ICRS Cartilage Injury Evaluation Package

Consists of two parts:

**A: PATIENT PART:**
- ICRS Injury questionnaire
- The IKDC Subjective Knee Evaluation Form-2000

**B: SURGEONS PART**
- ICRS Knee Surgery History Registration
- IKDC KneeExamination form-2000
- ICRS-Articular cartilage injury mapping system
- ICRS-Articular cartilage injury classification
- ICRS-Osteochondritis dissecans classification
- ICRS-Cartilage Repair Assessment system

The ICRS Clinical Cartilage Injury Evaluation system-2000 was developed during ICRS 2000 Standards Workshop at Schloss Münchenwiler, Switzerland, January 27-30, 2000 and further discussed during the 3rd ICRS Meeting in Göteborg, Sweden, Friday April 28, 2000.

The participants in the Clinical Münchenwiler Evaluation Group were as follows:

Chairman Mats Brittberg, Sweden
Paolo Aglietti, Italy
Ralph Gambardella, USA
Laszlo Hangody, Hungary
Hans Jörg Hauselmann, Switzerland
Roland P Jakob, Switzerland
David Levine, USA
Stefan Lohmander, Sweden
Bert R Mandelbaum, USA
Lars Peterson, Sweden
Hans-Ulrich Staubli, Switzerland

There was a discussion regarding the use of IKDC-1999 vs KOOS (Knee Injury and Osteoarthritis Outcome Score). The decision in Göteborg was to continue with IKDC (IKDC representatives: A. Anderson, R. Jakob, H.-U. Stäubli) but there will also be comparative studies with the KOOS (http://www.koos.nu/)

The clinical evaluation system can also be combined with the ICRS Imaging Protocol as well as the ICRS Biomechanical Protocol

Comments on the ICRS Cartilage Evaluation forms to: mats.brittberg@telia.com
ICRS – CARTILAGE INJURY STANDARD EVALUATION FORM-2000
PATIENTS PART

Patient Name:______________________________________________________________

Birthdate : Day______Month______Year__________

Street:_________ Zip:_________ Town:____________________ Country:__________________

Phone:__________ E-mail:________________________

Gender:__________

Height:_____ cm  Weight:_____ Kg

Examiner:_________________________________ Date of examination:____________

Localisation:

Involved knee:  Right ____ Left____

Opposite knee: Normal__ Nearly Normal__ Abnormal__ Severely abnormal__

Onset of symptoms

(date):______________ Gradual:______ Acute:______

Etiology/Cause of injury:

Activity at injury:

Activity of daily living:______ Sports____________

Traffic_______ Type of vehicle______ Work____________

Activity-level: before Injury  Just now prior to surgery

I: high competitive sportsman/woman  yes___ No____ yes___ No____
II: well-trained and frequently sporting:  yes___ No____ yes___ No____
III: sporting sometimes  yes___ No____ yes___ No____
IV: Non-sporting  yes___ No____ yes___ No____

Functional status

I: I can do everything that I want to do with my joint
II: I can do nearly everything that I want to do with my joint
III: I am restricted and a lot of things that I want to do with my joint are not possible
IV: I am very restricted and I can do almost nothing with my joint without severe pain and disability

Preinjury: _______II___III___IV___

Just prior to surgery _______II___III___IV___

Present activity level _______II___III___IV___
IKDC CURRENT HEALTH ASSESSMENT FORM *
Patients Part:

Your Full Name ____________________________________________________________

Your Date of Birth ____________________________ / ____________________________ /
Day Month Year

Today’s Date ____________________________ / ____________________________ /
Day Month Year

1. In general, would you say your health is:

☑ Excellent
☑ Very Good
☑ Good
☑ Fair
☑ Poor

2. Compared to one year ago, how would you rate your health in general now?

☑ Much better now than 1 year ago
☑ Somewhat better now than 1 year ago
☑ About the same as 1 year ago
☑ Somewhat worse now than 1 year ago
☑ Much worse now than 1 year ago

