT ASSESSMENT**

Total, uninvolved side: \_\_\_\_\_  
Total, involved side \_\_\_\_\_  
Difference (%) \_\_\_\_\_

**CRITERIA FOR RETURN TO PLAY**

- |   |                               |                               |
|---|-------------------------------|-------------------------------|
| 1. No or minimal effusion, full ROM, no instability | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 2. Thigh circumference < 1.5 cm difference          | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 3. IKDC $\geq 90\%$                                 | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 4. FMS $\geq 14$                                    | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 5. LSI $\geq 90\%$ for all 4 hop tests              | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 6. Pro agility $\geq 90\%$                          | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |
| 7. Movement assessment $\geq 80\%$                  | <input type="checkbox"/> PASS | <input type="checkbox"/> FAIL |

NOTES: \_\_\_\_\_  
\_\_\_\_\_

Patient: \_\_\_\_\_

Involved Side: L R

### SCORING WORKSHEET

#### HOP TESTS

	L	SLH	R	L	6MTH	R	L	SLTHD	R	L	CHFD	R
Trial 1												
Trial 2												
Avg												
Inv/uninv												

#### MOVEMENT ASSESSMENT (*To be observed during Hop Tests*)

	L	SLH	R	L	6MTH	R	L	SLTHD	R	L	CHFD	R	L	DROP	R
Hip Stability															
Shock Absorption															
Hip Strategy															
Pelvic Stability															
Trunk Stability															

#### FUNCTIONAL MOVEMENT SCREEN

Test	Raw Score	Final Score
Deep Squat		
Hurdle Step L		
Hurdle Step R		
Inline Lunge L		
Inline Lunge R		
Shoulder L		
Shoulder R		
Impingement L		
Impingement R		
Active SLR L		
Active SLR R		
Trunk Stability		
Press-Up		
Rotary L		
Rotary R		
Posterior Rocking		
<b>TOTAL</b>		

Patient: \_\_\_\_\_

Involved Side: L R

## 2000 IKDC SUBJECTIVE KNEE EVALUATION FORM (POSTOP)

### ***SYMPTOMS\*:***

\*Grade symptoms at the highest activity level at which you think you could function without significant symptoms, even if you are not actually performing activities at this level.

#### **1. What is the highest level of activity that you can perform without significant knee pain?**

- 4  Very strenuous activities like jumping or pivoting as in basketball or soccer
- 3  Strenuous activities like heavy physical work, skiing or tennis
- 2  Moderate activities like moderate physical work, running or jogging
- 1  Light activities like walking, housework or yard work
- 0  Unable to perform any of the above activities due to knee pain

#### **2. During the past 4 weeks, or since your surgery, how often have you had pain?**

- 0 1 2 3 4 5 6 7 8 9 10  
Never             Constant

#### **3. If you have pain, how severe is it?**

- 0 1 2 3 4 5 6 7 8 9 10 Worst pain  
No pain             imaginable

#### **4. During the past 4 weeks, or since your surgery, how stiff or swollen was your knee?**

- 4  Not at all
- 3  Mildly
- 2  Moderately
- 1  Very
- 0  Extremely

#### **5. What is the highest level of activity you can perform without significant swelling in your knee?**

- 4  Very strenuous activities like jumping or pivoting as in basketball or soccer
- 3  Strenuous activities like heavy physical work, skiing or tennis
- 2  Moderate activities like moderate physical work, running or jogging
- 1  Light activities like walking, housework, or yard work
- 0  Unable to perform any of the above activities due to knee swelling

#### **6. During the past 4 weeks, or since your surgery, did your knee lock or catch?**

- 0  Yes 1  No

Patient: \_\_\_\_\_

Involved Side: L R

**7. What is the highest level of activity you can perform without significant giving way in your knee?**

- 4  Very strenuous activities like jumping or pivoting as in basketball or soccer
- 3  Strenuous activities like heavy physical work, skiing or tennis
- 2  Moderate activities like moderate physical work, running or jogging
- 1  Light activities like walking, housework or yard work
- 0  Unable to perform any of the above activities due to giving way of the knee

**SPORTS ACTIVITIES:**

**8. What is the highest level of activity you can participate in on a regular basis?**

- 4  Very strenuous activities like jumping or pivoting as in basketball or soccer
- 3  Strenuous activities like heavy physical work, skiing or tennis
- 2  Moderate activities like moderate physical work, running or jogging
- 1  Light activities like walking, housework or yard work
- 0  Unable to perform any of the above activities due to knee

