Evaluation of the Patellofemoral Patient: Consensus Recommendations by an Expert Panel and Survey

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Disclosures

I (and/or my co-authors) have something to disclose.
Consultant: Aesculap, Acuitive, Marrow Access Technologies
Shareholder: Marrow Access Technologies
Board of Directors: Patellofemoral Foundation, ISAKOS
Illinois Association of Orthopaedic Surgeons

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AAOS Orthopaedic Disclosure Program on the AAOS website at http://www.aaos.org/disclosure

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Introduction: Comparison of Patellofemoral studies challenging

- Patellofemoral joint is complex with multiple treatments described
- Various radiographic and examination parameters
- Difficult to compare studies since no standardized documentation
- ISAKOS Patellofemoral Task Force goal to develop patellofemoral joint description and scoring system
ISAKOS - Patellofemoral Scoring Task Force

• Philippe Neyret, France
• Ryosuke Kuroda, Japan
• Jason Koh, USA
• John Fulkerson, USA
• Elizabeth Arendt, USA
• Jack Farr, USA
• Sanchis Alfonso, Spain

• Jon Karlsson, Sweden
• Robert Magnusson, USA
• Fredrick Almqvist, Belgium
• Elvire Servien, France
• Robin West, USA
• Geraldo Scuck, Brazil
• Jack T Andrish, USA
Materials and Methods:
Structured identification of key elements

- Modified Ebel procedure for content validation
  - (1) simple/face validation by experts
  - (2) review and acceptance from an international group of experts
  - (3) face-to-face discussion by experts on items that do not receive 80% agreement

- (Part 1) Task force surveyed to identify potentially important factors for patellofemoral evaluation

- Physical examination / findings
- Radiographic findings
Part 2. Survey

- 50 item survey developed
  - 30 physical examination elements
  - 20 radiographic elements
- All task force members, active members of the International Patellofemoral Study Group asked to participate
The survey includes two sections: physical examination tests/findings and radiographic findings. Rate each test/finding from 5 to 0 as follows:

5 – most critical – must always be assessed and reported
4 –
3 –
2 –
1 – Potentially useful, but not critical
0 – I have never heard of this
Physical examination: Top 10

<table>
<thead>
<tr>
<th>Rating Average</th>
<th>3.50</th>
<th>4.00</th>
<th>4.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patella tilt / tightness of lateral retinaculum</td>
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<tr>
<td>Degree of flexion at which tilt and mobility occurs...</td>
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<tr>
<td>Presence of Quadriceps atrophy</td>
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<tr>
<td>Effusion: presence and severity</td>
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<tr>
<td>Generalized laxity: Beighton score or similar</td>
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<tr>
<td>Patella tracking</td>
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<tr>
<td>Lower limb alignment</td>
<td></td>
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<tr>
<td>Knee range of motion (passive)</td>
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<td></td>
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<tr>
<td>Presence of a J sign</td>
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<tr>
<td>Whether the obligatory dislocation occurs...</td>
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<tr>
<td>Presence of Lateral Apprehension</td>
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</table>
Radiographic examination: Top 10

Rating Average

- Crossing sign: Present/absent
- Location and size of cartilage lesions of the...
- Trochlear dysplasia grade
- Presence of Patella subluxation or...
- Degree of knee flexion in which all axial...
- Skeletal maturity based on visible physes
- Presence of Patellofemoral joint space...
- How TT-TG was assessed: CT/MRI
- Tibial tubercle – trochlear groove (TT-TG)...
- Patella height: Caton-Deschamps/Insall-

3.50  4.00  4.50  5.00
Part 3. Validation

- 29 individuals responded
- Some items clearly more important
  - (no element was ranked a 5 by everyone…)
- Top 10 in physical exam, radiographic (>80% agreement) separated from lower ranked
- Results discussed w/ Task Force and IPSG members at AOSSM, ISAKOS 2015, and IPSG 2015 (>50 experts)
- Consensus on number and importance of items
<table>
<thead>
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<th>Physical examination items</th>
<th>Radiographic examination items</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presence of lateral apprehension</td>
<td>• Patella height: (Caton-Deschamps/Insall-Salvati/Blackburn-Peale, etc)</td>
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<tr>
<td>• Whether obligatory dislocation occurs in flexion or extension</td>
<td>• Tibial tubercle – trochlear groove (TT-TG) distance</td>
</tr>
<tr>
<td>• Presence of a J sign</td>
<td>• How TT-TG was assessed: CT/MRI</td>
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<td>• Knee range of motion (passive)</td>
<td>• Presence of patellofemoral joint space narrowing</td>
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<td>• Lower limb alignment</td>
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<td>• Trochlear dysplasia grade</td>
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<tr>
<td>• Presence of quadriceps atrophy</td>
<td>• Location and size of cartilage lesions of the patella or trochlea</td>
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<tr>
<td>• Patella mobility (quadrants or similar method)</td>
<td>• Crossing sign: present/absent</td>
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<tr>
<td>• Degree of flexion at which tile and mobility are assessed</td>
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Items listed in relative order of importance in each category
Conclusions

- Key physical exam and radiographic items have been identified by standardized process
- Further description of specific elements in process
- We recommend that researchers record and include these key elements in their studies to provide data that can be compared
Thank you!

Orthopaedic and Spine Institute