

Mobil-Aider™

Joint Mobility Measurement Device

Objective joint assessment is critical for accurate diagnosis & screening. Identifying joint laxity in military recruits can save tens of thousands of dollars. ROI = 1 recruit.

Quantifying Joint Mobility-Laxity

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Background: Millions of musculoskeletal injuries occur each year. Assessing joint mobility-laxity is important. Studies have reported that skilled clinicians have good relative intra-clinician reliability, but had poor to moderate reliability between clinicians. Incorrect technique, size disparity between clinician & patient, & challenges of quantifying millimeters of motion are just a few of the reasons for inconsistency. The Mobil-Aider™ is a new device designed to enhance the performance of joint assessment with objective, quantitative feedback.

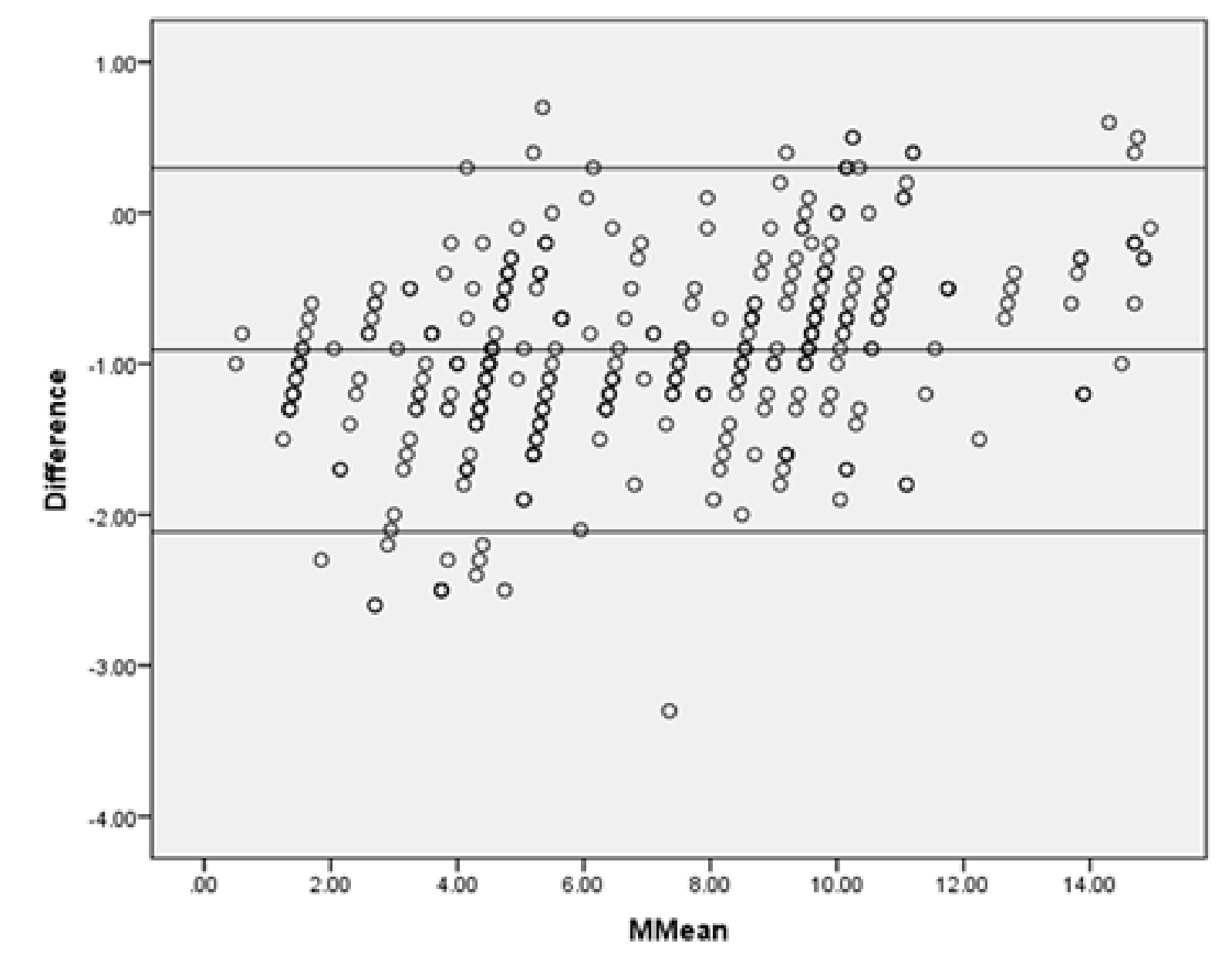
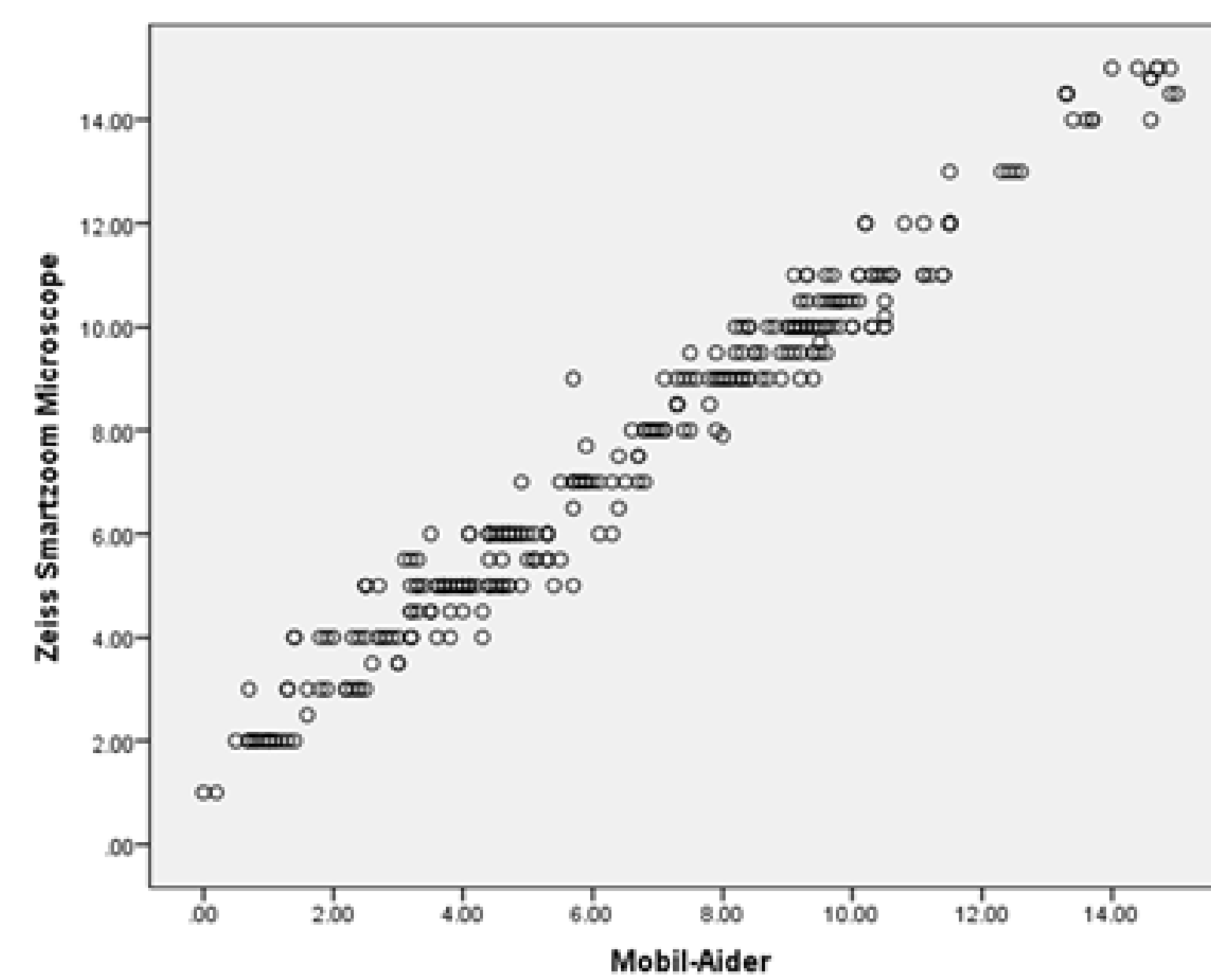
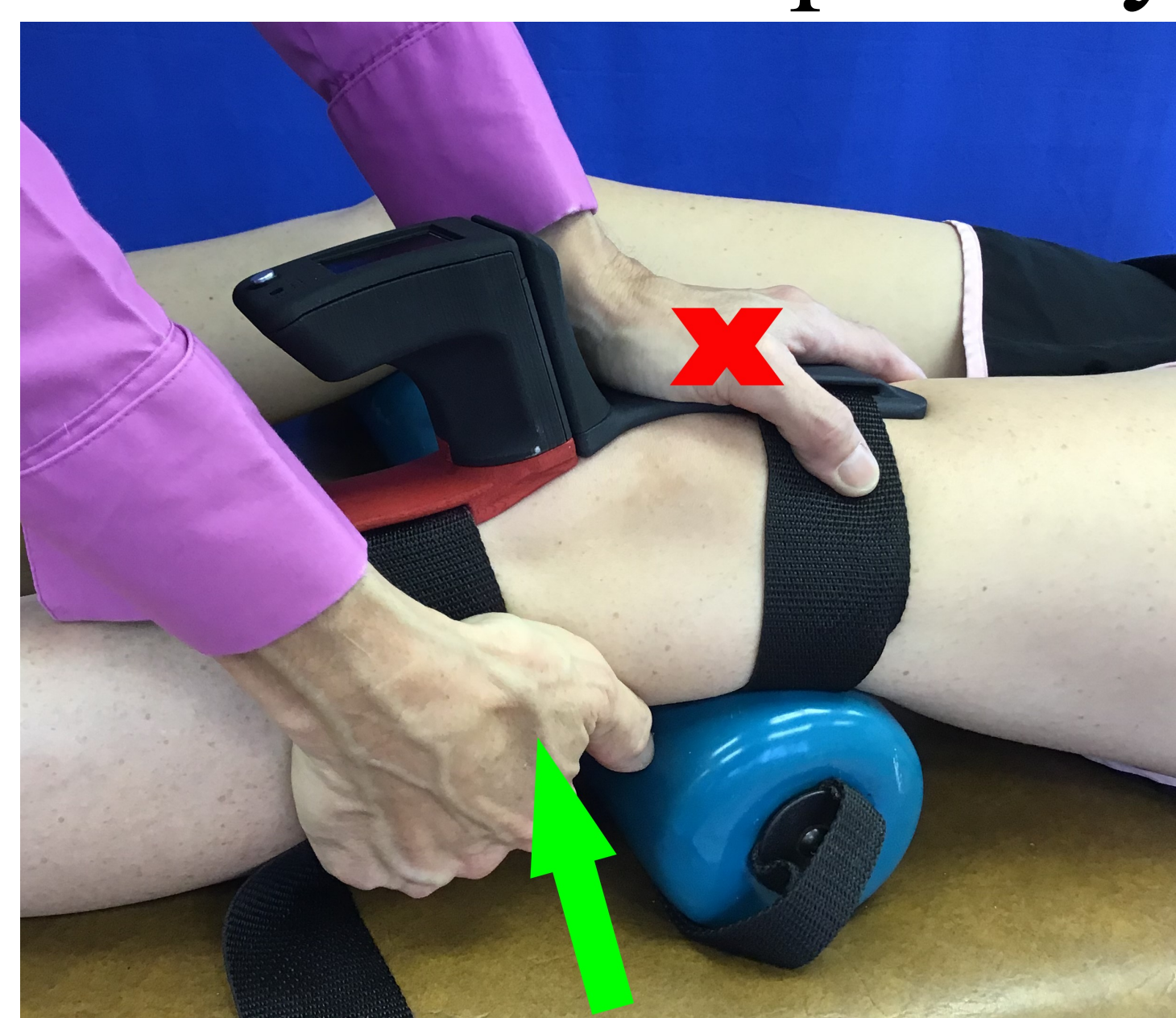
Purpose: To assess the reliability and validity of the Mobil-Aider™ device.



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 devices. Radiographs were used to quantify linear translation of the knee.

Results:

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



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.



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