**9. How does your knee affect your ability to:**

		Not difficult at all	Minimally difficult	Moderately Difficult	Extremely difficult	Unable to do
a.	Go up stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Go down stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Kneel on the front of your knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	Squat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	Sit with your knee bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	Rise from a chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	Run straight ahead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	Jump and land on your involved leg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	Stop and start quickly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		4	3	2	1	0

**FUNCTION:**

**10. How would you rate the function of your knee on a scale of 0 to 10 with 10 being normal, excellent function and 0 being the inability to perform any of your usual daily activities which may include sports?**

FUNCTION PRIOR TO YOUR KNEE SURGERY:

Cannot perform daily activities 0  1  2  3  4  5  6  7  8  9  10 No limitation in daily activities

CURRENT FUNCTION OF YOUR KNEE:

Cannot perform daily activities 0  1  2  3  4  5  6  7  8  9  10 No limitation in daily activities

Patient: \_\_\_\_\_

Involved Side: L R

### Scoring Instructions for the 2000 IKDC Subjective Knee Evaluation Form

Several methods of scoring the IKDC Subjective Knee Evaluation Form were investigated. The results indicated that summing the scores for each item performed as well as more sophisticated scoring methods.

The responses to each item are scored using an ordinal method such that a score of 0 is given to responses that represent the lowest level of function or highest level of symptoms. For example, item 1, which is related to the highest level of activity without significant pain is scored by assigning a score of 0 to the response "Unable to perform any of the above activities due to knee pain" and a score of 4 to the response "Very strenuous activities like jumping or pivoting as in basketball or soccer". **For item 2, which is related to the frequency of pain over the past 4 weeks, the responses are reverse-scored such that "Constant" is assigned a score of 0 and "Never" is assigned a score of 10. Similarly, for item 3, the responses are reversed-scored such that "Worst pain imaginable" is assigned a score of 0 and "No pain" is assigned a score of 10.** Note: previous versions of the form had a minimum item score of 1 (for example, ranging from 1 to 11). In the most recent version, all items now have a minimum score of 0 (for example, 0 to 10). To score these prior versions, you would need to transform each item to the scaling for the current version.

The IKDC Subjective Knee Evaluation Form is scored by summing the scores for the individual items and then transforming the score to a scale that ranges from 0 to 100. **Note:** The response to item 10a "Function Prior to Knee Injury" is not included in the overall score. To score the current form of the IKDC, simply add the score for each item (the small number by each item checked) and divide by the maximum possible score which is 87:

$$IKDC = \left[ \frac{\text{Sum of Items}}{\text{Maximum Possible Score}} \right] \times 100$$

The transformed score is interpreted as a measure of function such that higher scores represent higher levels of function and lower levels of symptoms. A score of 100 is interpreted to mean no limitation with activities of daily living or sports activities and the absence of symptoms.

The IKDC Subjective Knee Form score can be calculated when there are responses to at least 90% of the items (i.e. when responses have been provided for at least 16 items). In the original scoring instructions for the IKDC Subjective Knee Form, missing values are replaced by the average score of the items that have been answered. However, this method could slightly over- or under-estimate the score depending on the maximum value of the missing item(s) (2, 5 or 11 points). Therefore, in the revised scoring procedure for the current version of a form with up to two missing values, the IKDC Subjective Knee Form Score is calculated as (sum of the completed items) / (maximum possible sum of the completed items) \* 100. This method of scoring the IKDC Subjective Knee Form is more accurate than the original scoring method.

A scoring spreadsheet is also available at: [www.sportsmed.org/research/index.asp](http://www.sportsmed.org/research/index.asp). This spreadsheet uses the current form scores and the revised scoring method for calculating scores with missing values.

Patient: \_\_\_\_\_

Involved Side: L R

### Instructions for ACL Return-to-Play Testing

#### PHYSICAL EXAM

Thigh circumference (bilateral)

- Measured 8 cm proximal to superior pole of patella, to nearest cm

#### HOP TESTS

General rules

1. Perform tests in the order in which they appear
2. Give one practice trial for each limb
3. No restrictions are given on arm movement
4. Begin with non-operated leg
5. Start with lead toe behind marked line
6. Measure to nearest tenth of a second (stopwatch) or nearest cm (tape measurer)
7. A failed jump consists of loss of balance, touching the floor with arms or opposite leg, or an additional short hop upon landing
8. Perform two alternating trials on each limb and average them
9. To calculate the Limb Symmetry Index (LSI), average the two recorded trials on each limb; divide the operative limb average by the non-operative limb average; multiply by 100

Single hop for distance (cm)

- Stand on one limb and hop as far forward as possible, landing on the same limb
- Maintain the landing for a minimum of 2 seconds while the toe measurement is recorded

