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The Flexion Angle and the Intra-Articular Version in Different MRI Recording Techniques Influence the Tibial Tuberosity - Trochlea Groove Distance

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Conflicts of interest

The authors declare no conflict of interest.

Question

Does the TT-TG vary between different MR recording techniques?

Methods – Including criteria

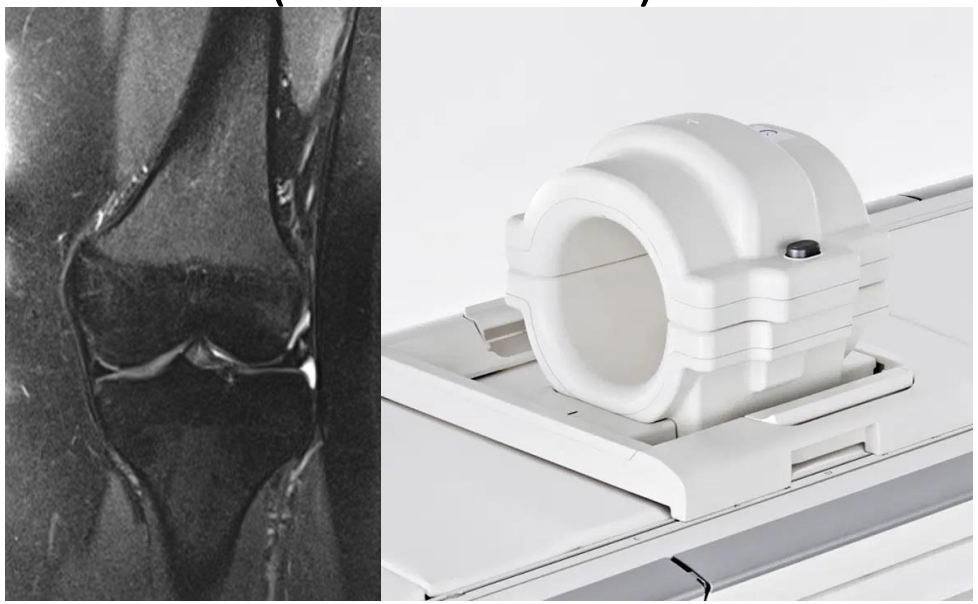
- 2019 to May 2023
- Conventional MRI **and** rotatory MRI

- Excluding criteria
  - Time between MRI > 1 year
  - Surgery between MRI
  - Fracture between MRI

➡ **25 patients were included**

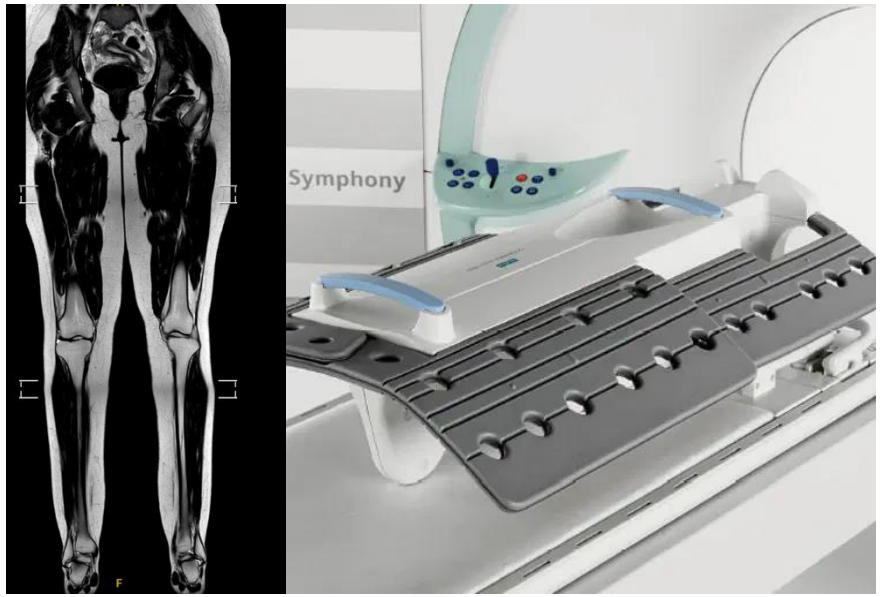
Differenced between conventional and rotatory MRI

