

Intra-rater & Inter-rater Reliability in 2nd Year DPT Students

Performing The Navicular Drop Test

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INTRODUCTION

- The Navicular Drop Test (NDT) is used as a clinical measure of mid-foot pronation.
- Objective measurements are rooted in the trust of the tool. When utilizing the NDT, the tool is the practicing clinician.
- Research has revealed that experienced clinicians have good-excellent intra- and inter-rater reliability when measuring navicular drop (ND).¹
- Current data reports ~25,000 practicing US PTs have < 3 years experience.¹
- There is limited research exploring the intra- and inter-rater reliability of less experienced DPTs when performing the NDT.

PURPOSE

- To determine the intra- and inter-rater reliability of three 2nd year DPT students.

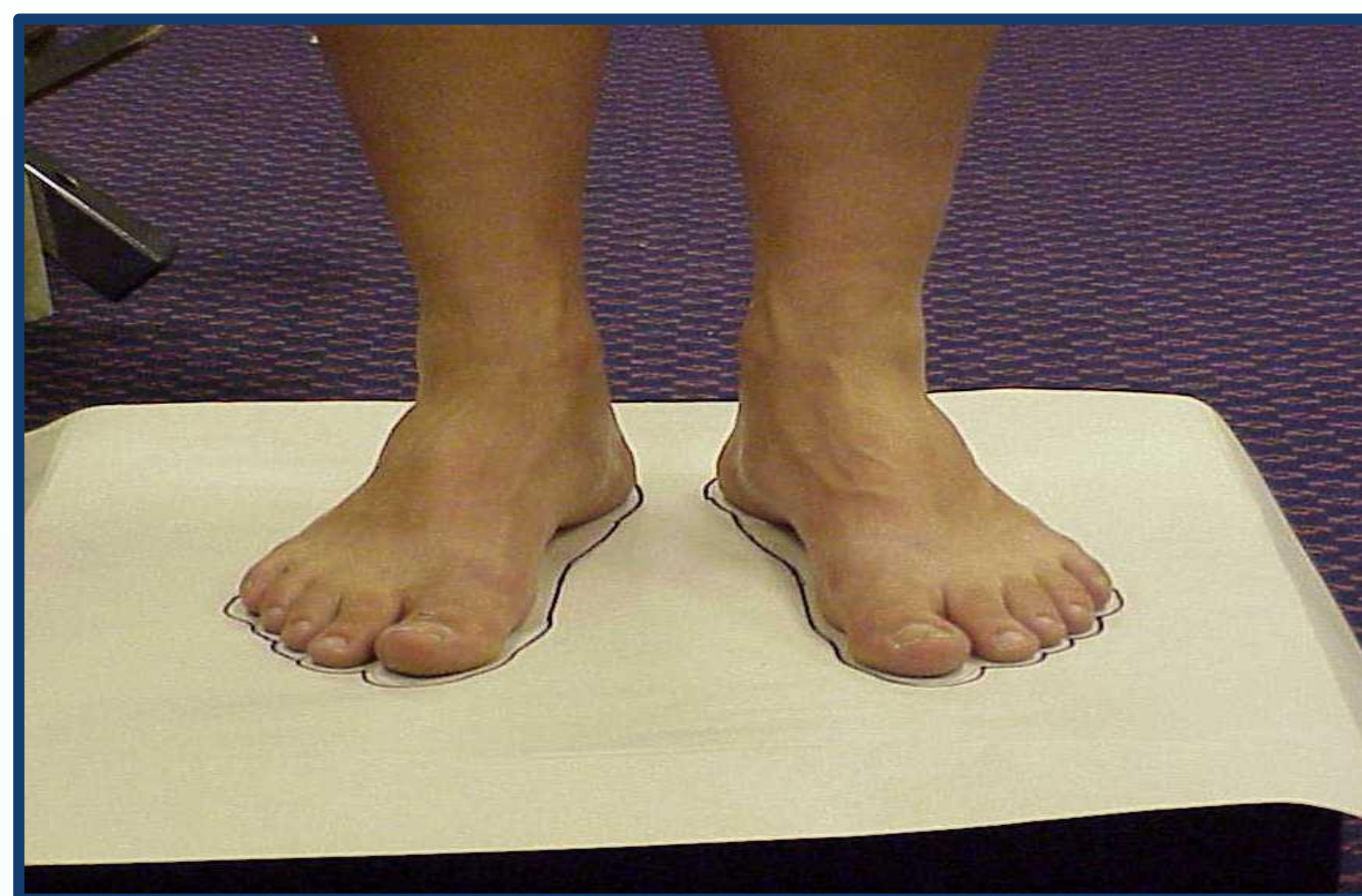


Figure 1: Foot Template Visual

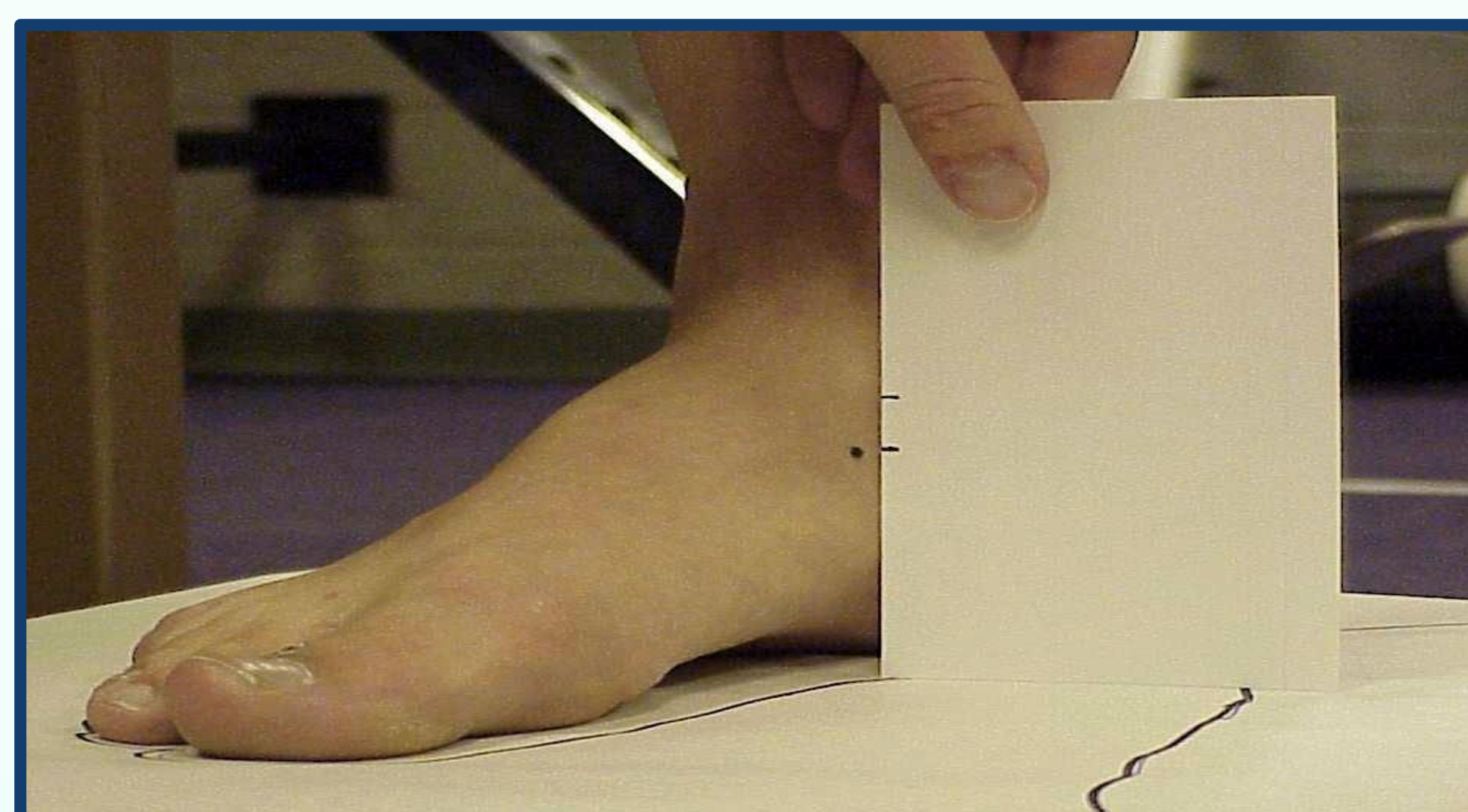


Figure 2: NDT position visual

METHODS

- Three 2nd year DPT students (testers) performed two sets of three trials assessing left and right navicular drop (L/RND) on a random sample of female basketball athletes (age 16± 1.1).
- Foot templates were utilized to minimize each subject's foot placement variability.³ (Figure 1)
- ND was measured from sub-talar joint neutral to single limb standing relaxed position utilizing a modified Brody protocol.² (Figure 2)
