

LANDING PATTERNS OF COLLEGIATE FEMALE VOLLEYBALL PLAYERS DURING PRACTICE AND GAME COMPETITION

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INTRODUCTION

- Volleyball involves high-impact jumping and landing, leading to an increased risk of injuries (e.g. jumper's knee).
- These injuries may be due to high ground reaction forces, and high frequency/volume, (Bressel et al).
- Identifying training loads are important, considering that one extra training hour and one extra set of match play per week increase the risk of developing jumper's knee by a factor of 1.7 (Visnes et al).
- Previous studies provide data concerning the amount/characteristics of jumps during games; however, there is a lack of studies regarding the quantity and characterization of jumps during practices .
- These data may be able to help coaches and clinicians develop safer approaches to training and conditioning while preventing common overuse injuries.

PURPOSE

- To quantify and characterize the number of jumps each athlete performs during practices and a single game.

METHODS

Participants

- Fourteen Division-1 collegiate women's court volleyball players participated in this study.

Procedures

- Recordings from two video cameras (baseline, sideline) from three consecutive practices (2 hours each) and one game (4 sets) were utilized.

METHODS (cont.)

Procedures

- One rater manually recorded each jump and categorized landings as a double-leg landing (DL), single-leg landing on the right (SLR), or single-leg landing on the left (SLL) (Figure 1).

Statistical Analysis

- SPSS was utilized to perform all statistical analyses ($\alpha=0.05$).
- Repeated measures ANOVAs identified differences in jumping frequency and the ratio of DL to SL and SLR to SLL landings among practices and between practice and game competitions ($p<0.05$).

RESULTS

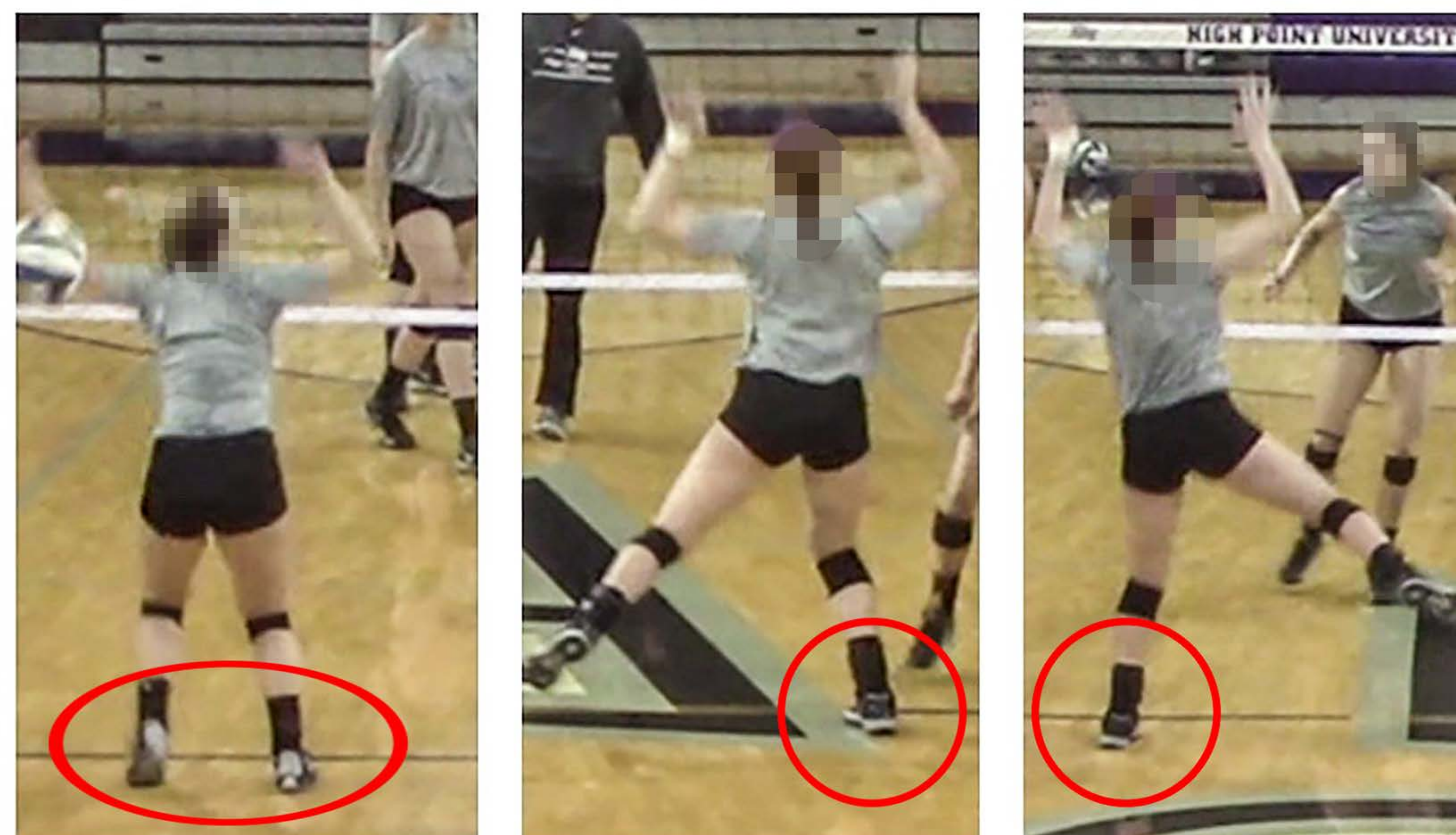


Figure 1. Jumps were categorized as double-leg (DL), single-leg right (SLR), and single-leg left (SLL)

- There were significantly more DL than SL landings in practices ($p=0.008$) and games ($p=0.05$).
- There was a significantly higher overall jumping load ($p=0.01$) and frequency of DL ($p=0.03$) and SL ($p=0.04$) landings during practice than games (Figure 2).
- Individual patterns of DL to SL and SLR to SLL were consistent across competitive events ($p>0.05$).
- No significant differences in any of the jumping or landing variables between practices ($p>0.05$).
- Substantial variability of landing patterns were identified between individuals (DL=35.8-96.0% of total; SLR=3.6-97.4% of SL).

