Progress towards understanding anterior knee pain after total knee arthroplasty
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Chapter 4

Translation and Validation of the Dutch version of the International Knee Documentation Committee Subjective Knee Form.

D. Haverkamp, I.N. Sierevelt, S.J.M. Breugem, K. Lohuis, L. Blankevoort, C.N. van Dijk

Abstract

Background
For knee-related surgery, there is a great demand for internationally useable subjective scoring systems. Before such measurements can be used, they should be translated and validated for the population they are used on. For the Dutch population, only the Western Ontario and McMaster Universities Osteoarthritis Index and Oxford 12 Questionnaire have been validated. However, these scores can only be used regarding osteoarthritis of the Knee. In 2001, the International Knee Documentation Committee presented the Subjective Knee Form, which is a knee-specific rather than a disease-specific questionnaire.

Study Design
Cohort study (diagnosis/symptom prevalence); Level of evidence 2.

Methods
The authors describe the translation procedure and validation of the Dutch Subjective Knee Form. After a forward-backward translation protocol, the reliability, validity, and content validity were tested. The responses of 145 consecutive knee patients on 2 questionnaires containing the Short Form-36, Western Ontario and McMaster Universities Osteoarthritis Index, Oxford 12 Questionnaire score, a visual analog scale, and the Dutch International Knee Documentation Committee Subjective Knee Form were used. Reliability was tested by measuring the test-retest reliability and internal consistency. Validity was tested by correlating the questionnaire to the other outcome measurements, and content validity was tested by measuring the floor and ceiling effects.

Results
The reliability proved excellent with an intraclass coefficient of 0.96 for test-retest. Internal consistency was strong (Cronbach's Alpha, 0.92). The construct, convergent, and divergent validities were good. The content validity was good; no floor or ceiling effect occurred.
Conclusion
Our validation procedure shows that the Dutch International Knee Documentation Committee Subjective Knee Form is an excellent evaluation instrument for Dutch patients with knee-related injuries.

Keywords: knee; International Knee Documentation Committee (IKDC); knee outcomes instrument; validation
Introduction

Evaluation and refinement of new techniques is essential for the evolution of every type of surgery. The evaluation of the results achieved is an important link in this chain of improvements. To provide adequate tools for this evaluation in knee surgery, several subjective knee scores have been developed during the past years [2,5,7-8,15-16]. Most of the available self-administered questionnaires are disease specific instead of knee specific.

Questionnaires that are designed as subjective scoring systems can be used in countries other than the ones in which they were developed if they are translated and validated for a specific language and population [10-11,17]. For the Netherlands, only the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Oxford 12 Questionnaire score are translated and validated for use in the Dutch population. Both are especially designed for osteoarthritis and not for use in other knee-related problems.

In 2004 the WOMAC was translated and validated for Dutch patients with osteoarthritis by Roorda et al. [19]. It is widely used and is translated and validated in several languages [2,19]. This disease-specific questionnaire measures health-related quality of life by mainly scoring pain and physical functioning.

The Oxford 12 Questionnaire score was translated and validated for the Dutch population by Haverkamp et al in 2005 [12]. This questionnaire is widely accepted, is translated and validated into several languages, and is designed for knee arthroplasty patients [8-9,12].

The above-mentioned subjective knee-scoring systems are applicable only to patients with osteoarthritis. There is no properly validated internationally used scoring system for other knee-related problems available for the Dutch population.

In 2001, the International Knee Documentation Committee (IKDC) presented a knee-specific subjective outcome measurement. The IKDC Subjective Knee Form was designed to measure symptoms and limitations in function and sports activity due to impairment of the knee for every knee-related injury [13-14]. Currently, the Subjective Knee Form is widely used for the evaluation of several types of interventions concerning knee-related problems, especially...
for ligamentous injury. In a review on available outcome measurements for ligament injuries of the knee, Johnson and Smith stated that the IKDC Subjective Knee Form is the preferred measurement tool [15].

