Shoulder / Elbow / Hand Pain and Disability Index

Name _____ Date _____ Patient #:_____

Please answer each question by checking the appropriate line that most applies to you.

How much difficulty do you have?	**UNABLE TO DO**	**ABLE TO DO WITH PAIN**	**NO DIFFICULTY OR PAIN**
1. Washing your hair?	_____	_____	_____
2. Washing your back?	_____	_____	_____
3. Putting on undershirt or pullover sweater?	_____	_____	_____
4. Putting on a shirt that buttons down the front?	_____	_____	_____
5. Putting on your pants?	_____	_____	_____
6. Placing an object on a high shelf or in a high cabinet?	_____	_____	_____
7. Carrying heavy objects (i.e., gallon of milk, bag of groceries / back pack, etc.)	_____	_____	_____
8. Removing something from your back pocket?	_____	_____	_____
9. Putting on / taking off a bra / belt (circle)?	_____	_____	_____
10. Emptying the dishwasher?	_____	_____	_____
11. Turning a door knob or key?	_____	_____	_____
12. Lifting a full cup of coffee or glass of milk to your mouth?	_____	_____	_____
13. Opening a jar?	_____	_____	_____
14. Buttoning buttons / tying shoelaces?	_____	_____	_____

Occupational therapy goals: _____

_____

_____

_____

Reference: Modified from;
Williams, J.W., Holleman, D.R., Simel, D.L. (1995). Measuring shoulder function with the shoulder pain and disability index. Journal of Rheumatology, 22, 727-732. Roach, K.E., Budiman-mak E., Songsirideg, N., Youngsuk, L., (2001). Development of a shoulder pain and disability index. Arthritis and Research, 4, 143-149.

Shoulder Pain and Disability Index (SPADI)

Source: Roach KE, Budiman-Mak E, Songsiridej N, Lertratanakul Y. Development of a shoulder pain and disability index. *Arthritis Care Res*. 1991 Dec;4(4):143-9.

The Shoulder Pain and Disability Index (SPADI) is a self-administered questionnaire that consists of two dimensions, one for pain and the other for functional activities. The pain dimension consists of five questions regarding the severity of an individual's pain. Functional activities are assessed with eight questions designed to measure the degree of difficulty an individual has with various activities of daily living that require upper-extremity use. The SPADI takes 5 to 10 minutes for a patient to complete and is the only reliable and valid region-specific measure for the shoulder.

Scoring instructions

To answer the questions, patients place a mark on a 10cm visual analogue scale for each question. Verbal anchors for the pain dimension are ‘no pain at all’ and ‘worst pain imaginable’, and those for the functional activities are ‘no difficulty’ and ‘so difficult it required help’. The scores from both dimensions are averaged to derive a total score.

Interpretation of scores

Total pain score: _____/ 50 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 40)

Total disability score: _____/ 80 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 70)

Total Spadi score: _____/ 130 x 100 = %

(Note: If a person does not answer all questions divide by the total possible score, eg. if 1 question missed divide by 120)

The means of the two subscales are averaged to produce a total score ranging from 0 (best) to 100 (worst).

Minimum Detectable Change (90% confidence) = 13 points

(Change less than this may be attributable to measurement error)

Shoulder Pain and Disability Index (SPADI)

Please place a mark on the line that best represents your experience during the last week attributable to your shoulder problem.

Pain scale

How severe is your pain?

Circle the number that best describes your pain where: 0 = no pain and 10 = the worst pain imaginable.

At its worst?	0	1	2	3	4	5	6	7	8	9	10
When lying on the involved side?	0	1	2	3	4	5	6	7	8	9	10
Reaching for something on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Touching the back of your neck?	0	1	2	3	4	5	6	7	8	9	10
Pushing with the involved arm?	0	1	2	3	4	5	6	7	8	9	10

Disability scale

How much difficulty do you have?

Circle the number that best describes your experience where: 0 = no difficulty and 10 = so difficult it requires help.

Washing your hair?	0	1	2	3	4	5	6	7	8	9	10
Washing your back?	0	1	2	3	4	5	6	7	8	9	10
Putting on an undershirt or jumper?	0	1	2	3	4	5	6	7	8	9	10
Putting on a shirt that buttons down the front?	0	1	2	3	4	5	6	7	8	9	10
Putting on your pants?	0	1	2	3	4	5	6	7	8	9	10
Placing an object on a high shelf?	0	1	2	3	4	5	6	7	8	9	10
Carrying a heavy object of 10 pounds (4.5 kilograms)	0	1	2	3	4	5	6	7	8	9	10
Removing something from your back pocket?	0	1	2	3	4	5	6	7	8	9	10

CHAPTER 26

Knee-Rating Scales for Clinical Outcome

Robert G. Marx

KNEE-RATING SCALES FOR CLINICAL OUTCOME

The evaluation of orthopedic surgical treatments dates back to the beginning of the specialty. Traditionally, measures of success after surgery were based on physical examination and radiographic parameters. Since the 1980s, outcome assessment after orthopedic surgery has focused increasingly on the patient's perspective. While this evolution toward the incorporation of patient-based measures is appropriate, traditional measures of outcome, including physical examination, imaging studies, and measures of knee laxity, are complimentary and should not be viewed as unnecessary.

