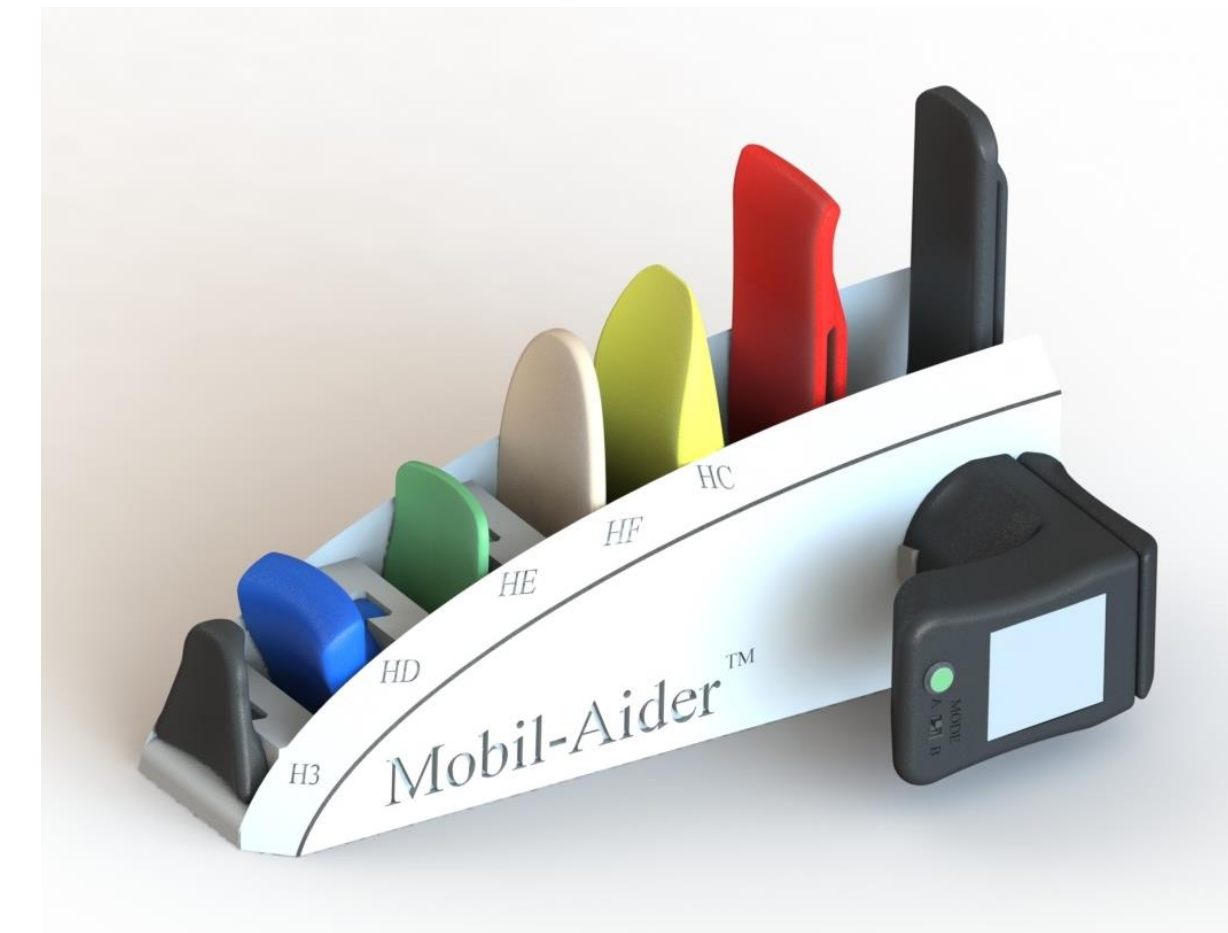# QUANTIFYING JOINT MOBILIZATIONS

Dawn T Gulick, PhD, PT, AT, CSCS
Founder & CEO
Therapeutic Articulations, LLC
www.iOrtho.xyz   info@iOrtho.xyz

BACKGROUND

Millions of musculoskeletal injuries occur each year. Joint mobilization techniques aim to restore the accessory movements between joint surfaces. Studies have reported skilled clinicians have good relative intra-clinician reliability, i.e. they could replicate their "force" application during joint mobilizations, but had poor to moderate reliability between clinicians. The Mobil-Aider™ is a new device designed to enhance the performance of joint mobilization techniques with objective, quantitative feedback.