3. The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes, Limited A Lot</th>
<th>Yes, Limited A Little</th>
<th>No, Not Limited At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Lifting or carrying groceries</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Climbing several flights of stairs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. Climbing one flight of stairs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. Bending, kneeling or stooping</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. Walking more than a mile</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. Walking several blocks</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>i. Walking one block</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>j. Bathing or dressing yourself</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
4. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

   a. Cut down on the amount of time you spent on work or other activities
   b. Accomplished less than you would like
   c. Were limited in the kind of work or other activities
   d. Had difficulty performing the work or other activities (for example, it took extra effort)

5. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

   a. Cut down on the amount of time you spent on work or other activities
   b. Accomplished less than you would like
   c. Didn’t do work or other activities as carefully as usual

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

   - Not At All
   - Slightly
   - Moderately
   - Quite a Bit
   - Extremely

7. How much bodily pain have you had during the past 4 weeks?

   - None
   - Very Mild
   - Mild
   - Moderate
   - Severe
   - Very Severe

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

   - Not at All
   - A Little Bit
   - Moderately
   - Quite a Bit
   - Extremely
9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

<table>
<thead>
<tr>
<th></th>
<th>All of the time</th>
<th>Most of the time</th>
<th>A good bit of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Did you feel full of pep?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Have you been very nervous?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Have you felt calm and peaceful?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Did you have a lot of energy?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. Have you felt down-hearted and blue?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. Did you feel worn out?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. Have you been a happy person</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. Did you feel tired?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

☐ All of the time
☐ Most of the time
☐ Some of the time
☐ A little of the time
☐ None of the time

11. How TRUE or FALSE is each of the following statements for you?

<table>
<thead>
<tr>
<th></th>
<th>Definitely True</th>
<th>Mostly True</th>
<th>Don't Know</th>
<th>Mostly False</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I seem to get sick a little easier than other people</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. I am as healthy as anybody I know</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. I expect my health to get worse</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. My health is excellent</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

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2000 IKDC **SUBJECTIVE KNEE EVALUATION FORM**

**Patients Part:**

Your Full Name________________________________________________________

Today’s Date: _______/_______/______ Date of Injury: _______/________/_____

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

2. **During the past 4 weeks, or since your injury, how often have you had pain?**
   - 0 Never
   - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] 1 2 3 4 5 6 7 8 9 10 Constant

3. **If you have pain, how severe is it?**
   - 0 No pain
   - [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] 1 2 3 4 5 6 7 8 9 10 Worst pain imaginable

4. **During the past 4 weeks, or since your injury, how stiff or swollen was your knee?**
   - [ ] Not at all
   - [ ] Mildly
   - [ ] Moderately
   - [ ] Very
   - [ ] Extremely

5. **What is the highest level of activity you can perform without significant swelling in your knee?**
   - [ ] Very strenuous activities like jumping or pivoting as in basketball or soccer
   - [ ] Strenuous activities like heavy physical work, skiing or tennis
   - [ ] Moderate activities like moderate physical work, running or jogging
   - [ ] Light activities like walking, housework, or yard work
   - [ ] Unable to perform any of the above activities due to knee swelling

6. **During the past 4 weeks, or since your injury, did your knee lock or catch?**
   - [ ] Yes
   - [ ] No

7. **What is the highest level of activity you can perform without significant giving way in your knee?**
   - [ ] Very strenuous activities like jumping or pivoting as in basketball or soccer
   - [ ] Strenuous activities like heavy physical work, skiing or tennis
   - [ ] Moderate activities like moderate physical work, running or jogging
   - [ ] Light activities like walking, housework or yard work
   - [ ] 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?

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

9. How does your knee affect your ability to:

<table>
<thead>
<tr>
<th></th>
<th>Not difficult at all</th>
<th>Minimally difficult</th>
<th>Moderately Difficult</th>
<th>Extremely difficult</th>
<th>Unable to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Go up stairs</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b. Go down stairs</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>c. Kneel on the front of your knee</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d. Squat</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>e. Sit with your knee bent</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>f. Rise from a chair</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>g. Run straight ahead</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>h. Jump and land on your involved leg</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>i. Stop and start quickly</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

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 INJURY:
Cannot perform daily activities
No limitation

<table>
<thead>
<tr>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

CURRENT FUNCTION OF YOUR KNEE:
Cannot perform daily activities
No limitation

<table>
<thead>
<tr>
<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>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
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 1 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 1 to the response “Unable to Perform Any of the Above Activities Due to Knee” and a score of 5 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 response “Constant” is assigned a score of 1 and “Never” is assigned a score of 11.