A validated Dutch version of the IKDC Subjective Knee Form is important for knee-related research in the Netherlands. In addition, a validated Dutch translation of this well-established and widely used questionnaire could be a very useful measurement tool in performing multinational studies and comparing results to international research. Therefore, we performed a translation and validation of the IKDC Subjective Knee Form, not merely to provide a valid questionnaire for the Dutch population, but also as a demonstration of how the IKDC form can be translated into several other languages without losing its validity.

Methods

The IKDC Subjective Knee Form

The IKDC Subjective Knee Form was designed in 2001 to measure symptoms and limitations in function and sports activity due to impairment of the knee for every knee-related injury. The form consists of 10 questions regarding symptoms, sports activities, and function. The final score can be calculated from this form if at least 90% of the items are answered. The IKDC Subjective Knee 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.

Translation procedure

A Dutch translation was made using a forward-backward translation protocol according to the guidelines of Guillemin et al. [10-11]. Two translations were made independently and translated backward by 2 independent individuals. These versions were compared with the original by a committee, and the final translation was made. The last step of the translation procedure was the pretesting on several patients. We concluded that no major cultural difference was present between the Dutch and American populations; therefore, no attempt was made to make cultural adaptations to the questionnaire.
Chapter 4

Patients
We selected 145 consecutive patients from our outpatient clinic with a variety of knee-related problems. The mean age was 54.6 years (range, 21-84), and 42% were men. Osteoarthritis was the reason for consultation in 90 patients (62%), including 17 patients with patellofemoral osteoarthritis. In 42 patients (29%) the reason was a meniscal lesion, and in 13 patients (9%) it was a ligament problem.

Questionnaires
All patients were asked to answer a questionnaire containing the translated IKDC Subjective Knee Form, the Dutch Oxford 12 Questionnaire score, a visual analog scale (VAS) score (0-100 mm), the Dutch WOMAC score, and the Short Form-36 (SF-36) [1-2,5,8,12-13,18-19]. All patients also received a second questionnaire containing the IKDC Subjective Knee Form, which they were asked to complete after 7 days.

Testing
The Dutch version of the IKDC Subjective Knee Form was tested for reliability and validity. When a questionnaire is developed or translated, the most important consideration is that it must be able to measure accurately measure that for which it is designed. Evaluating the reliability and validity can prove this accuracy. Reliability means that the questionnaire should produce consistent or reproducible values under different situations. Validity refers to how precise the “true value” is estimated by the questionnaire. We did not test the imposed patient burden, that is time and effort taken to complete the questionnaire, because it can be expected to be identical to the original version.

Reliability
To determine the test-retest reliability, a second questionnaire was given to all patients; 71 patients responded. Patients were asked to complete the questionnaires with a 1-week interval under similar circumstances and return them immediately after completion. Test-retest reliability was assessed using the intraclass coefficient (ICC) and the Pearson correlation coefficient [3]. Paired t tests were performed to determine the systematic difference between the first and second test.

Internal consistency was assessed using the Cronbach's alpha [6,9]. Cronbach's
alpha addresses the homogeneity of the questions within a questionnaire and is complimentary to the ICC as a metric of reliability. An alpha of 0.7 is considered fair, 0.8 good, and 0.9 excellent internal consistency.

**Validity**
We tested the construct validity of the Dutch IKDC subjective knee score by comparing it to a 100-mm VAS for pain, the 3 domains of the WOMAC score, the relevant domains of the SF-36, and the Dutch Oxford 12 Questionnaire score. Construct validity was evaluated by calculation the Pearson correlation coefficients between these scores. Convergent and divergent validities were assessed by using the 8 domains of the SF-36, in which the correlations with the domains of bodily pain, role of physical limitations, and physical functioning were assumed to be higher than correlations with the other domains [4]. Content validity is evaluated by assessing the distribution and occurrence of floor and ceiling effects. A floor effect occurs with a score of 0, which is the poorest score for the patient; a ceiling effect occurs with a score of 100, which is the best possible score for the patient. Construct, convergent, and divergent validities were tested for all patients, as for each indication, separately.

