

# Ultrasound-based patellar glide test: A new dynamic assessment of patellar instability

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# Disclosures

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# Background

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- Patellar instability can be difficult to assess due to the dynamic nature of this condition
- While MRI and CT can demonstrate the morphology of the patellofemoral joint, the assessment of instability relies on dynamic testing (1-5)
- The patellar glide test is commonly utilized as a method of dynamic assessment on physical examination, yet precise quantification with this method remains difficult (6,7)
- Recently, cadaveric studies have demonstrated the utility of ultrasound in quantifying patellar translation (8)

# Objective

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- Our study aimed to apply the ultrasound-based patellar glide test to determine its utility in differentiating between knees with and without patellar instability in a clinical population



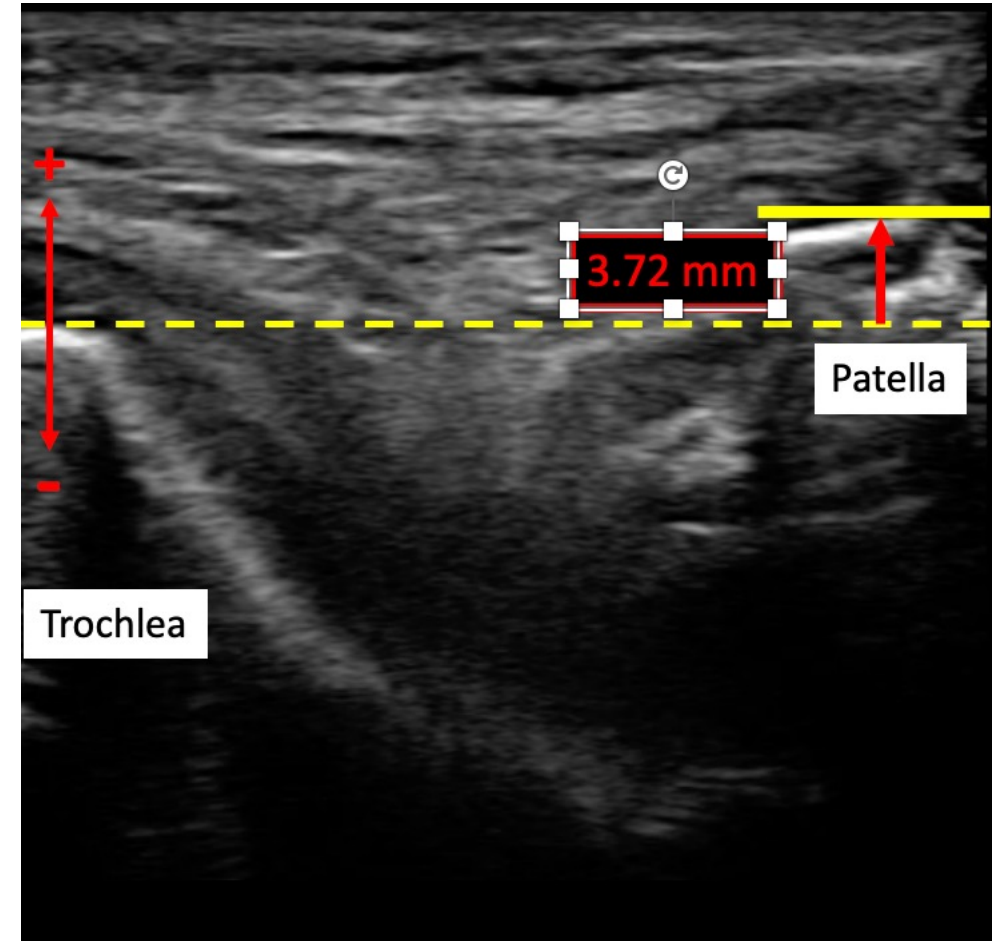
## Methods

- Patients with recurrent patellar instability were included in this study
- Using a portable device, the ultrasound-based patellar glide test was performed with the knee in extension
- Patellar position was visualized with and without a manual lateralizing force
- The ultrasound probe was placed at the medial patellofemoral joint to visualize the relation of the medial patellar facet to the medial trochlea



# Methods

- Descriptive statistics were used to describe patellar position in the unloaded and loaded states
- Patellar translation was calculated as the difference between the loaded and unloaded positions
- Measurements were compared between symptomatic and asymptomatic knees.