Knee surgery is generally performed for symptoms and disability. Pain is the most common symptom for which surgery is performed. Disability varies among patients who undergo knee surgery and depends to a large extent on the individual. Disability for an elite athlete may involve inability to perform at their desired level of competition. For an elderly individual with knee arthrosis, disability may involve difficulties with activities of daily living or walking.

The objective of treatment must be taken into account when selecting a measure with which to evaluate an orthopedic procedure or treatment. If an inappropriate outcome is used to evaluate the result of anterior cruciate ligament (ACL) reconstruction or total knee arthroplasty (TKA), incorrect treatment decisions may be made for future patients. It is therefore critical to use measures of clinical outcome that are of importance to the patients who are evaluated, while also being relevant to the surgeon.

This chapter discusses measures of clinical outcome that may be used to evaluate different treatments for patients with disorders of the knee. The measurement properties of reliability, validity, and responsiveness are reviewed. Last, general health status measures, joint and condition-specific instruments, and measures of activity level are reviewed.

Reliability, Validity, and Responsiveness

A measure of any kind is only useful if it is reproducible (reliable) and accurate (valid). In the assessment of health status, measures must also be able to detect improvement or worsening (termed *responsiveness* or *sensitivity to change*). This section is devoted to the concepts of reliability, validity, and responsiveness.

Reliability

An instrument is reliable if it is measuring something in a reproducible fashion (1). *Reliability* is also known as *reproducibility*, because repeated administrations of the same questionnaire to stable patients should produce more or less the same results (2).

There are two schools of thought with respect to the measurement of reliability for health status instruments. The first is test-retest reliability, which involves having patients who are in a stable state respond to the questionnaire at two points in time. The time period must not be too short, because the subject will remember their prior responses. As well, the time period must not be too prolonged, which will allow for the possibility of clinical change. In general, a time period ranging from 2 days to 2 weeks is used.

Measures of agreement, such as the intraclass correlation coefficient (3) or the limits of agreement statistic (4–6), or both, are typically used to compare the scores (7). The intraclass correlation coefficient is an index of concordance for dimensional

measurements ranging between zero and one, where 0.75 or more is adequate for patients enrolled in a clinical trial (8). This statistic is important to differentiate from measures of correlation, such as the Spearman or Pearson correlation coefficients, which do not measure agreement. These statistics may indicate excellent correlation in situations in which agreement is poor, and, therefore, they should not be used for studies of reliability. For example, if the first measure is twice as high as the second measure for all subjects in a study of reliability, the correlation would be perfect but the agreement would be poor.

The limit of agreement statistic is a descriptive measure of reproducibility. This value is the mean difference between the two tests +/– 2 standard deviations (5). Ninety-five percent of the differences between the two test administrations will lie within this interval (5), providing the investigator with an estimate of the precision of the measure.

Internal consistency is another method for measuring the reliability of rating scales. This concept was borrowed by clinicians from the field of psychometrics. The latter discipline involves the measurement of psychologic phenomena (e.g., depression or anxiety) or educational achievement (9).

The concepts evaluated by psychometric scales are difficult to define or may involve learning, or both. In these situations, it would not be possible to have the patients complete the questionnaire on two separate occasions, owing to recall or learning effects. The calculation of internal consistency involves a measurement of the intercorrelation of the responses to the questions on a single administration. The statistic generally used to describe internal consistency is termed *Cronbach's alpha*, which ranges from 0 to 1, with 1 indicating perfect reliability (10). Cronbach's alpha has been used to evaluate the reliability of rating scales in orthopedic surgery (11); however, it is questionable whether the principles of psychometric theory apply to the measurement of symptoms and disability. In practice, orthopedic scales that measure a wide variety of clinical phenomena have also been demonstrated to have high internal consistency (12).

Validity

An instrument is valid if it measures what it is intended to measure. There are several types of validity that are reviewed briefly below.

The simplest way of validating a rating scale is to provide evidence that its results match a gold standard (13). This is known as *criterion validity*, although it is generally not possible for instruments that measure quality of life. In such situations, we must rely on face validity, content validity, and construct validity.

Face validity is present when an expert clinician reviews the questions in the scale and believes that they appear to measure the concept in question. This form of validity is rather simple; however, it is important nevertheless.