- Conventional MRI
  - Knee coil
  - Limited to the knee
  - Without fixed knee flexion and rotation (rather flexion)



Siemens healthineers

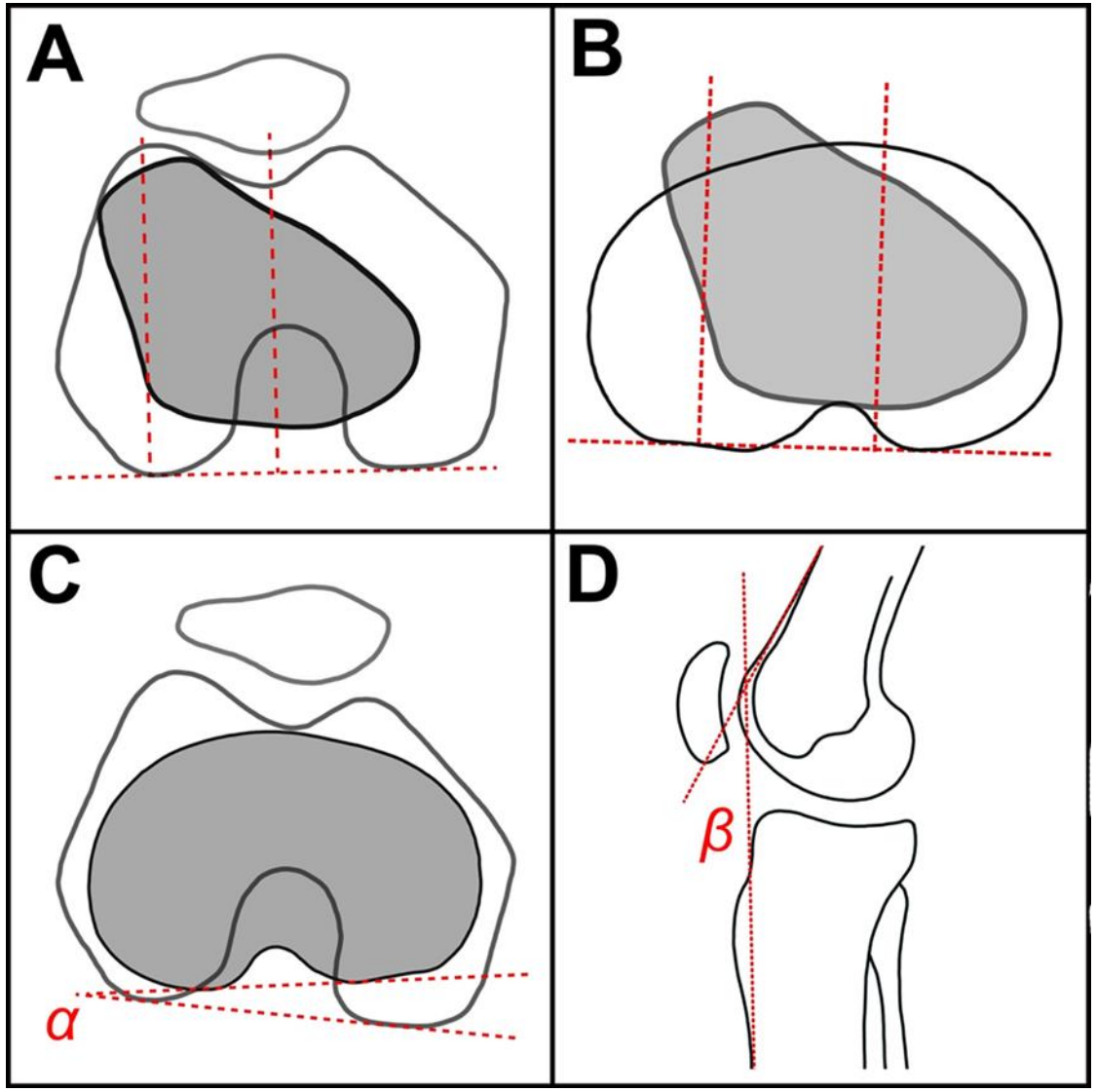
- Rotatory MRI
  - Lower extremity coil
  - Anterior iliac spine to the feet
  - Extension & neutral position of the ankles