## Methods

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- For each measurement of translation, receiver operating characteristic (ROC) curve analysis was performed. Youden's J statistic was calculated to determine the optimal cutoff values to distinguish between asymptomatic vs symptomatic knees.

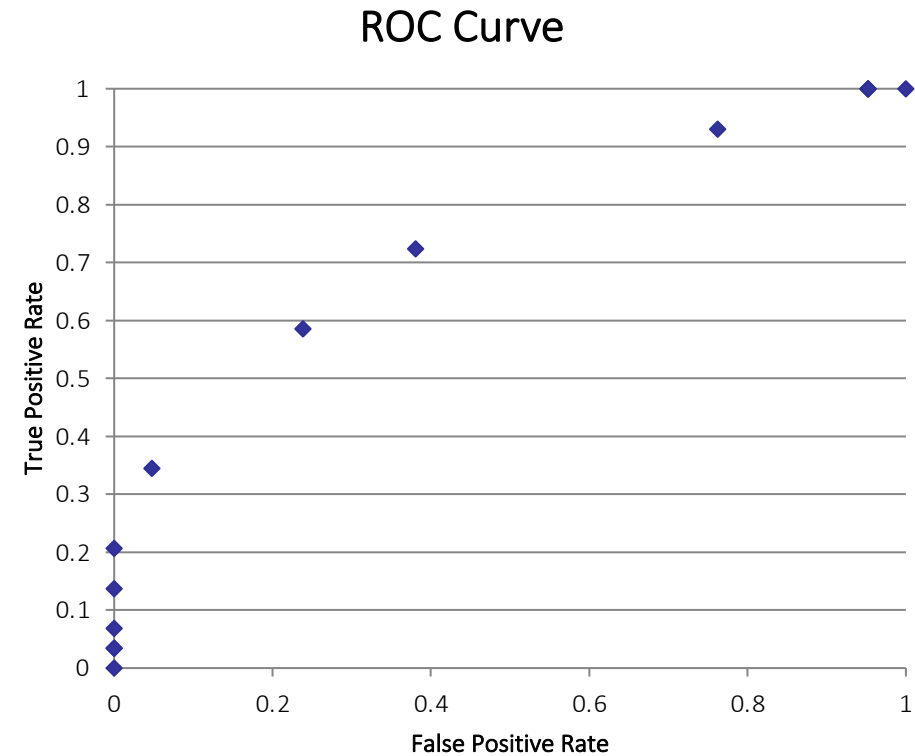
# Results

- 50 knees from 25 patients were included in this study
  - 17F, 8M, mean age 26.9+/-9.4)
  - 29 knees were unstable and 21 were stable and asymptomatic.
- When comparing symptomatic and asymptomatic knees, patellar position in the unloaded (4.6+/-2.8mm vs 3.8+/-2.3mm, p=0.277) and loaded states (1.1+/-3.24mm, 2.1+/-2.5mm, p=0.252) were not significantly different.
- Patellar translation was found to be significantly different between the symptomatic and asymptomatic states (3.5+/-2.2mm vs 1.7+/-1.5mm, p=0.002).



# Results

- ROC curve analysis
- Patellar translation >3mm detected the presence of patellar instability with AUC 0.88 (95% CI 0.77, 0.98)
- 3mm translation was found to identify patellar instability with sensitivity 43.4%, specificity 95.2%, PPV 90.9%, and NPV 60.6%.



## Conclusions

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- The ultrasound-based patellar glide test was found to differentiate between symptomatic and asymptomatic knees in patients with patellar instability with high accuracy
- Given the increasing availability of portable ultrasound devices and the need for quantification of patellar laxity, further studies are recommended to evaluate the role of this method of assessment in the diagnosis and management of patellar instability

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Thank you