Content validity is a more formal application of face validity. Content validity measures whether the scale includes representative samples of the concept that the investigator is attempting to measure. For example, if a rating scale was measuring quality of life, the content of the scale should include measures of physical, mental, and social health to provide adequate content validity.

Construct validity determines whether the questionnaire behaves in relation to other measures as would be expected. This requires several hypotheses about how the results of the questionnaires should correlate (positively or negatively) with other related or unrelated measures and in testing these hypotheses.

Responsiveness

Orthopedic surgeons generally use rating scales to measure improvement in health-related quality of life after treatment. An instrument that is not able to measure improvement in a patient who has been treated successfully would not be useful for clinical research or evaluation. Therefore, the characteristic of responsiveness is critical for the practical application of a rating scale.

There are many statistics that are available to determine responsiveness (14,15). The standardized response mean (observed change/standard deviation of change) is most commonly used in orthopedic research (16–18). This statistic incorporates the response variance, allowing statistical testing of the response means (19).

Generic and Specific Measures

Specific measures may pertain to a certain pathologic entity (disease-specific), condition (condition-specific), or anatomic location (joint-specific). These measures focus not only on specific aspects of the condition (or anatomic location), but complaints are also usually attributed to the disorder (or anatomic location) (13,20,21). For example, a joint-specific instrument for the knee may ask patients if they have difficulty dressing because of their knee problem.

Generic tools have a broader perspective, including emotional, social, mental, and physical health, and do not restrict attribution to a particular disorder (13,21). The advantage of generic health-status instruments compared with specific instruments is that they allow comparisons across conditions and treatments. The disadvantage of these tools is that they may not be responsive to clinically important change, because a change in an isolated problem may not be reflected in the score of this more global measure (13,21–23). The advantage of disease or joint-specific measures is that they are generally more responsive to change in the specific phenomenon of interest, and they are more relevant to patients.

The most commonly used generic health status instrument is the Short-Form 36 (SF-36). It is a 36-item questionnaire that measures general health (24–26). Its use has been encouraged in conjunction with knee-specific instruments for studies of ACL-injured patients (27) and is commonly used in studies of TKA to describe the patients' overall status (21). A physical component scale and a mental component scale can be derived from the SF-36.

KNEE-RATING SCALES FOR ATHLETIC PATIENTS

There are many rating scales available to measure outcome in athletic patients with disorders of the knee. What defines an athletic individual may not always be clear. The activity level of the patient is an important prognostic variable, because active patients place greater demands on their knees than sed-

entary individuals and have different expectations of the results of treatment. Activity level is not always directly related to symptoms and disabilities and should be measured separately. This topic is discussed at the end of the chapter. A review of eight commonly used rating scales for athletic patients with disorders of the knee is presented.

The modified Lysholm scale (28) is an eight-item questionnaire that was originally designed to evaluate patients after knee ligament surgery (29). It is scored on a 100-point scale, with 25 points attributed to knee stability; 25 to pain; 15 to locking; 10 each to swelling and stair climbing; and 5 each to limp, use of a support, and squatting (28). Although this scale was developed without patient input, it has been used extensively for clinical research studies (27,30–32). It has been demonstrated to have adequate test-retest reliability and good construct validity (29,33).

The first version of the Cincinnati Knee Rating System was published in 1983 with additional modifications that were developed for occupational activities, athletic activities, symptoms and functional limitations with sports, and daily activities (34,35). There are 11 components in the Cincinnati Knee Rating System. In addition to measuring symptoms and disability, there are sections of this rating system that measure physical examination, laxity of the knee based on instrumented testing, and radiographic evidence of degenerative joint disease (36). This instrument is reliable, valid, and responsive to clinical change (33,36).

The American Academy of Orthopaedic Surgeons Sports Knee Rating Scale (37) was included in the Musculoskeletal Outcomes Data Evaluation and Management System for athletic patients with disorders of the knee. There are five parts and 23 questions in this instrument: a core section, including stiffness, swelling, pain, and function (seven questions); a locking or catching on activity section (four questions); a giving way on activity section (four questions); a current activity limitations due to the knee section (four questions); and a pain on activity due to the knee section (four questions).

The five subscales are independent and are meant to be reported separately. As well, this scale has the response "cannot do for other reasons" for many questions. The scoring manual states that an item should be "dropped" if the patient selects that response, which may be interpreted as "scored as missing." These factors may lead to practical difficulties when using this questionnaire (33). Despite these concerns, the measurement properties of this instrument were found to be satisfactory when the five subscales were combined and the mean was calculated (33).