Timed hop (sec)

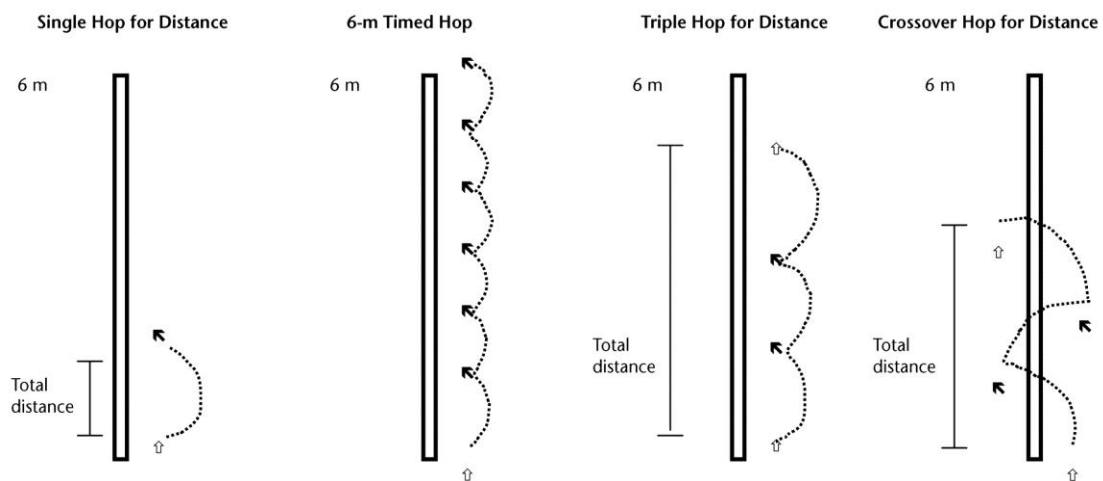
- Perform large one-legged hops in series over a distance of 6 meters

Triple hop for distance (cm)

- Perform 3 hops as far as possible and land on the same leg
- Maintain the landing for a minimum of 2 seconds while the toe measurement is recorded

Cross-over hop for distance (cm)

- Perform 3 hops as far as possible crossing over a 15 cm-wide strip, marking on each hop
- The first of the 3 hops is lateral with respect to the direction of the crossover
- Maintain landing after the 3rd hop for 2 seconds



Patient: \_\_\_\_\_

Involved Side: L R

### MOVEMENT ASSESSMENT

- Evaluate:
  - All 4 hop tests
  - Drop jump: Stand on 12-inch box and jump off. Stick landing on 2 feet. Perform 3 reps. Check off any observed movement patterns
- 1. Hip stability
  - a. Adequate (2): Maintains knee in a neutral position, patella facing toe position (no femoral adduction or internal rotation)
  - b. Borderline (1): Mild deviation from neutral, knee valgus position to medial malleolus
  - c. Inadequate (0): Moderate deviation from neutral, knee valgus position past medial malleolus
- 2. Shock absorption
  - a. Adequate (2): Demonstrates landing soft on flexed knee of > 45°
  - b. Borderline (1): Demonstrates either hard landing or flexed knee 45-30°
  - c. Inadequate (0): Demonstrates hard landing and with less than 30° knee flexion
- 3. Hip strategy
  - a. Adequate (2): Demonstrates landing with posterior weight shift (hips flexed, knees behind toes)
  - b. Borderline (1): Demonstrates knees forward from toes and flexed trunk past 45°
  - c. Inadequate (0): Lacks hip flexion, heels off floor, anterior weight shift, loss of balance
- 4. Pelvic stability
  - a. Adequate (2): Pelvis stays level without lateral hip drop or anterior pelvic tilt
  - b. Borderline (1): Pelvis drops slightly out of neutral
  - c. Inadequate (0): Pelvis drops significantly out of neutral, loss of balance
- 5. Trunk stability
  - a. Adequate (2): Maintains upright trunk position, without excessive frontal or sagittal plane motion
  - b. Borderline (1): Trunk leans forward or to side as compensation
  - c. Inadequate (0): Trunk leans both forward and to side as compensation, loss of balance

