Guidelines:

1. Davies’ Rule of 3 for passive tests:
   - 1st – general idea
   - 2nd – implicate structure
   - 3rd – corroborate findings

2. Resisted tests: 1 time because so provocative

3. Hand placements

4. Hand transitions

5. Corroboration of multiple tests to implicate involved structures

176 Special Tests for the Knee (+1: Frog Leg Maneuver for PLC)

**KNEE EFFUSION**
(Intra vs Extra-articular swelling)

|---------------------------|------------------------------------------------------------------------|----------|---------------|-----------|-------------------|----------------------------------|
| Effusion (Intra-articular swelling) | *History of macro trauma*  
*Patient complaints of stiffness*  
*Observation of swelling*  
*Increased anthropometric measurements* | Supine: knee - 0°/30°  
Supine: knee - 0°/30° | Milking test/fluuid wave  
(Hands distance proximal to knee jt. line) | Not determined  
Not determined | Intra articular effusion  
Intra articular effusion | NSAID  
Modalities  
Compressions  
Elevation  
Cryotherapy  
Muscle contractions |

**References:**

**Milking Test**
The sensitivity and specificity have not been established in any studies.

**Ballotment Test**
The sensitivity and specificity have not been established in any studies.

### PATELLOFEMORAL

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning For Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patello Femoral</td>
<td>*All Patients</td>
<td>Supine: knee flexed 30°</td>
<td>Medial/lateral glides (2 Quadrants-N)</td>
<td>Not determined</td>
<td>Medial/lateral retinaculum (superficial fibers)</td>
<td>Hypomobility: TERT, Mobs, Stretching, Soft tissue techniques TLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supine: knee flexed 30°</td>
<td>Cephalic/caudal glides (cephalic – 10 mm)</td>
<td>Not determined</td>
<td>Patellar tendon, infrapatellar tendon</td>
<td>Hypermobility: Taping, Bracing, Quad Exercises, TLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supine: knee 0°</td>
<td>Medial/lateral tilts (~15°)</td>
<td>Not determined</td>
<td>Medial/lateral retinaculum (deep fibers)</td>
<td>Surgeries: (MPFL, Medial Reefing, Lateral Retinacular Lengthening, Fulkerson’s Anteromedialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sitting: knee 90-0°</td>
<td>Passive tracking (C or reverse C shape)</td>
<td>Not determined</td>
<td>Noncontractile tissue, patellar groove</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sitting: knee 90-0°</td>
<td>Active tracking OKC (same)</td>
<td>Not determined</td>
<td>Contractile tissue, patellar groove</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standing</td>
<td>Active tracking CKC</td>
<td>Not determined</td>
<td>Contractile and noncontractile tissue</td>
<td></td>
</tr>
</tbody>
</table>

**Patello-Femoral All Patients**

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning For Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patello-Femoral</td>
<td>All Patients</td>
<td>Supine</td>
<td>Moving Patellar Apprehension Test. 1)Knee Ext. to Flex (90°) with Patella manually Glided laterally</td>
<td>Sen-100% Spec-88% PPV-89% NPV-100% Accuracy-94%</td>
<td>Noncontractile tissue, patellar groove</td>
<td>Hypermobility: Taping, Bracing, Quad Exercises, TLS Surgeries:</td>
</tr>
</tbody>
</table>
with the thumb through entire ROM + Test: oral app. or quad app. Activation

2) Knee Ext. to Flex (90°) with Patella manually Glided medially with the index finger through entire ROM No app. + allows full ROM

(MPFL, Medial Reefing, Lateral Retinacular Lengthening, Fulkerson’s Anteromedialization

| Positive Test Findings: Part I: Pain, Subluxation, Instability Part II: Decrease pain, No instability |

**References:**

Ahmad, AJSM, 2008

**Medial/lateral glides**
The sensitivity and specificity have not been established in any studies.

**Cephalic/caudal glides**
The sensitivity and specificity have not been established in any studies.

**Medial/lateral tilts**
The sensitivity and specificity have not been established in any studies.

**Passive tracking**
The sensitivity and specificity have not been established in any studies.

**Active tracking OCK**
The sensitivity and specificity have not been established in any studies.

**Active tracking CKC**
The sensitivity and specificity have not been established in any studies.

**POSTERIOR CRUCIATE LIGAMENT**
<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning for Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL</td>
<td>*History of macrotrauma *Hyperextension injury *Fall on anterior tibia with ankle in plantarflexion *Intra articular effusion *Suspected ACL</td>
<td>Supine: knee-0°</td>
<td>Recurvatum</td>
<td>Not determined</td>
<td>PCL/post. capsule</td>
<td>Quad exercises, TLS Bracing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supine: knee flexed 80°</td>
<td>Sag test</td>
<td>Sens=.79 Spec=1.0</td>
<td>PCL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supine: knee flexed 80°</td>
<td>Clancy step-up (10 mm step-up) (Neutral starting reference position)</td>
<td>Not determined</td>
<td>PCL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supine: knee flexed 80°</td>
<td>Posterior drawer (Acute vs chronic)</td>
<td>Sens=.51 - 1.0 Spec=.99</td>
<td>PCL</td>
<td>Positive Test Findings: Pain, Instability, Increased posterior motion with Stress testing</td>
</tr>
</tbody>
</table>