The Activities of Daily Living Scale of the Knee Outcome Survey was published with an evaluation of its reliability, validity, and responsiveness (11). It was developed based on a review of relevant instruments and clinician input. This scale is designed for patients with disorders of the knee ranging from ACL injury to arthrosis. It includes 17 multiple-choice questions divided into two sections: one for symptoms (seven questions) and one for functional disability (ten questions). This instrument was found to have slightly higher correlations with the Lysholm, Cincinnati, and American Academy of Orthopaedic Surgeons scales, as well as other measures of disability, indicating excellent construct validity (33). It was also found to be slightly more sensitive to clinical improvement (responsive) than the three other scales in a group of athletic patients (33). The questions that make up this tool are presented in Appendix A.

The single assessment numeric evaluation was devised to evaluate college-aged patients after ACL reconstruction (38). The single assessment numeric evaluation asks the patient how they would rate their knee, from 0 to 100, with 100 being normal. This score was found to correlate well with the Lysholm scale in this patient population (38). The advantage of this single question is its simplicity and the ease with which it can be administered. One potential pitfall is that a single, relatively broad question may be interpreted differently by patients with different disorders and varying levels of symptoms and disability. In the setting of a very homogeneous cohort, such as college-aged patients recovering from a specific procedure (such as ACL reconstruction), the range of pathology is relatively narrow and the instrument correlates well with a standard measure of knee function. The applicability of this tool to patients with a variety of diagnoses is unknown.

The Knee Injury and Osteoarthritis Outcome Score (KOOS) was developed with input from patients who underwent remote meniscal surgery (39). The reliability, validity, and responsiveness were determined to be satisfactory in a cohort of 21 patients who underwent ACL reconstruction (39). Five separate scores are calculated for pain, symptoms, activities of daily living, sport and recreation function, and knee-related quality of life. Of particular interest, the Western Ontario and McMaster Universities osteoarthritis index, discussed in greater detail later, is included in the KOOS, and its score can be determined from the KOOS.

The quality-of-life outcome measure for chronic ACL deficiency was developed by Mohtadi (40). This instrument was developed by surveying ACL-deficient patients, primary care sports medicine physicians, orthopedic surgeons, athletic therapists, and physical therapists. The scale comprises 31 visual analog questions regarding symptoms and physical complaints, work-related concerns, recreational activities and sport participation, lifestyle, and social and emotional health status relating to the knee. This rating scale was found to be valid and responsive for patients with ACL insufficiency (40). It is very specific to ACL deficiency and, therefore, would not be applicable to other disorders of the knee.

The International Knee Documentation Committee developed a rating scale for seven "objective" parameters relating to the knee (41). These included effusion, motion, ligament laxity, crepitus, harvest site pathology, x-ray findings, and one-leg hop test. Patients were graded as normal, nearly normal, abnormal, or severely abnormal on each of these. The lowest grade for a given group determines the final patient grade.

More recently, the International Knee Documentation Committee has developed a questionnaire relating to "subjective" factors. These include symptoms, sports activities, and ability to function, including stairs, squatting, running, and jumping. It is currently available on the American Orthopaedic Society for Sports Medicine web site at http://www.sportsmed.org/Research/Default.htm. At the time of this writing, the reliability, validity, and responsiveness testing has been completed (42,42a,42b).

KNEE-RATING SCALES FOR PATIENTS WITH DEGENERATIVE DISORDERS OF THE KNEE

There are several knee rating scales available for patients with arthrosis of the knee. These rating scales were generally designed

to evaluate patients with a greater level of disability than the scales reviewed in Knee-Rating Scales for Athletic Patients. The three scales discussed below are commonly used to evaluate patients after TKA.

The most commonly used instrument for patients with knee arthrosis is the Western Ontario and McMaster Universities osteoarthritis index (43–45). This scale involves 24 questions: five relating to pain, two relating to stiffness, and 17 relating to difficulty with activities of daily living (Appendix B). This scale has been found to be responsive and valid for patients with arthrosis (21,46,47). The Western Ontario and McMaster Universities osteoarthritis index has been translated into many languages, and these versions have been validated as well (43,48,49).

The index of severity for knee disease (50) was initially developed for nonsteroidal antiinflammatory drug trials. This questionnaire involves five questions related to pain, one question related to the maximum distance the patient can walk, and four questions relating to activities of daily living. This scale was initially intended to be interviewer administered, although a questionnaire format has subsequently been validated as well (47).

Part of the Musculoskeletal Outcomes Data Evaluation and Management System package includes a knee core–rating scale. This section, which includes seven questions, is recommended for use in patients with osteoarthritis of the knee. The questions relate to knee stiffness; knee swelling; use of a support to get around, putting on socks; and pain with walking, stairs, and lying in bed at night. This core scale is included in the American Academy of Orthopaedic Surgeons Sports Knee Rating Scale as one of the five subscores. This instrument has been shown to be reliable and valid (50a).