**Statistics**
The statistical analysis was conducted with SPSS 12 statistical package, version 12.01 (SPSS Science Inc, Chicago, Ill), and p < .05 was considered statistically significant.

**Results**

**Reliability**
The test-retest reliability showed an ICC of 0.96 (p < 0.001; 95% confidence interval, 0.94-0.97) and a strong correlation using Pearson correlation analysis (r = 0.92, p < 0.01). Internal consistency was strong, with a Cronbach’s alpha of 0.92. The mean difference between the IKDC Subjective Knee Form of the first and second questionnaires was 0.4 (not significant, p = 0.51) on a scale of 0 to 100. No statistical significant difference was observed between the first and second IKDC score (p = 0.51).
Chapter 4

Validity
The Dutch IKDC Subjective Knee Form showed a good correlation with the VAS, Oxford 12 Questionnaire score, the WOMAC score, and the bodily pain and physical functioning domains of the SF-36. Note that the correlations for the VAS and Oxford 12 score are negative because of their reciprocal nature. Because the other domains of the SF-36 show a lower correlation, the convergent and divergent validity can be considered as good (Table 1) [3,9].

Table 1: Pearson Correlation Coefficients of the IKDC, Oxford 12-item knee score, VAS, Womac and SF36 scores.

<table>
<thead>
<tr>
<th></th>
<th>Dutch IKDC subjective Knee Form</th>
<th>Original IKDC subj Knee Form validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain VAS</td>
<td>-0.62*</td>
<td></td>
</tr>
<tr>
<td>Womac (total)</td>
<td>0.77*</td>
<td></td>
</tr>
<tr>
<td>Womac Pain</td>
<td>0.68*</td>
<td></td>
</tr>
<tr>
<td>Womac Stiffness</td>
<td>0.65*</td>
<td></td>
</tr>
<tr>
<td>Womac Functioning</td>
<td>0.76*</td>
<td></td>
</tr>
<tr>
<td>Oxford 12 Q</td>
<td>-0.77*</td>
<td></td>
</tr>
<tr>
<td>SF36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Functioning (PF)</td>
<td>0.71*</td>
<td>0.63*</td>
</tr>
<tr>
<td>Role limitation due to Physical problems (RP)</td>
<td>0.55*</td>
<td>0.47*</td>
</tr>
<tr>
<td>Role limitation due to Emotional problems (RE)</td>
<td>0.30*</td>
<td>0.26*</td>
</tr>
<tr>
<td>Social Functioning (SF)</td>
<td>0.42*</td>
<td>0.47*</td>
</tr>
<tr>
<td>Mental Health (MH)</td>
<td>0.21*</td>
<td>0.25*</td>
</tr>
<tr>
<td>Energy Vitality (VT)</td>
<td>0.40*</td>
<td>0.39*</td>
</tr>
<tr>
<td>Bodily pain (BP)</td>
<td>0.69*</td>
<td>0.64*</td>
</tr>
<tr>
<td>General Health Perception (HP)</td>
<td>0.41*</td>
<td>0.30*</td>
</tr>
</tbody>
</table>

*All correlations are significant with p<0.01

Content validity
The Dutch IKDC Subjective Knee Form showed a good content validity. The calculated scores were normally distributed, and no ceiling or floor effect occurred (Figure 1).

Subanalysis
A subanalysis was performed for the different indications: osteoarthritis, meniscal injury, and ligamentous injuries. For all groups separately, the reliability and validity remained excellent for the Dutch IKDC Subjective Knee Form (Table 2 and 3).
Figure 1, Distribution of Calculated IKDC Subjective Knee Scores.