**References:**

**Recurvatum**
The sensitivity and specificity have not been established in any studies.

**Sag Test**

**Clancy Step-up**
The sensitivity and specificity have not been established in any studies.

**Posterior Drawer Test**


## ANTERIOR CRUCIATE LIGAMENT

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning for Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACL</td>
<td><em>History of macrotrauma including twisting, deceleration</em>&lt;br&gt;<em>History of giving way</em>&lt;br&gt;<em>History of hearing “pop”</em>&lt;br&gt;<em>Intra articular effusion</em></td>
<td>Supine: knee flexed 80°&lt;br&gt;Supine: knee flexed 80°&lt;br&gt;Supine: knee flexed 30°&lt;br&gt;Supine: knee 0-80°&lt;br&gt;Supine: knee 80-0°&lt;br&gt;Supine: knee 0-60°&lt;br&gt;Lachman’s (&lt; 3 mm – N)&lt;br&gt;Pivot shift&lt;br&gt;Jerk&lt;br&gt;Flexion Rotation Drawer (FRD)</td>
<td>Anterior drawer</td>
<td>Sens= .33 - .95&lt;br&gt;Spec= .86 – 1.0</td>
<td>ACL-AMB</td>
<td>TLS, NM Dynamic Stability Exercises, Bracing&lt;br&gt;Surgery: ACL SB, DB Reconstruction, BEAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rotary instability: ALRI, PLRI, AMRI, PMRI</td>
<td>Not determined</td>
<td>ACL, Med/lat capsule, Posterior lateral corner, posterior medial corner (several structures)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lachman’s (&lt; 3 mm – N)</td>
<td>Sens= .63 - .99&lt;br&gt;Spec= .42 – 1.0</td>
<td>ACL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pivot shift</td>
<td>Sens= .30 - .95&lt;br&gt;Spec= .89 – 1.0</td>
<td>ACL, mid-1/3 lat capsule</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jerk</td>
<td>Not determined</td>
<td>ACL, mid-1/3 lat capsule</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Flexion Rotation Drawer (FRD)</td>
<td>Not determined</td>
<td>ACL, mid-1/3 lat capsule</td>
<td></td>
</tr>
</tbody>
</table>

Positive Test Findings:<br>Pain, >3 mm translation, “empty” end feel, Increased anterior motion on stress testing

References:  
**Anterior Drawer**


**Lachman’s**


Rotary Instabilities.


**Pivot Shift**


The sensitivity and specificity have not been established in any studies.

**Jerk**
The sensitivity and specificity have not been established in any studies.

**Flexion Rotation Drawer**
The sensitivity and specificity have not been established in any studies.

---

### ROTARY INSTABILITIES

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning for Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotary Instabilities</td>
<td><em>History of macrotrauma including twisting, deceleration</em></td>
<td>Supine: knee flexed 80°/IR</td>
<td>ALRI</td>
<td>Not Determined</td>
<td>ACL</td>
<td>TLS, NM Dynamic Stability Exercises, Bracing</td>
</tr>
<tr>
<td></td>
<td><em>History of hearing “pop”</em></td>
<td>Supine: knee flexed 80°/ER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Intra articular effusion</em></td>
<td>Supine: knee flexed 80°/ER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PLRI</td>
<td>Not Determined</td>
<td>Post 1/3 lat cap., Arcuate complex</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AMRI</td>
<td>Not Determined</td>
<td>Mid 1/3 med. Cap.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMRI</td>
<td>Not Determined</td>
<td>Post 1/3 med. Cap., PMOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dial Test</td>
<td>Not Determined</td>
<td>Post 1/3 lat cap., Arcuate complex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Positive Test Findings:** Pain, Instability, Increased rotary motion on stress testing

---

**Rules of Interpretation – To Name the Rotary Instability**

1. PCL is intact and serves as the axis of rotation
2. Properly position the knee into IR or ER to selectively bias the tissues
3. Force is applied in a straight sagittal plane
4. Direction of applied force
5. Which tibial plateau translates in the direction of the applied force
6. Names the rotary instability
7. Anterior rotary instabilities are actually named opposite of the true rotation
8. Posterior rotary instabilities are actually named same as the true rotation