The Oxford knee scale was developed by using patient input to select the most relevant items (51). The developers of this tool interviewed multiple groups of 20 patients who were attending an outpatient clinic for consideration of TKA to determine which questions should be included. After each group of 20 patients tested, they modified the responses and re-tested the items. The questionnaire is comprised of 12 multiple-choice questions, each with five responses. It was tested in a prospective group of 117 patients undergoing TKA and was demonstrated to be reliable, valid, and responsive (48,51).

MEASURES OF ACTIVITY LEVEL FOR PATIENTS WITH DISORDERS OF THE KNEE

Patients' activity levels are related to prognosis in the sports medicine population, because people who are very active have different expectations and demands than those who are relatively sedentary (31,52). A measure of activity is important for studies evaluating such individuals because the frequency and intensity of sports participation varies widely among these patients (53). For example, a study describing a new surgical technique for a knee disorder should document the patients' activity level to ensure that the results can be applied to the appropriate patient population. For studies comparing two groups of patients, it is important for the activity levels of the two groups to be similar to avoid a biased comparison (54).

In a systematic literature review (54), five activity level rating scales that are potentially applicable to outcome studies in sports medicine were identified (28,55–58). There were inherent problems with each of the available instruments, which led to the construction of a new rating scale for this purpose (54). This activity rating scale consists of four questions relating to the frequency with which the patient runs, cuts, pivots, and decelerates. It has been demonstrated to be reliable and valid (54). This scale is recommended in addition to a knee outcome instrument for the evaluation of athletic patients with disorders of the knee.

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APPENDIX A

Activities of Daily Living Scale of the Knee Outcome Survey

Knee Outcome Survey
Activities of Daily Living Scale

INSTRUCTIONS:
Please mark ONLY the response that best describes the symptoms and limitations that you have experienced because of your knee while performing each of these usual daily activities over the last 1 to 2 days.

To what degree do the following affect your daily activity level? (Please fill in ONLY ONE BUBBLE PER ROW.)	Never have it	Have it, but it does not affect my daily activity	It affects my activity slightly	It affects my activity moderately	It affects my activity severely	It prevents me from performing all daily activities
1. Pain in your knee	○	○	○	○	○	○
2. Grinding or grating of your knee	○	○	○	○	○	○
3. Stiffness in your knee	○	○	○	○	○	○
4. Swelling in your knee	○	○	○	○	○	○
5. Slipping of your knee	○	○	○	○	○	○
6. Buckling of your knee	○	○	○	○	○	○
7. Weakness or lack of strength of your leg	○	○	○	○	○	○

Please fill in ONLY ONE BUBBLE for each question.

8. How does your knee affect your ability to walk?

- ○ My knee does not affect my ability to walk.
- ○ I have pain in my knee when walking, but it does not affect my ability to walk.
- ○ My knee prevents me from walking more than 1 mile.
- ○ My knee prevents me from walking more than $\frac{1}{2}$ mile.
- ○ My knee prevents me from walking more than 1 block.
- ○ My knee prevents me from walking.

9. Because of your knee, do you walk with crutches or a cane?

- ○ I can walk without crutches or a cane.
- ○ My knee causes me to walk with 1 crutch or a cane.
- ○ My knee causes me to walk with 2 crutches.
- ○ Because of my knee, I cannot walk even with crutches.

10. Does your knee cause you to limp when you walk?

- ○ I can walk without a limp.
- ○ Sometimes my knee causes me to walk with a limp.
- ○ Because of my knee, I cannot walk without a limp.

Please fill in ONLY ONE BUBBLE for each question.

11. How does your knee affect your ability to go UP stairs?

- ○ My knee does not affect my ability to go up stairs.
- ○ I have pain in my knee when going up stairs, but it does not limit my ability to go up stairs.
- ○ I am able to go up stairs normally, but I need to rely on use of a railing.
- ○ I am able to go up stairs one step at a time with use of a railing.
- ○ I have to use crutches or a cane to go up stairs.
- ○ I cannot go up stairs.

12. How does your knee affect your ability to go DOWN stairs?

- ○ My knee does not affect my ability to go down stairs.
- ○ I have pain in my knee when going down stairs, but it does not limit my ability to go down stairs.
- ○ I am able to go down stairs normally, but I need to rely on use of a railing.
- ○ I am able to go down stairs one step at a time with use of a railing.
- ○ I have to use crutches or a cane to go down stairs.
- ○ I cannot go down stairs.