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 10 “Function Prior to Knee Injury” is not included in the overall score. The steps to score the IKDC Subjective Knee Evaluation Form are as follows:

1. Assign a score to the individual’s response for each item, such that lowest score represents the lowest level of function or highest level of symptoms.
2. Calculate the raw score by summing the responses to all items with the exception of the response to item 10 “Function Prior to Your Knee Injury”
3. Transform the raw score to a 0 to 100 scale as follows:

   \[
   \text{IKDC Score} = \left[ \frac{\text{Raw Score} - \text{Lowest Possible Score}}{\text{Range of Scores}} \right] \times 100
   \]

   Where the lowest possible score is 18 and the range of possible scores is 87. Thus, if the sum of scores for the 18 items is 60, the IKDC Score would be calculated as follows:

   \[
   \text{IKDC Score} = \left[ \frac{60 - 18}{87} \right] \times 100
   \]

   IKDC Score = 48.3

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 Score can still be calculated if there are missing data, as long as there are responses to at least 90% of the items (i.e. responses have been provided for at least 16 items). To calculate the raw IKDC score when there are missing data, substitute the average score of the items that have been answered for the missing item score(s). Once the raw IKDC score has been calculated, it is transformed to the IKDC Subjective Knee Score as described above.
ICRS Knee History Registration-Previous Surgery

Surgeons part

Type of surgery: Check all that apply

**Meniscal surgery:**

<table>
<thead>
<tr>
<th>Meniscal surgery</th>
<th>Medial Meniscal Surgery</th>
<th>Lateral Meniscal Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Partial resection____</td>
<td>Partial resection____</td>
</tr>
<tr>
<td></td>
<td>Subtotal resection____</td>
<td>Subtotal resection____</td>
</tr>
<tr>
<td></td>
<td>Meniscal suture____</td>
<td>Meniscal Suture____</td>
</tr>
<tr>
<td></td>
<td>Meniscal Transplant____</td>
<td>Meniscal Transplant____</td>
</tr>
<tr>
<td></td>
<td>Open____Arthroscop____</td>
<td>Open____Arthroscop____</td>
</tr>
</tbody>
</table>

**Ligament Surgery:**

<table>
<thead>
<tr>
<th>Ligament Surgery</th>
<th>ACL repair__Intraarticular__ Extraarticular__</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCL-repair__Intraarticular__ Extraarticular__</td>
</tr>
<tr>
<td></td>
<td>Medial -<strong>Lateral-Collateral-ligament reconstruction</strong></td>
</tr>
</tbody>
</table>

Type of graft:

<table>
<thead>
<tr>
<th>Type of graft</th>
<th>Patella-tendon____</th>
<th>Ipsilateral__Contralateral__</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single hamstrings -graft____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 bundle hamstrings -graft____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 bundle hamstrings -graft____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quadriceps-graft____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allograft____</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other____</td>
<td></td>
</tr>
</tbody>
</table>

**Extensor Mechanism surgery:**

<table>
<thead>
<tr>
<th>Extensor Mechanism surgery</th>
<th>Patella tendon repair____ Quadriceps-tendon repair____</th>
</tr>
</thead>
</table>

**Patellofemoral surgery:**

**Soft tissue realignment:**

<table>
<thead>
<tr>
<th>Soft tissue realignment</th>
<th>Medial imbrication____ Lateral release____</th>
</tr>
</thead>
</table>

**Bone realignment:**

<table>
<thead>
<tr>
<th>Bone realignment</th>
<th>Tibial tubercle transfer:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proximal__Distal__Medial__Lateral__Anterior__</td>
</tr>
<tr>
<td></td>
<td>Trochlear plasty____</td>
</tr>
<tr>
<td></td>
<td>Patellectomy____</td>
</tr>
</tbody>
</table>

| Cartilage resurfacing and reconstructive surgery: | Debridement (shaving of fibrillated cartilage and cartilage flaps) | Abrasion arthroplast |
|--------------------------------------------------|------------------------------------------------------------|
|                                                  | Microfracture                                               |
|                                                  | Subchondral drilling                                        |
|                                                  | Carbon fibre resurfacing                                   |
|                                                  | Osteochondral allograft                                    |
|                                                  | Multiple osteochondral autologous grafts                    |
|                                                  | Periosteal resurfacing                                     |
|                                                  | Perichondral resurfacing                                   |
|                                                  | Autologous chondrocyte implantation + periosteum            |
|                                                  | Autologous chondrocyte implantation with membrane           |
|                                                  | Other type of technique: ____________________________       |
Surgeons part