Table 2: Construct validity of Oxford 12Q and WOMAC for non-OA patients (Pearson correlation (r))

<table>
<thead>
<tr>
<th>WOMAC</th>
<th>Oxford 12 Questionnaire</th>
<th>IKDC Subj. Knee Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td>0.79</td>
<td>0.66</td>
</tr>
<tr>
<td>SF-36 Q1*</td>
<td>0.84</td>
<td>0.89</td>
</tr>
<tr>
<td>SF-36 Q2*</td>
<td>0.54</td>
<td>0.61</td>
</tr>
<tr>
<td>SF-36 Q7*</td>
<td>0.81</td>
<td>0.80</td>
</tr>
</tbody>
</table>

* SF-36 Physical functioning, * SF-36 Role limitations physical, + SF-36 Bodily pain.
All correlations are significant with p<0.01

Table 3: Construct validity of Oxford 12Q and WOMAC for OA patients (Pearson correlation (r))

<table>
<thead>
<tr>
<th>WOMAC</th>
<th>Oxford 12 Questionnaire</th>
<th>IKDC Subj. Knee Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS</td>
<td>0.83</td>
<td>0.85</td>
</tr>
<tr>
<td>SF-36 Q1*</td>
<td>0.74</td>
<td>0.81</td>
</tr>
<tr>
<td>SF-36 Q2*</td>
<td>0.65</td>
<td>0.59</td>
</tr>
<tr>
<td>SF-36 Q7*</td>
<td>0.82</td>
<td>0.83</td>
</tr>
</tbody>
</table>

* SF-36 Physical functioning, # SF-36 Role limitations physical, + SF-36 Bodily pain.
All correlations are significant with p<0.01
Discussion

The goal of this study was to translate and validate the original IKDC Subjective Knee Form for knee-related injury for the Dutch population. None of the items in the original form caused any problems during the translation process since all of these items are universal for all patients. Therefore, no cultural adaptation was necessary in the translation procedure [11,17].

Internal consistency was high (Cronbach’s alpha 0.9) for the Dutch IKDC Subjective Knee Form. A high Cronbach’s alpha indicates good internal consistency; however, a Cronbach’s alpha higher than 0.9 could indicate redundancy. To investigate the presence of redundancy, Cronbach’s alpha was calculated for the questionnaire while leaving out 1 question each time. Elimination of items resulted in lower internal consistencies; therefore, no items had to be excluded from the Dutch version [6].

We did not investigate patient burden because this can be considered identical to the original version of the IKDC Subjective Knee Form and is not influenced by the translation of the questionnaire.

Content validity appeared to be good. However, only patients with current knee complaints were included in the study; this means that floor and ceiling effects were not investigated after treatment. Theoretically, it could be possible that a ceiling effect occurs after treatment of the knee injury; however, this did not occur in the original version of the IKDC Subjective Knee Form. Therefore, it can be expected that this effect is also absent in the Dutch version of this form.

In our study, 63% of patients had osteoarthritis of the knee. In the original validation of Irrgang et al, this percentage was much lower at 17%. Subanalysis of the group of patients with a diagnosis other than osteoarthritis also showed excellent reliability and validity of our Dutch version of the IKDC Subjective Knee Form [13].