- Testers designated as Brown, Green, and Blue were blinded to all results.
- The instrumentation used to collect data in standard millimeter measurements was the Tacklife DC01 Digital Caliper® (Shenzhen, Guangdong, China). ICC statistical analysis was performed utilizing SPSS 21 software®.

Brown

- LND 0.86 (p=0.02)*
- RND 0.93 (p=0.01)*

Green

- LND 0.94 (p=0.01)*
- RND 0.85 (p=0.02)*

Blue

- LND 0.88 (p=0.03)*
- RND 0.82 (p=0.06)

Figure 3: Intra-rater Reliability (ICC) * Indicating Significance

RESULTS

2-way Inter-rater Reliability	Right Navicular Drop ICC (p)	Left Navicular Drop ICC (p)
Brown vs Blue	0.91 (p=0.60)	0.60 (p=0.23)
Green vs Brown	0.94 (p=0.01)*	0.63 (p=0.09)
Blue vs Green	0.95 (p=0.01)*	0.98 (p=0.01)*

Table 1: Two Way Inter-rater Reliability (ICC) * Indicating Significance



Figure 4: Three Way Inter-rater Reliability (ICC) * Indicating Significance

DISCUSSION

- Good-excellent intra- and inter-rater reliability was determined for 2nd year DPT student testers.
- Outcomes were consistent with experienced clinicians, despite a low sample size.
- The variance in data could be due to inconsistent subject performance.

CONCLUSIONS

- Our findings suggest 2nd year DPT students are prepared to administer the NDT.
- Future research may consider investigating the role of subject leg dominance when assessing reliability.

ACKNOWLEDGEMENTS

Maine Girls Academy, Jim Cavanaugh, PT, PhD

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