13. How does your knee affect your ability to stand?

- ○ My knee does not affect my ability to stand. I can stand for unlimited amounts of time.
- ○ I have pain in my knee when standing, but it does not limit my ability to stand.
- ○ Because of my knee, I cannot stand for more than 1 hour.
- ○ Because of my knee, I cannot stand for more than $\frac{1}{2}$ hour.
- ○ Because of my knee, I cannot stand for more than 10 minutes.
- ○ I cannot stand because of my knee.

14. How does your knee affect your ability to kneel on the front of your knee?

- ○ My knee does not affect my ability to kneel on the front of my knee. I can kneel for unlimited amounts of time.
- ○ I have pain when kneeling on the front of my knee, but it does not limit my ability to kneel.
- ○ I cannot kneel on the front of my knee for more than 1 hour.
- ○ I cannot kneel on the front of my knee for more than $\frac{1}{2}$ hour.
- ○ I cannot kneel on the front of my knee for more than 10 minutes.
- ○ I cannot kneel on the front of my knee.

15. How does your knee affect your ability to squat?

- ○ My knee does not affect my ability to squat. I can squat all the way down.
- ○ I have pain when squatting, but I can still squat all the way down.
- ○ I cannot squat more than $\frac{3}{4}$ of the way down.
- ○ I cannot squat more than $\frac{1}{2}$ of the way down.
- ○ I cannot squat more than $\frac{1}{4}$ of the way down.
- ○ I cannot squat at all.

16. How does your knee affect your ability to sit with your knee bent?

- ○ My knee does not affect my ability to sit with my knee bent. I can sit for unlimited amounts of time.
- ○ I have pain when sitting with my knee bent, but it does not limit my ability to sit.
- ○ I cannot sit with my knee bent for more than 1 hour.
- ○ I cannot sit with my knee bent for more than $\frac{1}{2}$ hour.
- ○ I cannot sit with my knee bent for more than 10 minutes.
- ○ I cannot sit with my knee bent.

17. How does your knee affect your ability to rise from a chair?

- ○ My knee does not affect my ability to rise from a chair.
- ○ Because of my knee, I can only rise from a chair if I use my hands and arms to assist.
- ○ I have pain when rising from the seated position, but it does not affect my ability to rise from the seated position.
- ○ Because of my knee, I cannot rise from a chair.

APPENDIX B

Womac Knee Scale

WOMAC SURVEY

Please answer the following questions with respect to the status of your knee in the PAST WEEK:

How much pain do you have in your knee when:	None	Mild	Moderate	Severe	Extreme
Walking on a flat surface?	O	O	O	O	O
Going up or down stairs?	O	O	O	O	O
At night while in bed?	O	O	O	O	O
Sitting or lying?	O	O	O	O	O
Standing upright?	O	O	O	O	O

	None	Mild	Moderate	Severe	Extreme
How severe is your knee stiffness after first wakening in the morning?	O	O	O	O	O
How severe is your knee stiffness after sitting, lying, or resting later in the day?	O	O	O	O	O

What degree of difficulty do you have with:	None	Mild	Moderate	Severe	Extreme
Descending stairs?	O	O	O	O	O
Ascending stairs?	O	O	O	O	O
Rising from sitting?	O	O	O	O	O
Standing?	O	O	O	O	O
Bending to floor?	O	O	O	O	O
Walking on a flat surface?	O	O	O	O	O
Getting in/out of car?	O	O	O	O	O
Going shopping?	O	O	O	O	O
Putting on socks/stockings?	O	O	O	O	O
Rising from bed?	O	O	O	O	O
Taking off socks/stockings?	O	O	O	O	O
Lying in bed?	O	O	O	O	O
Getting in/out of bath?	O	O	O	O	O
Sitting?	O	O	O	O	O
Getting on/off toilet?	O	O	O	O	O
Heavy domestic duties?	O	O	O	O	O
Light domestic duties?	O	O	O	O	O

TMD DISABILITY INDEX

Patient Name _____ Date_____

Please read carefully:

Please circle the one choice that best pertains to you (not necessarily exactly) in each of the following categories.

SECTION 1 – Communication (talking)

A. I can talk as much as I want without pain, fatigue or discomfort.
B. I talk as much as I want, but it causes some pain, fatigue and/or discomfort.
C. I can't talk as much as I want because of pain, fatigue and/or discomfort..
D. I can't talk much at all because of pain, fatigue and/or discomfort.
E. Pain prevents me from talking at all.

SECTION 2 – Normal living activities (brushing teeth/flossing)

A. I am able to care for my teeth and gums in a normal fashion without restriction, and without pain, fatigue or discomfort.
B. I am able to care for all my teeth and gums, but I must be slow and careful, otherwise pain/discomfort, jaw tiredness results.
C. I do manage to care for my teeth and gums in a normal fashion, but it usually causes some pain/discomfort, jaw tiredness no matter how slow and careful I am.
D. I am unable to properly clean all my teeth and gums because of restricted opening and./or pain..
E. I am unable to care for most of my teeth and gums because of restricted opening and/or pain..