For evaluating the construct validity, we used the WOMAC and Oxford 12 Questionnaire, as well as the VAS and SF-36. In the validation process of the original version of the IKDC subjective knee score, the SF-36 was used as the only measurement for construct validity [13]. Other questionnaires, such as the Knee and Osteoarthritis Outcome Score, could have been used to test the construct validity. However, because no validated Dutch translations are available for these questionnaires, we thought it inappropriate to use them to test construct validity of our translation. The WOMAC and Oxford 12
Questionnaire are validated only for osteoarthritis and not for all other knee-related injuries \[2,8,12,19\]. We performed a subanalysis for the construct validity of all patients with diagnosis other than osteoarthritis for these scores against the VAS and SF-36 physical functioning, role of physical limitations, and bodily pain domains. For patients with osteoarthritis of the knee, the Oxford 12 Questionnaire score showed the best construct validity of the 3 subjective outcome measurements; also the WOMAC showed a strong construct validity for patients with osteoarthritis of the knee. The construct validity of the IKDC subjective knee score for patients with osteoarthritis is lower than that of scores especially developed for measuring symptoms of osteoarthritis. For nonosteoarthritis knee patients, the construct validity of the Oxford 12 Questionnaire seems superior to that of the IKDC Subjective Knee Form. For both scores, the ICC was excellent for this patient group (ICC, 0.95 vs 0.97); however, the convergent and divergent validities of the Oxford 12 Questionnaire is poor in nonosteoarthritis patients (strong floor effect), whereas the convergent and divergent validities of the IKDC subjective knee score is excellent in these patients (Tables 2 and 3). Construct validity alone is not sufficient to judge the suitability of a questionnaire for a specific population. In this case, the poor convergent and divergent validities make the Oxford 12 Questionnaire less suitable for the nonosteoarthritis population, meaning that overall, the IKDC subjective knee score is the most suitable questionnaire for the nonosteoarthritis patient group. Our results showed that the Dutch version of the IKDC Subjective Knee Form is an excellent outcome measurement tool for knee-related research for all knee related injuries. However, for osteoarthritis of the knee, the Oxford 12 Questionnaire score was shown to have better construct validity.

**Conclusion**

The Dutch IKDC Subjective Knee Form proved to be an excellent evaluation instrument for the Dutch orthopaedic surgeon, to be used for all patients with knee-related injury. The validity of the original IKDC Subjective Knee Form was retained after the translation procedure, making it possible to translate it into other languages as well.
Chapter 4

References


IKDC vraaglijst voor de huidige gezondheidstoestand (SF-36)

Achternaam ___________________ Voornaam ___________________

Geboortedatum _____/_____/______ Geslacht  Man □ Vrouw □

Huidige datum _____/_____/______

1. Hoe zou u over het algemeen uw gezondheid noemen?
□ Uitstekend □ Zeer goed □ Goed □ Matig □ Slecht

2. Hoe beoordeelt u nu uw gezondheid over het algemeen, vergeleken met een jaar geleden?
□ Veel beter nu dan een jaar geleden
□ Wat beter nu dan een jaar geleden
□ Ongeveer hetzelfde nu als een jaar geleden
□ Wat slechter nu dan een jaar geleden
□ Veel slechter nu dan een jaar geleden

3. De volgende vragen gaan over bezigheden die u misschien doet op een doorsnee dag. Wordt u door uw gezondheid op dit moment beperkt bij deze bezigheden?
Zo ja, in welke mate?
Ja, ernstig beperkt □ Ja, een beetje beperkt □ Nee, helemaal niet beperkt □

a. Forse inspanning, zoals hardlopen, tillen van zware voorwerpen, een veel eisende sport beoefenen □ □ □

b. Matige inspanning, zoals een tafel verplaatsen, stofzuigen, zwemmen of fietsen □ □ □

c. Boodschappen tillen of dragen □ □ □

d. Een paar trappen oplopen □ □ □

e. Eén trap oplopen □ □ □

f. Bukken, knielen of hurken □ □ □

g. Meer dan een kilometer lopen □ □ □

h. Een paar honderd meter lopen □ □ □

i. Ongeveer honderd meter lopen □ □ □

j. U zelf wassen of aankleden □ □ □

4. Heeft u in de afgelopen 4 weken, één van de volgende problemen bij uw werk of andere dagelijkse bezigheden gehad, ten gevolge van uw lichamelijke gezondheid?
JA □ NEE □

a. U besteedde minder tijd aan werk of andere bezigheden □ □

b. U heeft minder bereikt dan u zou willen □ □

c. U was beperkt in het soort werk of andere bezigheden □ □
5. Heeft u in de afgelopen 4 weken, één van de volgende problemen ondervonden bij uw werk of andere dagelijkse bezigheden ten gevolge van emotionele problemen (zoals depressieve of angstige gevoelens)?