PURPOSE

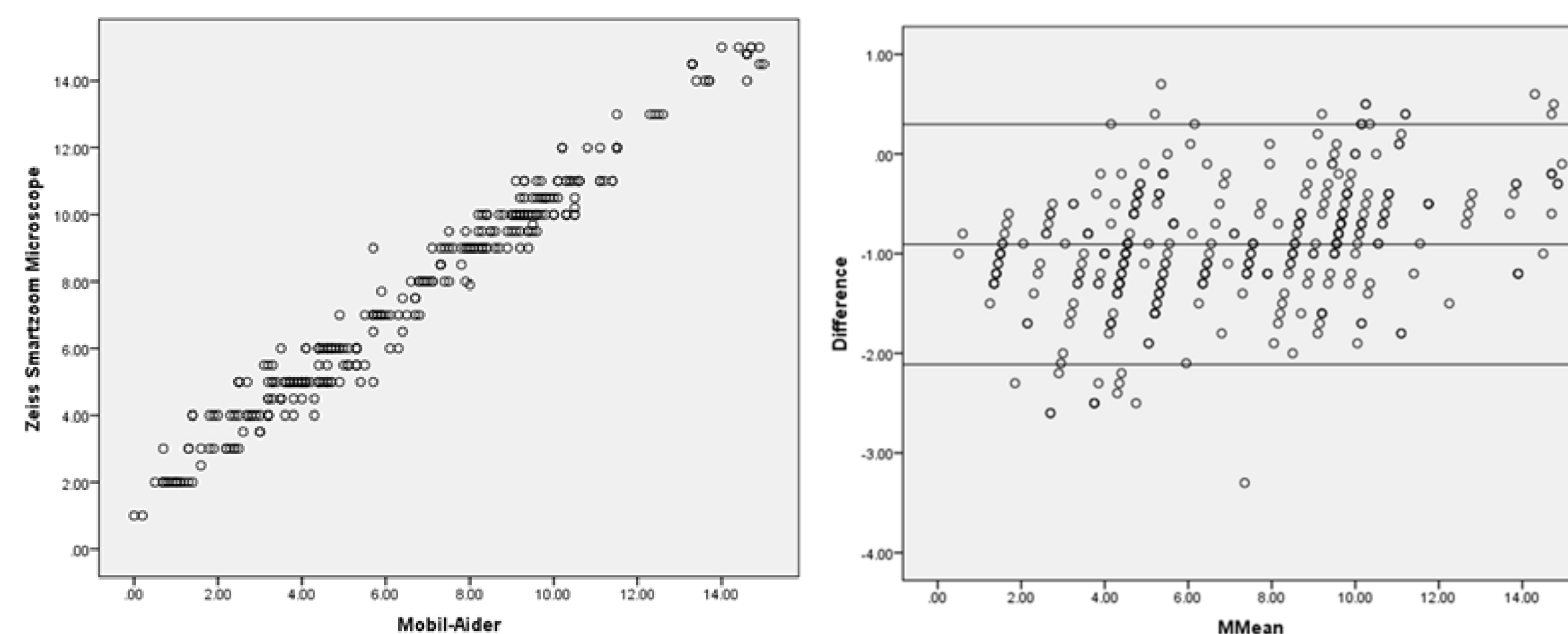To assess the reliability and validity of the Mobil-Aider™ device

METHODS

- A Zeiss Smartzoom microscope was used as the gold standard to assess the ability of the Mobil-Aider™ to measure linear translation.
- Sixty blinded measures were taken with each of six different Mobil-Aider™ devices
- Radiographs were used to assess linear translation of the knee using the Mobil-Aider™

RESULTS

- ICC & Pearson correlation = 0.986, indicating a strong correlation between the measures.
- Cronbach alpha reliability analysis = 0.992
- Independent one-sample t-tests were performed on the differences between the Mobil-Aider™ and the Zeiss values ($p = 0.42$), indicating the measures were not statistically different
- Bland Altman plot and a linear regression revealed no proportional bias.
- Radiographic image = 6.9 mm of anterior tibial translation and Mobil-Aider™ LED display = 7.1 mm

CONCLUSIONS

This data is the first step in establishing reliability and validity of a new device.

CLINICAL RELEVANCE

The Mobil-Aider™ device is a promising orthopedic tool for quantifying the linear translation associated with joint mobilizations. It can provide feedback to overcome the current issue of lack of consistency.

FUNDING

Product development and this study were supported by the following grants: National Science Foundation, Penn Nanocenter, Ben Franklin FabNet, and Innovation Partnership.

DISCLOSURE

The author holds the patent for the Mobil-Aider device