

Active, weight-bearing knee joint proprioception and self-reported instability in patients with knee osteoarthritis

R.J. Heerkens¹, J.C. Schrijvers¹, J.C. van den Noort^{1,2}, V. de Groot¹, M van der Esch^{3,4}

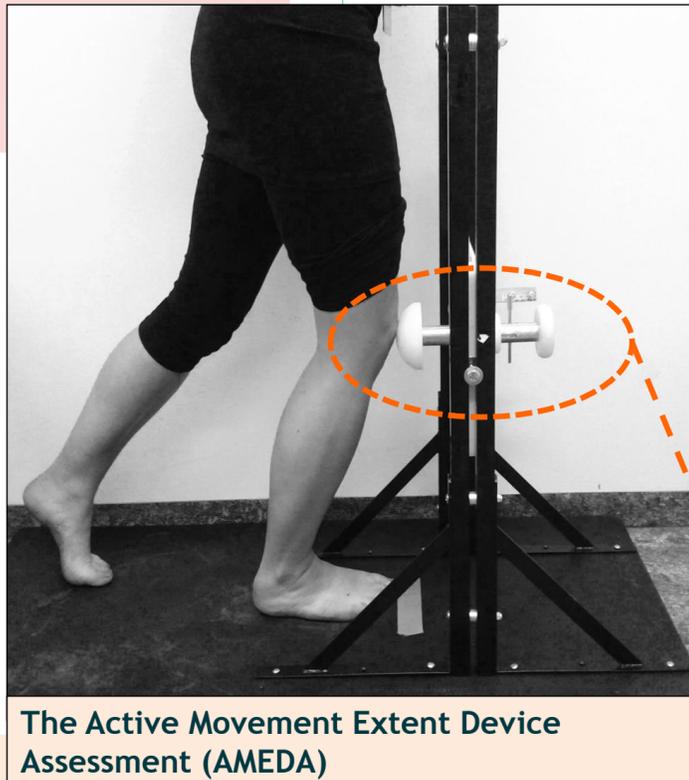
Rationale

Knee osteoarthritis (KOA) leads to limitations of daily activities. Functional limitation is highly associated with self-reported instability, present in **+/- 70%** of KOA patients. To maintain joint stability during weight-bearing activities, accurate proprioception is required. However knee proprioception is decreased in KOA. It is mostly measured with a-functional methods. The AMEDA is argued to have higher ecological validity since it measures active proprioception **during weight-bearing**. However, whether active, weight-bearing knee joint proprioception during different in KOA patients from healthy controls, or associated with self-reported instability is unknown.

AIM

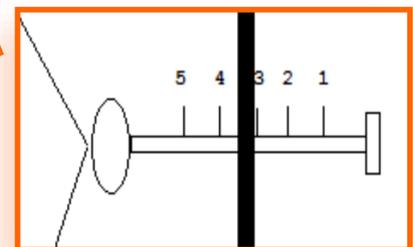
To examine:

- 1) **differences** in active, weight-bearing knee joint proprioception between KOA and controls and
- 2) its **association** to self-reported instability in KOA patients.

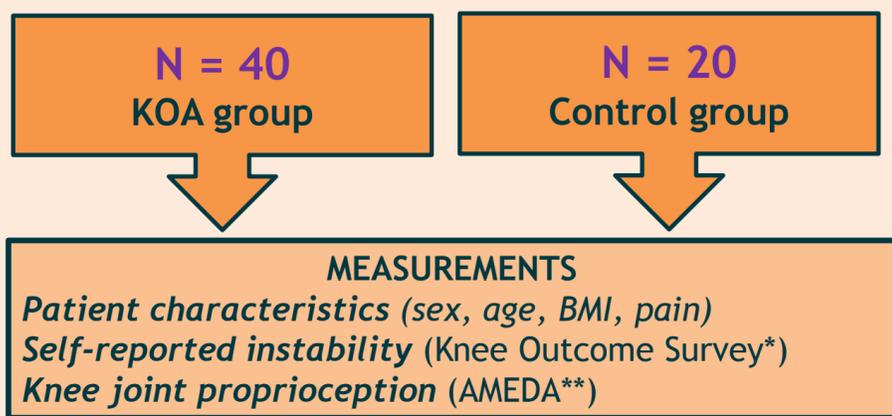


The Active Movement Extent Device Assessment (AMEDA)

- 1) No difference in active, weight-bearing knee joint proprioception between KOA (**45.50% ± 14.63**) and controls (**46.80% ± 13.56**), **p = 0.741**.
- 2) Active, weight-bearing knee joint proprioception and self-reported instability are not associated (**OR = 1.018**; **p = 0.439**).



Methods



*Knee Outcome Survey

"To what degree does giving way, buckling, or shifting of the knee, affect your level of daily activity?"

No instability (score 5)
Instability (score 0-4)

**AMEDA

- Weight-bearing
- Active knee flexion/-extension
- 5 positions, random
- Challenges knee stability
- 5 trials per position (total 25)

% Accuracy

Conclusion

The role of active, weight-bearing knee joint proprioception in maintaining knee stability could not be confirmed

The knee AMEDA is not appropriate for measuring proprioception:

Input from other joints & afferent systems involved

No normative data

No optimal measurement protocol

Self-reported instability = dynamic instability?



Renée Heerkens, revalidatiearts i.o.
r.heerkens@amsterdamumc.nl



¹ Amsterdam UMC, Department of rehabilitation medicine, NL

² Amsterdam UMC, Medical Imaging Quantification Center (MIQC), Dpt. of Radiology and Nuclear Medicine, NL

³ Amsterdam Rehabilitation Research Center, Reade, NL

⁴ Center of expertise Urban Vitality, Faculty of Health, Amsterdam University of Applied Science, NL