

## **KNEE OUTCOME SURVEY**

### **Activities of Daily Living Scale Sports Activity Scale**

Irrgang JJ, Snyder-Mackler L, Wainner RS, Fu FH, Harner CD. Development of a patient-reported measure of function of the knee. *Journal of Bone & Joint Surgery - American Volume* 1998; 80-A(8):1132-1145.

## Psychometric Properties

The Knee Outcome Survey is a patient self report survey that includes an Activities of Daily Living Scale (ADLS) and a Sports Activity Scale (SAS). The ADLS is a 14 item scale that queries patients about how their knee symptoms effect their ability to perform general daily activities (6 items) as well as how their knee condition effects their ability to perform specific functional tasks (8 items). Each item is scored 0-5 with 5 indicating “no difficulty” and 0 representing “unable to perform”. The highest possible score is 70. The scores of all items are summed, divided by 70, then multiplied by 100 to give an overall ADLS percent rating. Higher percentages reflect higher levels of functional ability. This scale would be appropriate for patients who either do not participate in sports or recreational activities or for those who have not yet progressed to performing these activities.

The SAS is an 11 item scale that queries patients about how their symptoms effect their ability to perform sports and recreational activities (7 items) as well as how their knee condition effects their ability to perform specific sports related skills such as straight running, jumping and landing, quick stopping and starting, cutting and pivoting (4 items). The scoring is similar to the ADLS in that each item is scored 0-5. The highest possible score is 55 and the sum of scores is divided by 55 and multiplied by 100 to give an overall SAS percent rating. Higher percentage ratings reflect higher levels of sports and recreational function. This scale was developed to assess higher levels of physical function for patients with knee pathology.

### Measurement Characteristics

The ADLS demonstrated high test-retest reliability in 52 subjects with knee pathology. The ICC score for test-retest reliability over a 24 hour period was .97. Construct validity was determined through correlations with the Lysholm Knee Scale ( $r = .78$  to  $.86$ ) and a global rating of knee function ( $r = .66$  to  $.75$ ) in a sample of 397 patients with a variety of knee pathologies (ligament and meniscal injuries, patellofemoral pain, osteoarthritis). Responsiveness was determined by examining change scores in the ADLS at 1 week, four weeks, and 8 weeks of rehabilitation. ADLS scores improved significantly at each of these time periods. The standard error of measurement was approximately  $\pm 5$  scale points, which would translate into a clinically meaningful change score of approximately 10 scale points. We have recently determined the minimum clinically meaningful change score in a sample of patients with patellofemoral pain syndrome to be 7 points. The measurement characteristics for the SAS have not yet been reported.

## Knee Outcome Survey Activities of Daily Living Scale (ADLS).

**Symptoms:** To what degree does each of the following symptoms affect your level of activity? (check one answer on each line)

	I do not have the symptom	I have the symptom, but it does not affect my activity	The symptom affects my activity slightly	The symptom affects my activity moderately	The symptom affects my activity severely	The symptom prevents me from all daily activity
Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stiffness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Giving way, buckling, or shifting of the knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weakness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Limping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Functional Limitations With Activities of Daily Living:** How does your knee affect your ability to: (check one answer on each line)

	Activity is not difficult	Activity is minimally difficult	Activity is somewhat difficult	Activity is fairly difficult	Activity is very difficult	I am unable to do the activity
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Walk</u>						
Go up stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Go down stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kneel on front of your knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Squat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sit with your knee bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rise from a chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Scoring:** The first column is scored 5 points for each item, followed in successive columns by scores of 4, 3, 2, 1, and 0 for the last column. The total points from all items are summed, then divided by 70 and multiplied by 100 for the ADLS score. For example, if the individual places marks for 12 items in the first column, and 2 items in the second column the total points would be  $12 \times 5 = 60$  points, plus  $2 \times 4 = 8$  points, for a total of 68 points. The ADLS score would then be  $68/70 \times 100 = 97\%$ .

## Knee Outcome Survey Sports Activities Scale (SAS).

**Symptoms:** To what degree does each of the following symptoms affect your level of sports activity?  
(check one answer on each line)

	Never have	Have, but does not affect my sports activity	Affects sports activity slightly	Affects sports activity moderately	Affects sports activity severely	Prevents me from all sports activity
Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grinding or grating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stiffness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slipping or partial giving way of knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buckling or full giving way of knee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weakness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Functional Limitations With Sports Activities:** How does your knee affect your ability to: (check one answer on each line)

	Not difficult at all	Minimally difficult	Somewhat difficult	Fairly difficult	Very difficult	Unable to do
Run straight ahead	<input type="checkbox"/>					
Jump and land on your involved leg	<input type="checkbox"/>					
Stop and start quickly	<input type="checkbox"/>					
Cut and pivot on your involved leg	<input type="checkbox"/>					

**Scoring:** The first column is scored 5 points for each item, followed in successive columns by scores of 4, 3, 2, 1, and 0 for the last column. The total points from all items are summed, then divided by 55 and multiplied by 100 for the SAS score. For example, if the individual places marks for 9 items in the first column, and 2 items in the second column the total points would be  $9 \times 5 = 45$  points, plus  $2 \times 4 = 8$  points, for a total of 53 points. The SAS score would then be  $53/55 \times 100 = 96\%$ .