Osteotomy: Tibia___ Femur___ Varus___ Valgus__________

Imaging techniques:
Plain x-rays:_______ Varus-angle______ Valgus-angle______
CT____ CT-arthrography____ MRI____ Scintigraphy_______

Findings:
Articular cartilage appearance:_________________________________________________________
_________________________________________________________________________________
Bone:______________________________________________________________________________
_________________________________________________________________________________
Ligaments:_________________________________________________________________________
_________________________________________________________________________________
Menisci:____________________________________________________________________________
2000 IKDC Knee Examination Form

Surgeons part

| Range of Motion (Ext/Flex): | Index Side: | passive | / | / | active | / | / |
| Opposite Side: | passive | / | / | active | / | / |

**SEVEN GROUPS**

<table>
<thead>
<tr>
<th>FOUR GRADES</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Nearly Normal</td>
<td>Abnormal</td>
<td>Severely Abnormal</td>
<td></td>
</tr>
</tbody>
</table>

**1. Effusion**

<table>
<thead>
<tr>
<th>? None</th>
<th>? Mild</th>
<th>? Moderate</th>
<th>? Severe</th>
</tr>
</thead>
</table>

**2. Passive Motion Deficit**

- **△Lack of extension**: ? <3° | ? 3 to 5° | ? 6 to 10° | ? >10°
- **△Lack of flexion**: ? 0 to 5° | ? 6 to 15° | ? 16 to 25° | ? >25°

**3. Ligament Examination**

- **△Lachman (25° flex) (134N)**
  - ? -1 to 2mm | ? 3 to 5mm(1°) | ? 6 to 10mm(2°) | ? >10mm(3°)
  - ? <−1 to −3 | ? <-3 stiff |
- **△Lachman (25° flex) manual max**: ? -1 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **Anterior endpoint**: ? firm | ? soft |
- **△Total AP Translation (25° flex)**
  - ? 0 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **△Total AP Translation (70° flex)**
  - ? 0 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **△Posterior Drawer Test (70° flex)**
  - ? 0 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **△Med Joint Opening (20° flex/varus rot)**
  - ? 0 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **△Lat Joint Opening (20° flex/varus rot)**
  - ? 0 to 2mm | ? 3 to 5mm | ? 6 to 10mm | ? >10mm
- **△External Rotation Test (30° flex prone)**
  - ? <5° | ? 6 to 10° | ? 11 to 19° | ? >20°
- **△External Rotation Test (90° flex prone)**
  - ? <5° | ? 6 to 10° | ? 11 to 19° | ? >20°
- **△Pivot Shift**
  - ? equal | ? +glide | ? ++(clunk) | ? +++(gross)
- **△Reverse Pivot Shift**

**4. Compartment Findings**

- **△Crepitus Ant. Compartment**
- **△Crepitus Med. Compartment**
- **△Crepitus Lat. Compartment**

**5. Harvest Site Pathology**


**6. X-ray Findings**

- **Med. Joint Space**
- **Lat. Joint Space**
- **Patellofemoral**
- **Ant. Joint Space (sagittal)**
- **Post. Joint Space (sagittal)**

**7. Functional Test**

- **One Leg Hop (% of opposite side)**
  - ? ≥90% | ? 89 to 76% | ? 75 to 50% | ? <50%

**Final Evaluation**

| ? | ? | ? | ? |

---

* Group grade: The lowest grade within a group determines the group grade
** Final evaluation: the worst group grade determines the final evaluation for acute and subacute patients. For chronic patients compare preoperative and postoperative evaluations. In a final evaluation only the first 3 groups are evaluated but all groups must be documented. △ Difference in involved knee compared to normal or what is assumed to be normal.