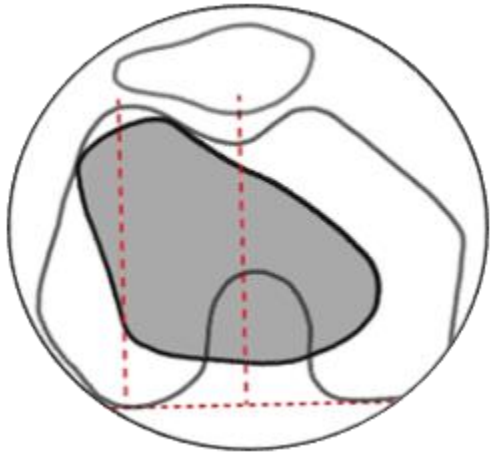
Siemens healthineers

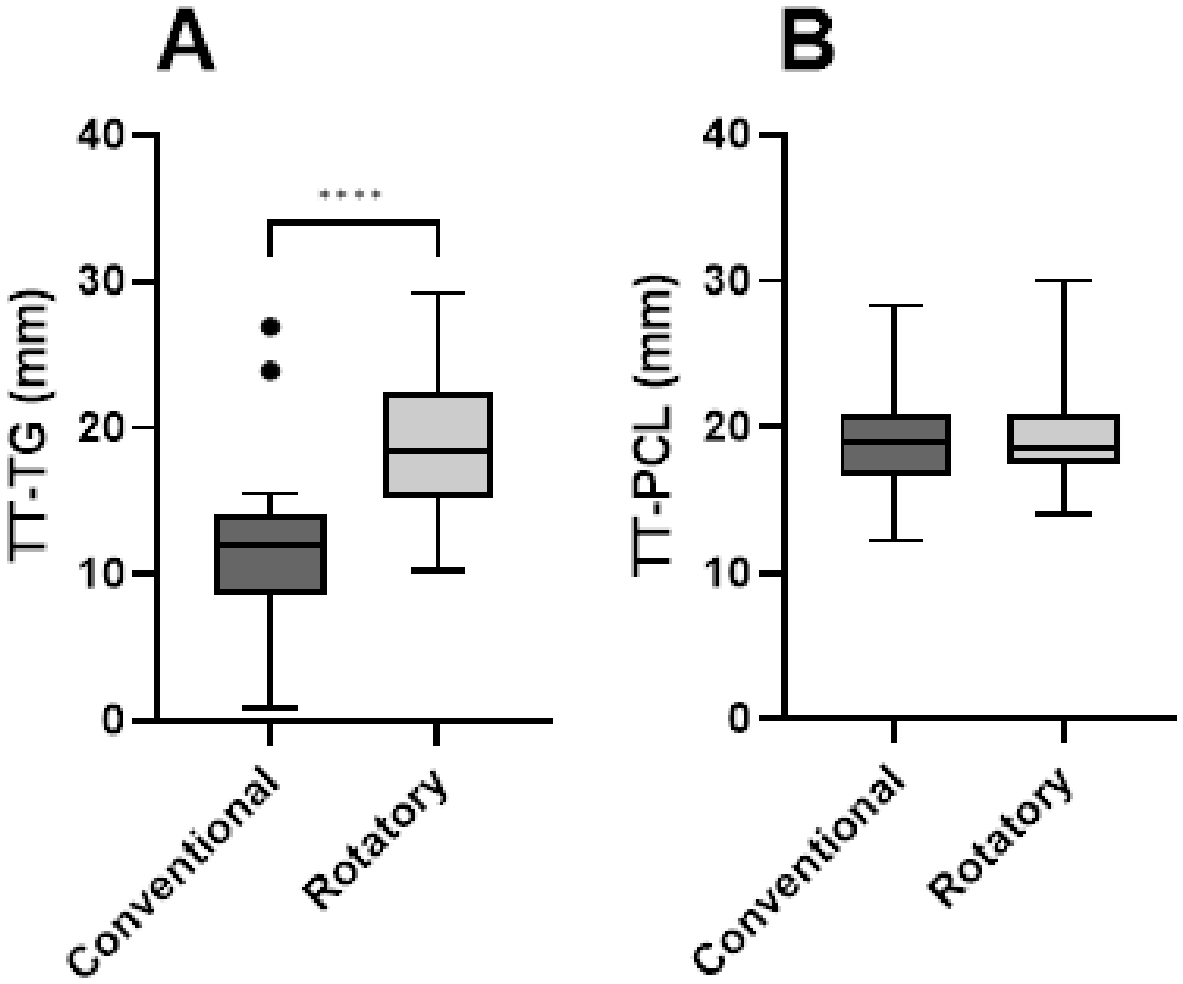
Methods – Measurement

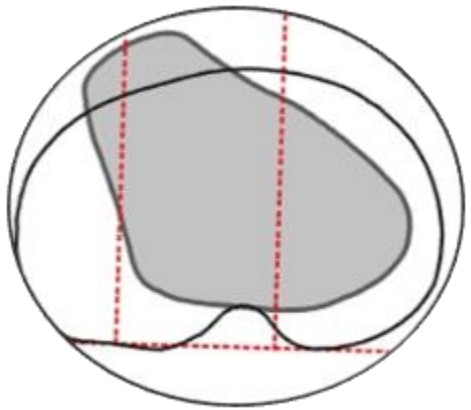
- Parameter
  - TT-TG
  - TT-PCL
  - Intra-articular version
  - Flexion
- Measurement by 2 raters
  - Intraclass correlation coefficient (ICC)