RESULTS (cont.)

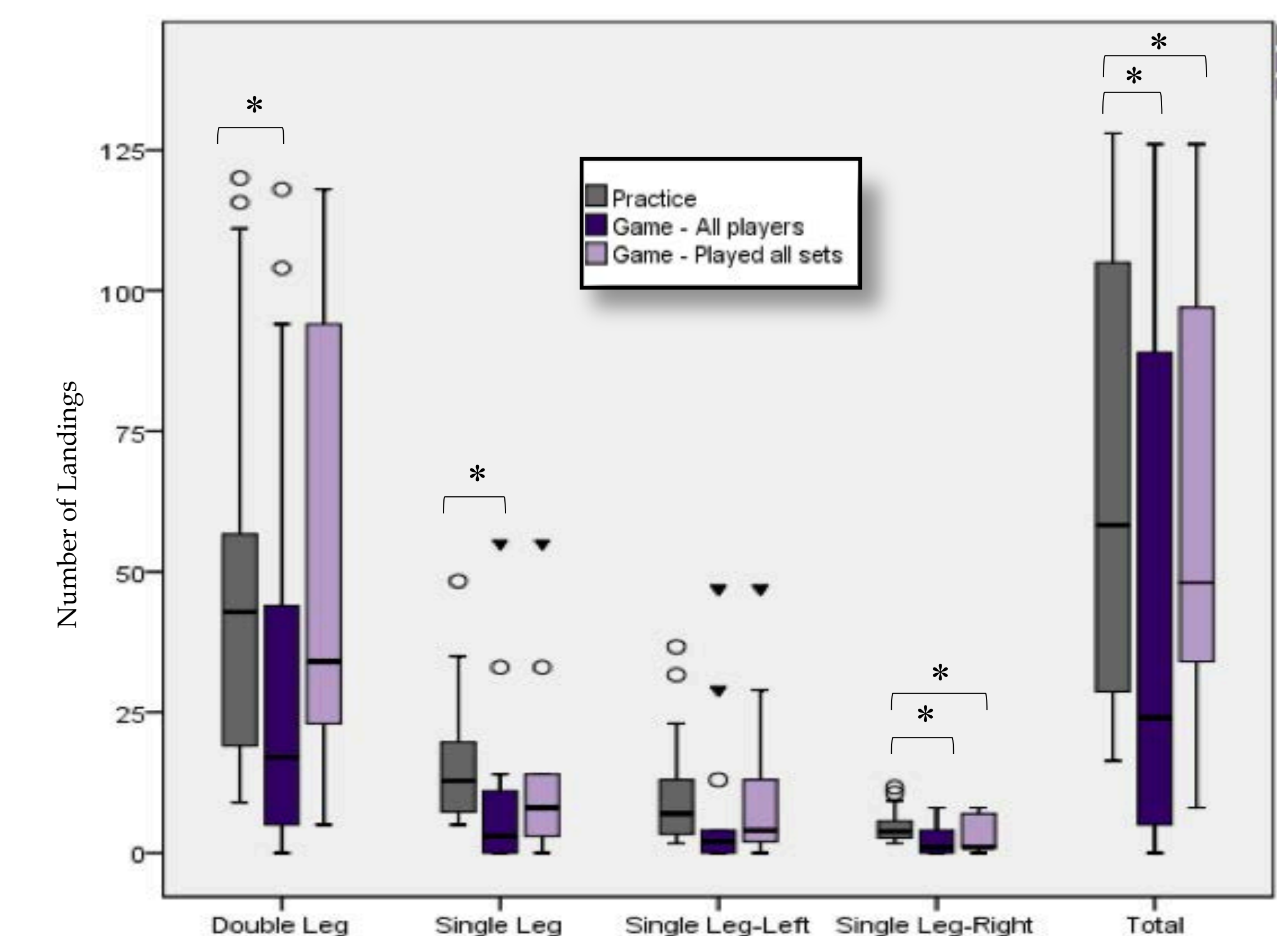


Figure 2. Landing pattern differences between practices and games.

SUMMARY AND CONCLUSIONS

- Volleyball players were found to jump significantly more often during practices than games, which may help explain higher injury rates in practice than games.
- These data may help clinicians and coaches design training and/or rehabilitation procedures to better simulate the landing demands during volleyball competition.

REFERENCES

- Bressel, Eadric, and Cronin. "The landing phase of a jump strategies to minimize injuries." *Journal of Physical Education, Recreation & Dance* 76.2 (2005): 30-35.
- Visnes, and Bahr. "Training volume and body composition as risk factors for developing jumper's knee among young elite volleyball players." *Scandinavian Journal of Medicine & Science in Sports* 23.5 (2013): 607-613.