INSTRUCTIONS FOR THE 2000 IKDC KNEE EXAMINATION FORM

The Knee Examination Form contains items that fall into one of seven measurement domains. However, only the first three of these domains are graded. The seven domains assessed by the Knee Examination Form are:

1. **Effusion**
   An effusion is assessed by ballotting the knee. A fluid wave (less than 25 cc) is graded mild, easily ballotteable fluid – moderate (25-60 cc), and a tense knee secondary to effusion (greater than 60 cc) is rated severe.

2. **Passive Motion Deficit**
   Passive range of motion is measured with a gonimeter and recorded on the form for the index side and opposite or normal side. Record values for zero point/hyperextension/flexion (e.g. 10 degrees of hyperextension, 150 degrees of flexion = 10/0/150; 10 degrees of flexion to 150 degrees of flexion = 0/10/150). Extension is compared to that of the normal knee.

3. **Ligament Examination**
   The Lachman test, total AP translation at 70 degrees, and medial and lateral joint opening may be assessed with manual, instrumented or stress x-ray examination. Only one should be graded, preferably a ‘measured displacement’. A force of 134 N (30 lbs) and the maximum manual are recorded in instrumented examination of both knees. Only the measured displacement at the standard force of 134 N is used for grading. The numerical values for the side to side difference are rounded off, and the appropriate box is marked.

   The end point is assessed in the Lachman test. The end point affects the grading when the index knee has 3-5 mm more anterior laxity than the normal knee. In this case, a soft end point results in an abnormal grade rather than a nearly normal grade.

   The 70-degree posterior sag is estimated by comparing the profile of the injured knee to the normal knee and palpating the medial femoral tibia step off. It may be confirmed by noting that contraction of the quadriceps pulls the tibia interiorly.

   The external rotation tests are performed with the patient prone and the knee flexed 30° and 70°. Equal external rotational torque is applied to both feet and the degree of external rotation is recorded.

   The pivot shift and reverse pivot shift are performed with the patient supine, with the hip in 10-20 degrees of abduction and the tibia in neutral rotation using either the Losee, Noyes, or Jakob techniques. The greatest subluxation, compared to the normal knee, should be recorded.

4. **Compartment Findings**
   Patellofemoral crepitation is elicited by extension against slight resistance. Medial and lateral compartment crepitation is elicited by extending the knee from a flexed position with a varus stress and then a valgus stress (i.e., McMurray test). Grading is based on intensity and pain.

5. **Harvest Site Pathology**
   Note tenderness, irritation or numbness at the autograft harvest site.

6. **X-ray Findings**
   A bilateral, double leg PA weightbearing roentgenogram at 35-45 degrees of flexion (tunnel view) is used to evaluate narrowing of the medial and lateral joint spaces. The Merchant view at 45 degrees is used to document patellofemoral narrowing. A mild grade indicates minimal changes (i.e., small osteophytes, slight sclerosis or flattening of the femoral condyle) and narrowing of the joint space which is just detectable. A moderate grade may have those changes and joint space narrowing (e.g., a joint space of 2-4 mm side or up to 50% joint space narrowing). Severe changes include a joint space of less than 2 mm or greater than 50% joint space narrowing.

7. **Functional Test**
   The patient is asked to perform a one leg hop for distance on the index and normal side. Three trials for each leg are recorded and averaged. A ratio of the index to normal knee is calculated.
ICRS Grade 0 - Normal

ICRS Grade 1 – Nearly Normal
Superficial lesions. Soft indentation (A) and/or superficial fissures and cracks (B)

ICRS Grade 2 – Abnormal
Lesions extending down to <50% of cartilage depth

ICRS Grade 3 – Severely Abnormal
Cartilage defects extending down >50% of cartilage depth (A) as well as down to calcified layer (B) and down to but not through the subchondral bone (C). Blisters are included in this Grade (D)

ICRS Grade 4 – Severely Abnormal
**Femur**

<table>
<thead>
<tr>
<th>Side</th>
<th>Right</th>
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<tbody>
<tr>
<td>Condyle</td>
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<tr>
<td>Sagittal plane</td>
<td>troclear</td>
<td>anterior</td>
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<tr>
<td>Frontal plane</td>
<td>lateral</td>
<td>central</td>
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<tr>
<td>Cartilage lesion (Grade) (*)</td>
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<tr>
<td>Defect size pre-debridement</td>
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<tr>
<td>Defect size post-debridement</td>
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**Tibia**