Results



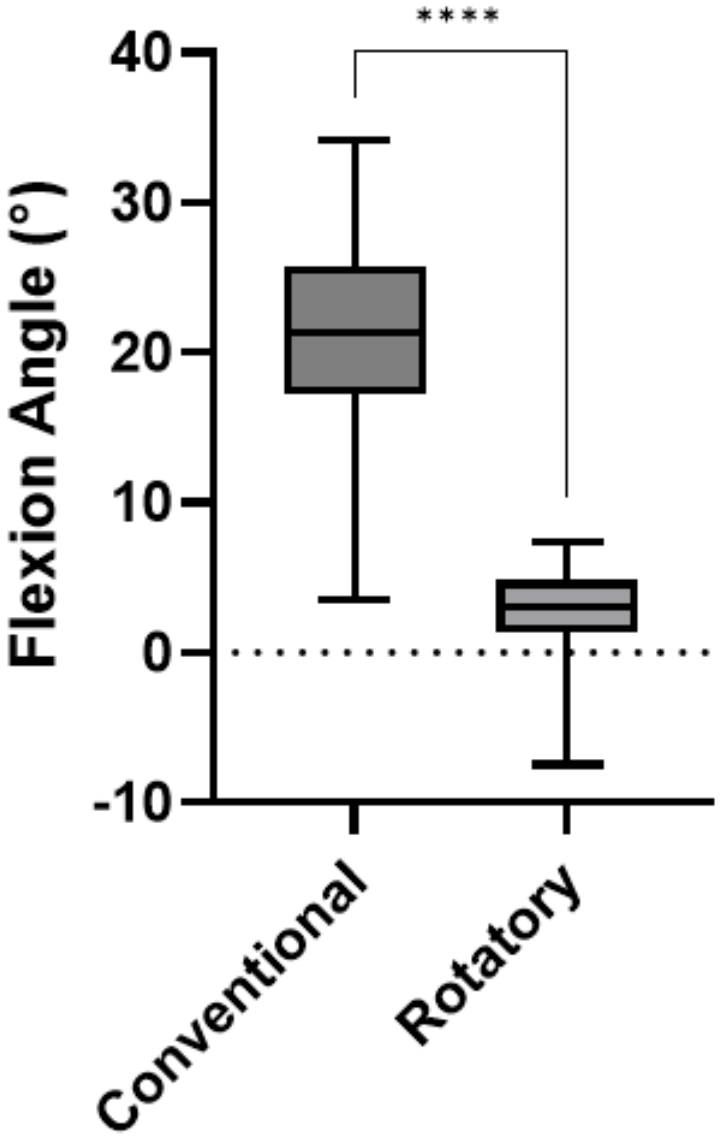


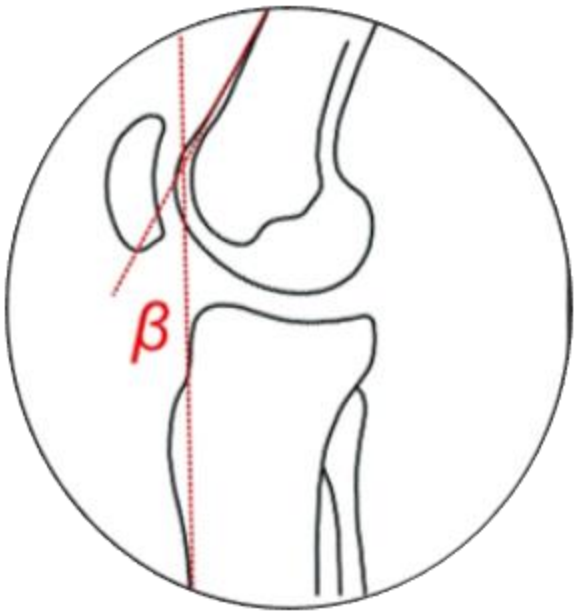


ICC conventional: 0,87