<table>
<thead>
<tr>
<th>JA</th>
<th>NEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. U besteedde minder tijd aan werk of andere bezigheden</td>
<td></td>
</tr>
<tr>
<td>b. U heeft minder bereikt dan u zou willen</td>
<td></td>
</tr>
<tr>
<td>c. U deed uw werk of andere bezigheden niet zo zorgvuldig als gewoonlijk</td>
<td></td>
</tr>
</tbody>
</table>

6. In hoeverre hebben uw lichamelijke gezondheid of emotionele problemen u gedurende de afgelopen 4 weken gehinderd in uw normale omgang met familie, vrienden of buren, of bij activiteiten in groepsverband?

☐ Heelerniet ☐ Enigszins ☐ Nogal ☐ Veel ☐ Heel erg veel

7. Hoeveel lichamelijke pijn heeft u de afgelopen 4 weken gehad?

☐ Geen ☐ Heel licht ☐ Licht ☐ Nogal ☐ Ernstig ☐ Heel ernstig

8. In welke mate bent u de afgelopen 4 weken door pijn gehinderd in uw normale werk (zowel werk buitenhuis als huishoudelijk werk)?

☐ Heelerniet ☐ Een klein beetje ☐ Nogal ☐ Veel ☐ Heel erg veel


Hoe vaak gedurende de afgelopen 4 weken:

<table>
<thead>
<tr>
<th>a. Voelde u zich levenslustig?</th>
<th>Altijd</th>
<th>meestal</th>
<th>vaak</th>
<th>zelden</th>
<th>nooit</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Was u erg zenuwachtig?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Zat u zo in de put dat niets u kon opvrolijken?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Voelde u zich rustig en tevreden?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Had u veel energie?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Voelde u zich somber en neerslachtig?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Voelde u zich uitgeput?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Was u een gelukkig mens?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Voelde u zich moe?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Hoe vaak hebben uw lichamelijke gezondheid of emotionele problemen u gedurende de afgelopen 4 weken gehinderd bij uw sociale activiteiten (zoals vrienden of familie bezoeken, etc.)?

☐ Altijd ☐ Meestal ☐ Soms ☐ Zelden ☐ Nooit

11. Hoe juist of onjuist is elk van de volgende uitspraken voor u?

<table>
<thead>
<tr>
<th>a. Ik lijk wat makkelijker ziek te worden dan andere mensen</th>
<th>volkomen juist</th>
<th>grotendeels juist</th>
<th>weet ik niet</th>
<th>grotendeels onjuist</th>
<th>volkomen onjuist</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Ik ben even gezond als andere mensen die ik ken</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Ik verwacht dat mijn gezondheid achteruit zal gaan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Mijn gezondheid is uitstekend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IKDC subjective knee form

SYMPTOMEN*:
*Beoordeel de symptomen op het hoogste niveau van activiteiten waarop u kunt functioneren zonder significante klachten of symptomen, ook al voert u geen activiteiten uit op dit niveau.

1. Wat is het hoogste niveau van activiteiten dat u kunt bereiken zonder aanzienlijke pijn in uw knie.
   □ Erg Inspannende activiteiten, zoals springen, of draaibeweging zoals in basketbal of voetbal
   □ Inspannende activiteiten, zoals zwaar lichamelijk werk, skiën of tennis.
   □ Matige activiteiten, zoals matig lichamelijk werk, rennen of joggen.
   □ Lichte activiteiten zoals lopen, huishoudelijk werk of werken in de tuin.
   □ Geen van de bovengenoemde activiteiten door pijn in de knie.