SECTION 3 – Normal living activities (eating, chewing)

A. I can eat and chew as much of anything I want without pain/discomfort or jaw tiredness.
B. I can eat and chew most anything I want, but it sometimes causes pain/discomfort, and/or jaw tiredness.
C. I can't eat much of anything I want, because it often causes pain/discomfort, jaw tiredness or because of restricted opening.
D. I must eat only soft foods (consistency of scrambled eggs or less) because of pain/discomfort, jaw fatigue and/or restricted opening.
E. I must stay on a liquid diet because of pain and/or restricted opening.

SECTION 4 – Social/recreational activities (singing, playing musical instruments, cheering, laughing, social activities, playing amateur sports/hobbies, and recreation, etc.)

A. I am enjoying a normal social life and/or recreational activities without restriction.
B. I participate in normal social life and/or recreational activities but pain/discomfort is increased.
C. The presence of pain and/or fear of likely aggravation only limits the more energetic components of my social life (sports, exercising, dancing, playing musical instruments, singing).
D. I have restrictions socially, as I can't even sing, shout, cheer, play and/or laugh expressively because of increased pain/discomfort.
E. I have practically no social life because of pain.

SECTION 5 – Non-specialized jaw activities (yawning, mouth opening and opening my mouth wide)

A. I can yawn in a normal fashion, painlessly.
B. I can yawn and open my mouth fully wide open, but sometimes there is discomfort.
C. I can yawn and open my mouth wide in a normal fashion, but it almost always causes discomfort.
D. Yawning and opening my mouth wide are somewhat restricted by pain.
E. I cannot yawn or open my mouth more than two finger widths (2.8-3.2 cm) or, if I can, it always causes greater than moderate pain.

SECTION 6 – Sexual function (including kissing, hugging and any and all sexual activities to which you are accustomed)

A. I am able to engage in all my customary sexual activities and expressions without limitation and/or causing headache, face or jaw pain.
B. I am able to engage in all my customary sexual activities and expressions, but it sometimes causes some headache, face or jaw pain or jaw fatigue.
C. I am able to engage in all my customary sexual activities, but it usually causes enough headache, face or jaw pain to markedly interfere with my enjoyment, willingness and satisfaction.
D. I must limit my customary sexual expression and activities because of headache, face or jaw pain or limited mouth opening.
E. I abstain from almost all sexual activities and expression because of the head, face or jaw pain it causes.

SECTION 7 – Sleep (restful, nocturnal sleep pattern)

A. I sleep well in a normal fashion without any pain medication, relaxants or sleeping pills.
B. I sleep well with the use of pain pills, anti-inflammatory medication or medicinal sleeping aids.
C. I fail to realize 6 hours restful sleep even with the use of pills.
D. I fail to realize 4 hours restful sleep even with the use of pills.
E. I fail to realize 2 hours restful sleep even with the use of pills.

SECTION 8 – Effects of any form of treatment, including, but not limited to, medications, in-office therapy, treatments, oral orthotics (eg, splints, mouthpieces), ice/heat, etc.

A. I do not need to use treatment of any type in order to control or tolerate headache, face or jaw pain and discomfort.
B. I can completely control my pain with some form of treatment.
C. I get partial, but significant, relief through some form of treatment.
D. I don't get "a lot of" relief from any form of treatment.
E. There is no form of treatment that helps enough to make me want to continue.

SECTION 9 – Tinnitus, or ringing in the ear(s).

A. I do not experience ringing in my ear(s).
B. I experience ringing in my ear(s) somewhat, but it does not interfere with my sleep and/or my ability to perform my daily activities.
C. I experience ringing in my ear(s) and it interferes with my sleep and/or daily activities, but I can accomplish set goals and I can get an acceptable amount of sleep.
D. I experience ringing in my ear(s) and it causes a marked impairment in the performance of my daily activities and/or results in an unacceptable loss of sleep.
E. I experience ringing in my ear(s) and it is incapacitating and/or forces me to use a masking device to get any sleep.

SECTION 10 – Dizziness (lightheaded, spinning and/or balance disturbance).

A. I do not experience dizziness.
B. I experience dizziness, but it does not interfere with my daily activities.
C. I experience dizziness, which interferes somewhat with my daily activities, but I can accomplish my set goals.
D. I experience dizziness, which causes a marked impairment in the performance of my daily activities.
E. I experience dizziness, which is incapacitating.

_____
Examiner

With permission from: Steigerwald DP, Maher JH. The Steigerwald/Maher TMD Disability Questionnaire. *Today Chiro* 1997;26:86-91.