**Rotary Instabilities**
The sensitivity and specificity have not been established in many studies

---

**COLLATERAL LIGAMENTS**

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning for Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaterals</td>
<td>*MOI-macrotraumatic injury with twisting</td>
<td>Supine: knee 0°</td>
<td>Valgus stress (0)</td>
<td>Sens= .86 - .96</td>
<td>MCL,ACL,P CL, PMOL</td>
<td>TLS, NM Dynamic Stability exercises, Double upright brace</td>
</tr>
<tr>
<td></td>
<td>*MOI-history of frontal plane macrotrauma</td>
<td>Supine: knee flexed 30°</td>
<td>Valgus stress (30) (Close the joint first for reference position)</td>
<td>Spec= Not reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Localized edema without intra articular effusion</td>
<td>Supine: knee 0°</td>
<td>Varus stress (0)</td>
<td>Sens= .25</td>
<td>LCL,ACL,PC L, PLC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Localized pain over collateral ligaments</td>
<td>Supine: knee flexed 30°</td>
<td>Varus stress (30) (Close the joint first for reference position)</td>
<td>Spec= Not reported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Category (Algorithm)</td>
<td>Critical Pathways</td>
<td>Position</td>
<td>Special Tests</td>
<td>Sens/Spec</td>
<td>Tissues Implicated</td>
<td>Clinical Reasoning for Treatment</td>
</tr>
</tbody>
</table>
|--------------------------|-------------------|------------------|-------------------|-------------|-------------------|---------------------------------
| Meniscus                 | *History of macrotrauma *Twisting MOI *Delayed effusion (over 12 hours) *Reproducible click/clunk *Pseudo locking *Joint line pain | Supine: knee 0°  | Recurvatum       | Not determined | Meniscus-ant. horns | Modalities, TLS NM Dynamic Stability Exercises, Surgery: Partial meniscectomy (?), Meniscus repair, Meniscus allograft |
|                          |                   | Supine: knee max flexion | Steinman’s test | Not determined | Meniscus-post. horns |
|                          |                   | Supine: knee max flexion | McMurray’s      | Not determined | Meniscus-post. horns |

References:

Valgus Stress Test


Varus Stress Test

Apley’s Distraction
The sensitivity and specificity have not been established in any studies

MENISCUS
<table>
<thead>
<tr>
<th>Position</th>
<th>Knee Angle</th>
<th>Test Type</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supine:</td>
<td>90-0°</td>
<td>Dynamic</td>
<td>Not</td>
<td>Meniscus-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>McMurray's</td>
<td>determined</td>
<td>entire</td>
<td></td>
</tr>
<tr>
<td>Prone:</td>
<td>flexed 90°</td>
<td>Apley's</td>
<td>Sens=.13-.16</td>
<td>Meniscus-post.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compression</td>
<td>Spec=.80-.90</td>
<td>horns</td>
<td></td>
</tr>
<tr>
<td>Prone:</td>
<td>flexed 90-0°</td>
<td>Apley's Dynamic Compression (DDV)</td>
<td>Not determined</td>
<td>Meniscus-entire</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Positive Test Findings: Joint line pain, Click/clunk, Catching/locking or pseudo-catching/locking</td>
<td></td>
</tr>
</tbody>
</table>

**Recurvatum**
The sensitivity and specificity have not been established in any studies.

**Steinman’s Test**
The sensitivity and specificity have not been established in any studies.

**McMurray’s**


**Dynamic McMurray’s**
The sensitivity and specificity have not been established in any studies.

**Apley’s Compression**


**Apley’s Dynamic Compression**
The sensitivity and specificity have not been established in any studies.
# OTHERS-COMMON

<table>
<thead>
<tr>
<th>Test Category (Algorithm)</th>
<th>Critical Pathways (Clusters S &amp; S)</th>
<th>Position</th>
<th>Special Tests</th>
<th>Sens/Spec</th>
<th>Tissues Implicated</th>
<th>Clinical Reasoning for Treatment</th>
<th>Positive Test Findings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoffa’s</td>
<td>Anterior knee pain</td>
<td>Supine</td>
<td>Bounce home test with compression</td>
<td>Infrapatellar fat pad</td>
<td>ID – MOI, Heel lifts, Modalities, Taping, Injection, Surgery: resection</td>
<td>Pain directly over the fat pads on bounce home test</td>
<td></td>
</tr>
<tr>
<td>ITB Syndrome</td>
<td>Lateral knee pain</td>
<td>Supine</td>
<td>Noble Test Renne Test</td>
<td>ITB</td>
<td>ID – MOI Modalities, Stretching, TLS, Orthotics, Shoes Cant of road surface</td>
<td>Pain, Decreased flexibility tests, Weakness of TLS</td>
<td></td>
</tr>
<tr>
<td>Plica Syndrome</td>
<td>Antero-medial knee pain</td>
<td>Supine</td>
<td>Stutter test</td>
<td>Plica</td>
<td>ID – MOI Modalities, XFM, Taping, Flexibility, TLS</td>
<td>Pain, “stuttering”/ Catching/ Pseudo-catching motion</td>
<td></td>
</tr>
</tbody>
</table>