### FUNCTIONAL MOVEMENT SCREEN

1. Deep squat
  - a. Score 3
    - i. Upper torso is parallel with tibia or toward vertical
    - ii. Femur below horizontal
    - iii. Knees aligned over feet
  - b. Score 2 (performed with heels on 2x6 inch board)
    - i. Upper torso is parallel with tibia or toward vertical
    - ii. Femur below horizontal
    - iii. Knees aligned over feet
    - iv. Dowel aligned over feet
  - c. Score 1 (performed with heels on 2x6 inch board)
    - i. Any of the 4 criteria are not met with squat is performed with heels on a 2x6 inch board
  - d. Score 0: Pain during test
2. Hurdle step\*
  - a. Score 3
    - i. Foot clears cord and remains dorsiflexed as leg is lifted over hurdle
    - ii. Hips, knees, and ankles remain aligned in sagittal plane
    - iii. Minimal to no movement in lumbar spine
    - iv. Dowel and hurdle remain parallel

Patient: \_\_\_\_\_

Involved Side: L R

- b. Score 2
    - i. Alignment is lost between hips, knees, and ankles
    - ii. Movement is noted in lumbar spine
    - iii. Dowel and hurdle do not remain parallel
  - c. Score 1
    - i. Contact between foot and hurdle
    - ii. Loss of balance is noted
  - d. Score 0: Pain during test
3. In-line lunge\*
- a. Score 3
    - i. Knee touches board behind heel
    - ii. Dowel and feet remain in sagittal plane
    - iii. Dowel contacts remain (head, thoracic spine, sacrum)
    - iv. Dowel remains vertical; no torso movement noted
  - b. Score 2
    - i. Knee does not touch behind heel
    - ii. Dowel and feet do not remain in sagittal plane
    - iii. Dowel contacts do not maintain
    - iv. Dowel remains vertical
    - v. Movement is noted in torso
  - c. Score 1
    - i. Loss of balanced is noted
    - ii. Inability to achieve start position
    - iii. Inability to touch knee to board
  - d. Score 0: Pain during test
4. Shoulder mobility\*
- a. Score 3: Fists are within 1 hand length
  - b. Score 2: Fists are within 1.5 hand lengths
  - c. Score 1: Fists are not within 1.5 hand lengths
  - d. Score 0
    - i. Pain during test
    - ii. Shoulder mobility clearing test: if pain is noted as elbow is lifted, shoulder mobility is scored as as 0
5. Active straight leg raise\*
- a. Score 3
    - i. Malleolus of tested lower extremity located in the region between mid-thigh and ASIS of opposite lower extremity
    - ii. Opposite hip remains neutral (does not externally rotate); toes remain pointing up
    - iii. Opposite knee remains in contact with board
  - b. Score 2
    - i. Malleolus of tested lower extremity located in the region between mid-thigh and knee joint line of opposite lower extremity while other criteria are met
  - c. Score 1
    - i. Malleolus of tested lower extremity located in the region below knee joint line of opposite lower extremity while other criteria are met
  - d. Score 0: Pain during test
6. Trunk stability push-up
- a. Score 3
    - i. Thumbs are aligned with forehead for males and chin for females
    - ii. Body is lifted as 1 unit with no sag in lumbar spine
  - b. Score 2
    - i. Thumbs are aligned with chin for males and clavicle for females



Patient: \_\_\_\_\_

Involved Side: L R

- ii. Body is lifted as 1 unit with no sag in lumbar spine
  - c. Score 1
    - i. Unable to perform 1 repetition with thumbs aligned with chin for males or clavicle for females
  - d. Score 0
    - i. Pain during test
    - ii. Extension clearing test: if pain is noted during a prone press-up, trunk stability push up is scored as 0
- 7. Rotational stability\*
  - a. Score 3
    - i. 1 unilateral repetition (lift arm and leg from same side of body)
    - ii. Keep spine parallel to board
    - iii. Knee and elbow touch in line over the board and then return to the start position
  - b. Score 2
    - i. 1 diagonal repetition (lift arm and leg from opposite sides of body)
    - ii. Keep spine parallel to board
    - iii. Knee and elbow touch in line over the board and then return to the start position
  - c. Score 1
    - i. Inability to perform diagonal repetition
  - d. Score 0
    - i. Pain during test
    - ii. Flexion clearing test: if pain is noted during quadruped flexion, rotational stability is scored as a 0

For component tests that are scored for both the right and left sides (marked with \*), the lower score (final score) is used when calculated the FMS composite score.

#### PRO AGILITY

- Start – Set up three cones, 5 yards apart with middle cone on a line. Begin at middle cone with both feet staggering the line and one hand on the ground
- Action – Sprint 5 yards to one side (uninvolved first) to an outside cone, touch ground with that hand. Turn and sprint 10 yards in opposite direction to far cone
- Finish- Touch ground with same hand, sprint back through the middle cone
- First test uninvolved leg by sprinting in that direction and touching only with that hand through the entire test
- Then test involved leg, touching with the involved side hand
- Time the run to the nearest tenth of a second