WRIST/HAND DISABILITY INDEX

NAME: _____ **DATE:** _____

Please read: This questionairre has been designed to give the Physical Therapist information as to how your wrist/hand pain has affected your ability to manage everyday life.

Section 1 – Pain intensity
___I have no pain in my wrist/hand
___The pain in my wrist/hand is intermittent or mild
___The pain in my wrist/hand is mild but constant
___The pain in my wrist/hand is constant and moderately limits use of the arm
___The pain in my wrist/hand is constant and severely limits us of that arm
___The pain in my wrist/hand is constant, and I am unable to use that arm

Section 2 – Numbness & Tingling
___I have no numbness or tingling in my wrist/hand
___The numbness or tingling in my wrist/hand is intermittent
___The numbness or tingling in my wrist/hand is constant but does not limit use of that arm
___The numbness or tingling in my wrist/hand is constant and moderately limits use of that arm
___The numbness or tingling in my wrist/hand is constant and severely limits use of that arm
___Due to constant numbness or tingling in my wrist/hand, I am unable to use that arm

Section 3 – Personal Care (Washing, Dressing, etc.)
___I can look after myself normally without any symptoms
___I can look after myself normally, but it causes increased symptoms
___It is uncomfortable to look after myself, and I am slow and careful
___I can only partially use my wrist/hand and sometimes use the other side instead
___I can only partially use my wrist/hand and mostly use the other side
___I am unable to use my wrist/hand for any personal care and always use the other side

Section 4 – Strength
___I can lift the heaviest weights I need to without symptoms
___I can lift heavy weights, but it increases my wrist/hand symptoms
___My wrist/hand symptoms prevent me from lifting more than moderate weights (ex: a gallon of milk)
___My wrist/hand symptoms prevent me from safely lifting more than light weights (ex: a dish or book)
___I frequently drop even light objects due to weakness in my wrist/hand
___I avoid lifting anything with my involved hand

Section 5 – Writing/Typing tolerance
___I can write or type as long as I need to without symptoms
___I can write or type for as long as I want, but it increases my symptoms
___I can write or type for 31-60 minutes before my wrist/hand symptoms increase
___I can write or type for 11-30 minutes before my wrist/hand symptoms increase
___I can write or type for only 10 minutes or less before my wrist/hand symptoms increase
___I am unable to write or type using my involved hand/wrist

Section 6 – Work
___I can do as much work as I want to without symptoms
___I can do all of my usual work, but it increases my symptoms
___I can do most, but not all, of my usual work because of my symptoms
___I can do about half of my usual work because of my symptoms
___I can hardly do any work at all because of my wrist/hand symptoms
___I can't do any work at all because of my wrist/hand symptoms

Section 7 – Driving
___I can drive my car without any wrist/hand symptoms
___I can drive my car as long as I want, but it increases my symptoms
___I can drive my car for 31-60 minutes before my wrist/hand symptoms increase
___I can drive my car for 11-30 minutes before my wrist/hand symptoms increase
___I can drive my car for only 10 minutes or less before my wrist/hand symptoms increase
___I am unable to use that arm for driving

Section 8 – Sleeping
___I have no trouble sleeping
___My sleep is slightly disturbed by wrist/hand symptoms (It wakes me 1 time/night)
___My sleep is mildly disturbed by wrist/hand symptoms (It wakes me 2 times/night)
___My sleep is moderately disturbed by wrist/hand symptoms (It wakes me 3-4 times/night)
___My sleep is greatly disturbed by wrist/hand symptoms (It wakes me 5-6 times/night)
___My sleep is completely disturbed by wrist/hand symptoms (It wakes me 7-8 times/night or more)

Section 9 – House & Yard Work
___I have no wrist/hand limitations with house or yard work
___I am able to do all house & yard work necessary if I take breaks
___I am to do all house & yard work necessary, but it increases my wrist/hand symptoms
___I am able to do some, but not all, house & yard work; it increases my wrist/hand symptoms
___I am able to do only the minimum of house & yard work because of my wrist/hand symptoms
___I am unable to do any house or yard work because of my symptoms

Section 10 - Recreation/Sports
___I am able to engage in all my recreation/sports activities with no wrist/hand symptoms
___I am able to engage in all my recreation/sports activities with some symptoms in my wrist/hand
___I am able to engage in most, but not all, of my usual recreation/sports activities because of my symptoms
___I am able to engage in a few of my usual recreation/sports activities because of symptoms in my wrist/hand
___I can hardly do any recreation/sports activities because of symptoms in my wrist/hand
___I am unable to do any recreation/sports activities because of symptoms in my wrist/hand

Please mark on the line below the pain you have had in the past 24 hours. Use the line as a scale to mark the level of your pain from no pain to the worst

no pain at all _____ worst possible pain ____/50 = ____%