

# Precision matters in MR Imaging-targeted Prostate biopsies : Evidence from a prospective Study of cognitive and elastic fusion registration transrectal biopsies

Cornud et al. Jan 2018. Radiology vol.287 No.2

## STUDY CONTEXT

**Lexicon:** dCC distance from the core to the center of the target  
dCS distance from the core to the surface of the target

**Goals:** - To measure the precision dCC and dCS in the placement of a biopsy needle in a MRI target through MRI/TRUS fusion guidance with Koelis technologies.  
- To report on the precision of cognitive and software-based registrations.

**Patients:** Total 88 patients

**Protocol:** Two cores each were obtained with cognitive and fusion technique with the TR approach in local anesthesia to compare dCC and dCS. Shortest distance between core and target using Euclidian geometry.

## KEY RESULTS

Mean precision with Koelis is **2.5 mm** for dCC

**Precision in relation to technique**

“More fusion cores than cognitive cores were on target 67/88 vs 37/88”

“dCC for fusion 2.8mm vs 7.1 mm for cognitive”

“dCS for fusion -1.4mm vs 2.8mm for cognitive” (a negative result indicate that the core is in the target)

These benefits were confirmed to withstand the variation in position of the target.

**Clinical perspective:** Fewer cancer were detected with the cognitive technique than with the fusion technique (31/44 vs 40/44)

**MRI/TRUS fusion solution:** this study attests in the real-life setting of the robustness of elastic fusion registration as MR imaging information (target size and position) were not lost when registered to transrectal US.

## HOW TO USE IT ?

- **On patient under local anesthesia**, Koelis mean precision is 2.5 mm
- Koelis fusion system is more precise than cognitive fusion

