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Patient Self-Administered Virtual Clinical Examination of Patellofemoral Instability: Inception of Concept and Call for Consensus

Basil Yannoulias¹, Josée Delisle², Pierre Ranger², Manon Pilon², Marc Lacelle²,
Tanweer Ashraf¹, Julio Fernandes², Tarek Boutefnouchet^{1,2}

Institutions:

1. University Hospitals Birmingham, Birmingham, United Kingdom
2. CIUSSS du Nord-de-l'Île-de-Montréal. Jean Talon Hopital, Sacre Cœur Hopital
Montréal. Centre de recherche Clinique Hopital du Sacre Cœur de Montréal. Affiliated
to the University of Montreal



E: pfmasterclass@gmail.com



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Disclosures:

I Dr Tarek Boutefnouchet declare that in the past 3 years:

I have not received financial support

Carried out consulting work for Brainlab

I have not done speaking engagements

I do not hold individual shares



Background

- Use of virtual clinics in orthopaedic practice has seen exponential growth in recent years.
- This evolution bears benefits towards improved reach, healthcare cost, as well as the potential to expedite delivery of tertiary services by streamlining access to specialists.
- COVID-19 pandemic has inadvertently led to a more rapid uptake of virtual clinics. However, there is still paucity in the evidence pertaining to orthopaedic virtual clinical assessment.

Objective

To determine which patient-reported features and clinical examination findings can be used to assess patellofemoral instability during a virtual examination.

Methods

- A multidisciplinary focus group of surgeons, physiotherapists and advanced nurse practitioners involved in caring for patients with patellofemoral instability was created.
- All had prior expertise in qualitative research.
- Group members met at **three-week intervals** over a **four months period**.
- Focussed discussions were developed into a series of clinically relevant virtual clinical assessment indicators.



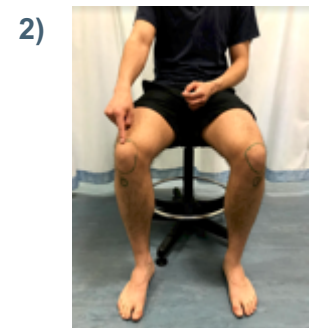
Results

- The focus group agreed on the following approach:
 - Facing a mobile phone or computer camera
 - Five-points three-parts examination:



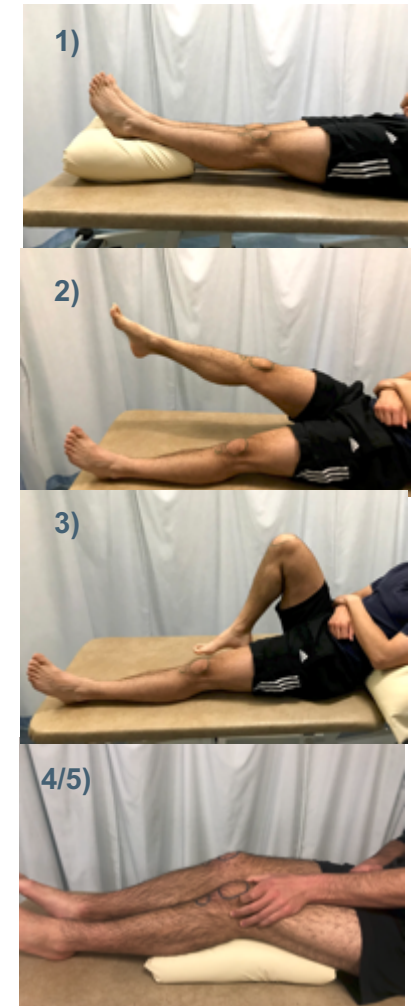
1. Seated Examination

Step	Positive Test
1) Observe Knee from Front	
Patient seated facing camera	Blunting of knee and vastus medialis oblique (VMO) contours to suggest a large effusion
2) Knee Palpation	
Patient asked to localise sites of pain using one finger	Localised knee pain
3) Medial Palpation	
Patient asked to palpate along medial patella and MPFL	Pain on palpation of medial patella and MPFL
4) Knee Flexion and Extension	
Ask patient to gently move between flexion and extension	J-sign tracking (patella shifts medially from extension to early flexion as it engages with trochlear groove) or fixed lateral tracking
5) Feel for Crepitus	
Patient asked to report sensation of crepitus around the patella during movement	Crepitus felt on palpation of knee during movement



2. Lying Examination

Step	Positive Test
1) Observe Range of Motion Note: check for hyperextension with cushion placed under heels.	Hyperextension and/or limited range of motion.
2) Straight Leg Raise (SLR) Ask patient to lift leg with knee extended.	Difficulty performing SLR on either side
3) Knee Flexion and Extension Ask patient to flex/extend knee	Difficulty and/or discoordination
4) Apprehension Test Patient asked to place cushion under knee and to displace patella.	Displacement produces a subjective apprehension reaction
5) Patellar Glide As for 'Apprehension test'	Medial/lateral displacement of the patella greater than or equal to 3 quadrants



3. Standing Examination

Step			Positive Test
Observe			
1) Front : limb alignment, patella position, quadriceps bulk & symmetry 2) Side : hyperextension at the knee, pelvic tilt & hyper-lordosis. 3) Rear : lower limb alignment & foot hyper-pronation			Abnormality on any view
4) Front-facing Activity			
General	Single leg squat	Step down	Reproduction of concordant knee pain
<ul style="list-style-type: none"> ✓ Walking and changing direction. ✓ Sitting down and getting up from chair ✓ Picking object up from floor 	Instruct your patient to stand on one leg while holding a stationary surface for balance. Ask patient to slowly squat down as far as possible.	Ask patient to step down from raised surface such as box while facing camera.	
5) Hyperlaxity Assessment			
Assessment of generalised joint hyperlaxity with Beighton score			Hyperlaxity: score above 6

Discussion

- The present qualitative multidisciplinary study has determined which findings are key indicators in a patient self-administered virtual clinical examination for patellofemoral instability.
- The results have informed the development of a **virtual examination framework** and launched a **Delphi study** aimed at multi-disciplinary experts on the subject.
- The **subsequent study is underway in order to generate a wider consensus.**



References

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