ICC rotatory: 0,91

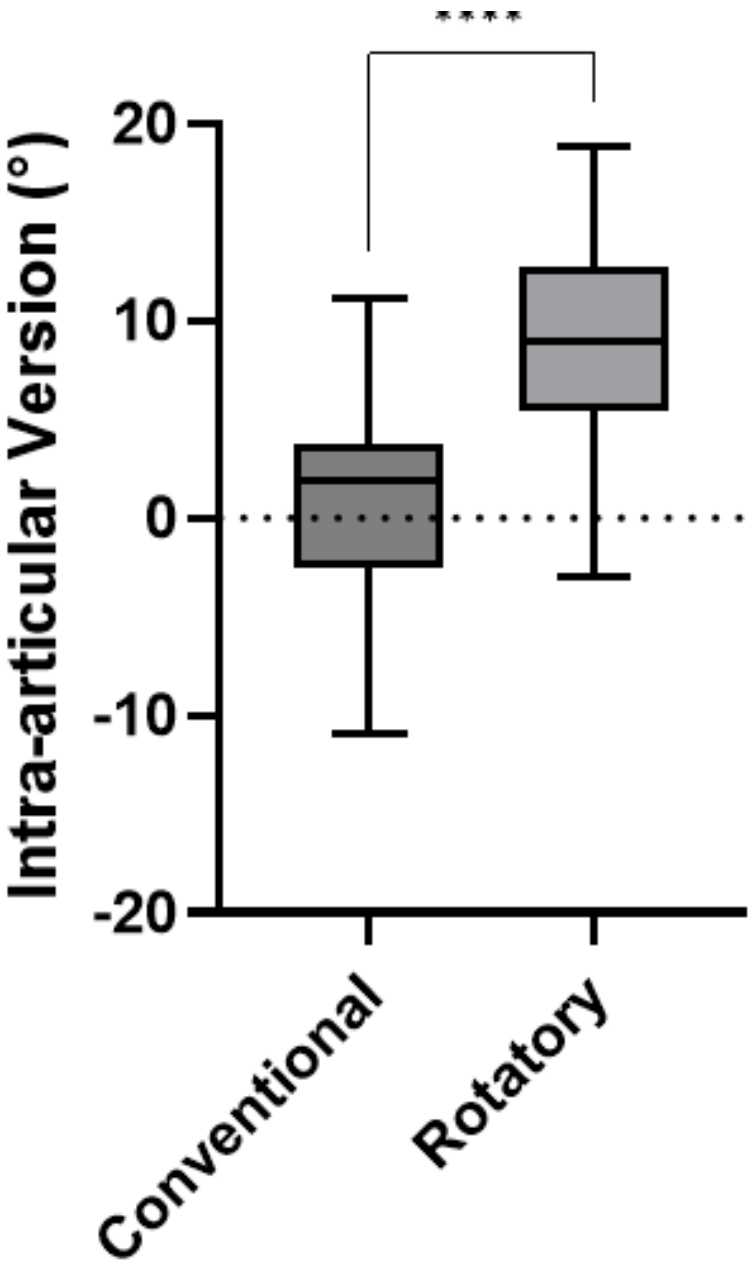
ICC conventional: 0,94
ICC rotatory: 0,92

Results





Results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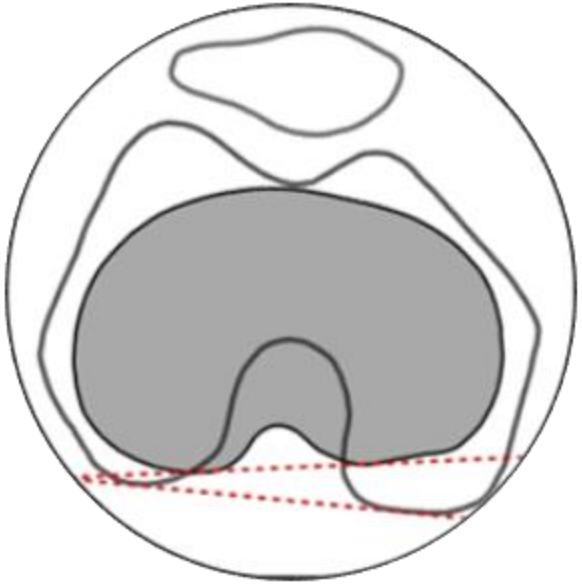
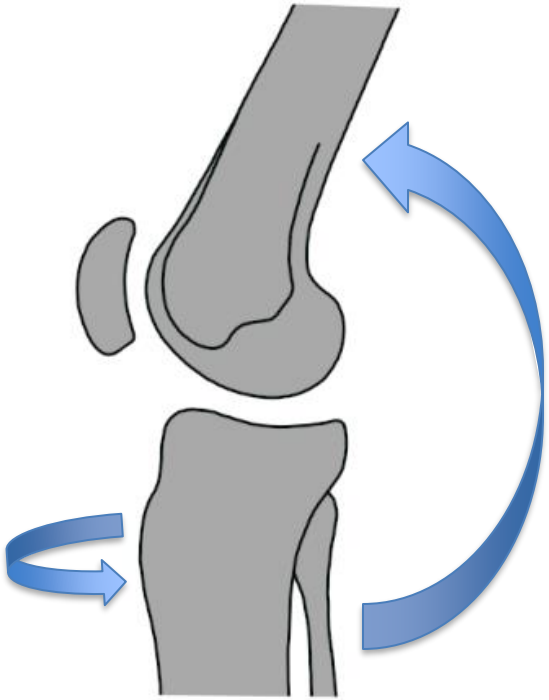
Intra-articular Version (°)
20
10
0
-10
-20
Conventional
Rotatory



Discussion



Screw-home mechanism

Standard protocol of knee MRIs in patients with patellar instability

7 patients erroneously exceed the threshold

TT-TG measurements are dependent on flexion angle in intra-articular version, which vary with differing MRI techniques, with clinically relevant differences.

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Thank you!

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