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<th>Side</th>
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<tbody>
<tr>
<td>Plateau</td>
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<tr>
<td>Sagittal plane</td>
<td>anterior</td>
<td>central</td>
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<tr>
<td>Frontal plane</td>
<td>lateral</td>
<td>central</td>
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<tr>
<td>Cartilage lesion (Grade) (*)</td>
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<tr>
<td>Defect size post-debridement</td>
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**Patella**

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<thead>
<tr>
<th>Side</th>
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<tbody>
<tr>
<td>Sagittal plane</td>
<td>distal</td>
<td>central</td>
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<tr>
<td>Frontal plane</td>
<td>lateral</td>
<td>central</td>
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<tr>
<td>Cartilage lesion (Grade) (*)</td>
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<tr>
<td>Defect size post-debridement</td>
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**Diagnosis:** Traumatic cartilage lesion  OD  OA  AVN  Others

**Biopsy/Osteochondral Plugs:** Location:  Number of Plugs:  Diameter of Plugs:  

**Treatment:** Shaving  Drilling  Others:  
Mosaic-Plasty  Microfracture  Autologous Chondrocyte Implantation (ACI)  

**Notes:**
Measurement of the defect size: ∅ 11mm
ICRS Classification of OCD-Lesions (Osteochondritis-Dissecans)

ICRS OCD I
Stable, continuity: Softened area covered by intact cartilage.

ICRS OCD II
Partial discontinuity, stable on probing

ICRS OCD III
Complete discontinuity, "dead in situ", not dislocated.

ICRS OCD IV
Dislocated fragment, loose within the bed or empty defect. > 10mm in depth is B-subgroup

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# CARTILAGE REPAIR ASSESSMENT

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Points</th>
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<tbody>
<tr>
<td><strong>Degree of Defect Repair</strong>&lt;br&gt;<strong>I Protocol A (1)</strong>&lt;br&gt;* In level with surrounding cartilage*&lt;br&gt;* 75% repair of defect depth*&lt;br&gt;* 50% repair of defect depth*&lt;br&gt;* 25% repair of defect depth*&lt;br&gt;* 0% repair of defect depth*&lt;br&gt;4 3 2 1 0</td>
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<tr>
<td><strong>I Protocol B (2)</strong>&lt;br&gt;* 100% survival of initially grafted surface*&lt;br&gt;* 75% survival of initially grafted surface*&lt;br&gt;* 50% survival of initially grafted surface*&lt;br&gt;* 25% survival of initially grafted surface*&lt;br&gt;* 0% (plugs are lost or broken)*&lt;br&gt;4 3 2 1 0</td>
<td></td>
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<tr>
<td><strong>II Integration to Border zone</strong>&lt;br&gt;* Complete integration with surrounding cartilage*&lt;br&gt;* Demarcating border &lt; 1mm*&lt;br&gt;* 3/4 of graft integrated, 1/4 with a notable border &gt; 1mm width*&lt;br&gt;* 1/2 of graft integrated with surrounding cartilage, 1/2 with a notable border &gt; 1mm*&lt;br&gt;* From no contact to 1/4 of graft integrated with surrounding cartilage*&lt;br&gt;4 3 2 1 0</td>
<td></td>
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<td><strong>III Macroscopic Appearance</strong>&lt;br&gt;* Intact smooth surface*&lt;br&gt;* Fibrillated surface*&lt;br&gt;* Small, scattered fissures or cracs*&lt;br&gt;* Several, small or few but large fissures*&lt;br&gt;* Total degeneration of grafted area*&lt;br&gt;4 3 2 1 0</td>
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<tr>
<td><strong>Overall Repair Assessment</strong>&lt;br&gt;Grade I normal 12 P&lt;br&gt;Grade II nearly normal 11-8 P&lt;br&gt;Grade III abnormal 7-4 P&lt;br&gt;Grade IV severely abnormal 3-1 P</td>
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Cartilage Biopsy Location ________________

(1) Protocol A: autologous chondrocyte implantation (ACI); periosteal or perichondrial transplantation; subchondral drilling; microfracturing; carbon fibre implants; others:

(2) Protocol B: Mosaicplasty; OAT; osteochondral allografts; others: