

ROTATIONAL MARKER PLACEMENT VARIABILITY USING A NEW LASER DEVICE AND THE CONVENTIONAL METHOD

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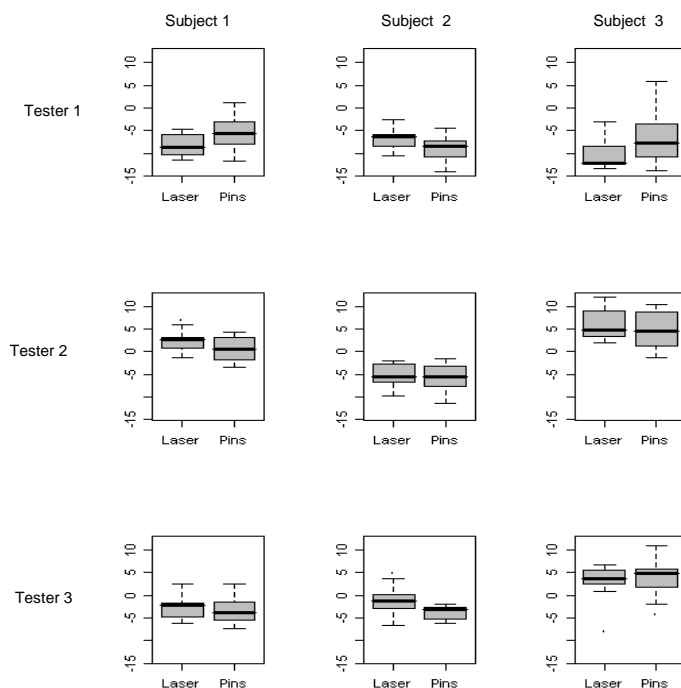
INTRODUCTION

- Marker placement is challenging and the thigh and tibial markers are prone to errors
- We have developed a laser light device to assist in aligning these markers
- The laser light creates a plane that follows the joint axis; the position and orientation is independent of the viewing angle
- The aim of the study was to investigate the difference in variability in marker placements between the laser and the conventional method



MATERIAL AND METHODS

- Three testers and three healthy subjects in static standing
- Six Vicon MX 13 cameras, and processed with the Plug-in-Gait model
- 20 consecutive static trials per subject, randomly distributed between the two methods
- Rotational markers removed and repositioned between each trial
- Variability of the two methods was tested with univariate non-parametric Ansari-Bradley tests and a linear mixed model



Figur 1. Boxplots of left hip rotation for each pair of subject-tester combinations

RESULTS

- The variability in measurements appears the same for both methods
- Ansari-Bradley tests for each of the tester-subject combinations confirmed this: All but one p-value well above 0.05
- Similar results for the right side
- For overall variability, a mixed model was used: This analysis showed strong evidence for no difference in the variability between the two methods

CONCLUSIONS

This analysis showed no evidence for a difference in the variability between the two methods in defining the placement of hip and knee rotational markers. The laser device was found easy to use.