2. Hoe vaak hebt u in de laatste 4 weken, of sinds uw ongeval, pijn gehad?

   0  1  2  3  4  5  6  7  8  9  10
   Nooit □ □ □ □ □ □ □ □ □ □ Constant

3. Als u pijn heeft, hoe erg is deze dan?

   0  1  2  3  4  5  6  7  8  9  10
   Geen pijn □ □ □ □ □ □ □ □ □ □ Pijn

4. Hoe stijf of gezwollen was uw knie in de laatste 4 weken, of sinds uw ongeval?
   □ Niet
   □ Mild
   □ Matig
   □ Erg
   □ Zeer erg

5. Wat is het hoogste niveau van activiteiten dat u kunt bereiken zonder een aanzienlijke zwelling van uw knie?
   □ Erg Inspannende activiteiten, zoals springen, of draaibeweging zoals in basketbal of voetbal.
   □ Inspannende activiteiten, zoals zwaar lichamelijk werk, skiën of tennis.
   □ Matige activiteiten, zoals matig lichamelijk werk, rennen of joggen.
   □ Lichte activiteiten zoals lopen, huishoudelijk werk of werken in de tuin.
   □ Geen van de bovengenoemde activiteiten vanwege zwelling van de knie.

6. Heeft u in de laatste 4 weken, of sinds uw ongeval, last gehad van slot en/of zwikklachten?
   □Ja □Nee

7. Wat is het hoogste niveau van activiteiten dat u kunt bereiken zonder dat u door uw knie zwikt?
   □ Erg Inspannende activiteiten, zoals springen, of draaibeweging zoals in basketbal of voetbal.
   □ Inspannende activiteiten, zoals zwaar lichamelijk werk, skiën of tennis.
   □ Matige activiteiten, zoals matig lichamelijk werk, rennen of joggen.
   □ Lichte activiteiten zoals lopen, huishoudelijk werk of werken in de tuin.
   □ Geen van de bovengenoemde activiteiten door knie-instabiliteit.

8. Wat is het hoogste niveau van activiteiten waaraan u regelmatig kunt deelnemen?
   □ Erg inspannende activiteiten, zoals springen, of draaibeweging zoals in basketbal of voetbal.
   □ Inspannende activiteiten, zoals zwaar lichamelijk werk, skiën of tennis.
   □ Matige activiteiten, zoals matig lichamelijk werk, rennen of joggen.
   □ Lichte activiteiten zoals lopen, huishoudelijk werk of werken in de tuin.
   □ Geen van de bovengenoemde activiteiten door de knie.
9. Hoe moeilijk zijn de volgende activiteiten voor u, door uw knieklachten?

<table>
<thead>
<tr>
<th></th>
<th>Niet moeilijk</th>
<th>Iets moeizaam</th>
<th>Moeilijk</th>
<th>Erg moeilijk</th>
<th>Onmogelijk</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Trap oplopen</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b</td>
<td>Trap aflopen</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>c</td>
<td>Op uw knieën zitten</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d</td>
<td>Hurken</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>e</td>
<td>Zitten (met gebogen knieën)</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>f</td>
<td>Opstaan uit een stoel</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>g</td>
<td>Rechtdoor hardlopen</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>h</td>
<td>Springen en neerkomen op het aangedane been</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>i</td>
<td>Snel starten en stoppen bij lopen</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

**FUNCTIE:**
10. Hoe wilt u de functie van uw knie beoordelen op een schaal van 0 tot 10, als 10 normaal/perfecte functie betekent, en 0 betekent dat uw kniefunctie ervoor zorgt dat u geen van uw normale activiteiten kunt uitvoeren (inclusief sport).

**FUNCTIE VOOR UW KNIELETSEL:**

<table>
<thead>
<tr>
<th>Kan geen dagelijkse activiteiten uitvoeren</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Geen beperking in dagelijkse activiteiten</th>
</tr>
</thead>
</table>

**HUIDIGE FUNCTIE VAN UW KNIE:**

<table>
<thead>
<tr>
<th>Kan geen dagelijkse activiteiten uitvoeren</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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</thead>
</table>