

Speed and Accuracy of Lacrosse Shot Techniques

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Introduction

There are different perspectives concerning the efficacy of overhand, sidearm, or underhand style of shooting for speed and accuracy in men’s lacrosse. Many athletes prefer one over the other and sometimes coaches have alternative views, which leads to conflict. One study found that due to several kinematic features such as trunk rotational velocity, professional players shoot faster than college and high school players (Vincent, Chen, Zdziarski, Montero, Vincent 2015). Another study looked at foot orientation and used ground reaction force plates in a lab. The study found sidearm yielded significantly better ball velocity than overhand and underhand (Charles, Macaulay, Stergiou, Stefanyshyn, & Tomaghelli 2017). Given the range of study protocols and varied focus of existing studies, more research is needed.

Purpose

The purpose of this study was to assess speed and accuracy of overhand, sidearm, and underhand shots among DIII collegiate male lacrosse players.

Methods

Participants

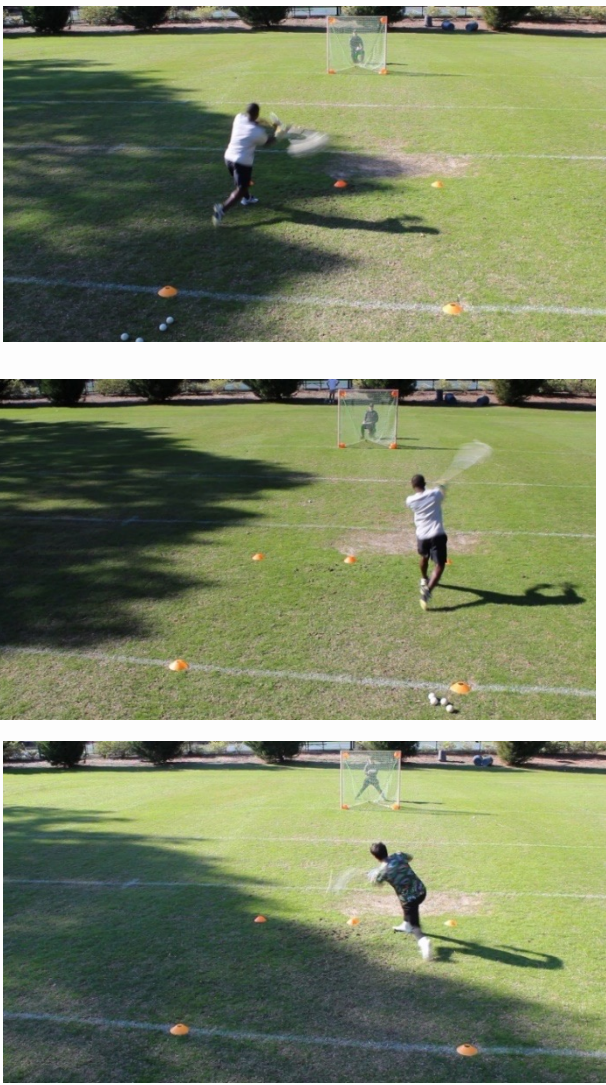
Eight division three lacrosse players aged 18-22 who play offensive positions participated in the study.

Measures

Nike soccer training cones were zip-tied to each corner of the net to be used as targets for accuracy shooting. Shot speed was collected using a Stalker Sport II radar gun.

Procedure:

- Athletes warmed up independently
- They were then given instructions to shoot from 12 yards away, taking a maximum of 3 steps
- Shot Accuracy: Each player took 5 shots at a specified corner and rested between corners
- Shot Speed: Each participant took three shots at the goal with rest in between each shot type



Sidearm

Overhand

Underhand

Results

Speed: Sidearm average was the fastest (82.04 mph) followed by overhand (80.17 mph) and underhand (79.83 mph).

Accuracy overall: Sidearm and underhand tied for most accurate at 24%. Overhand shot accuracy was 22%.

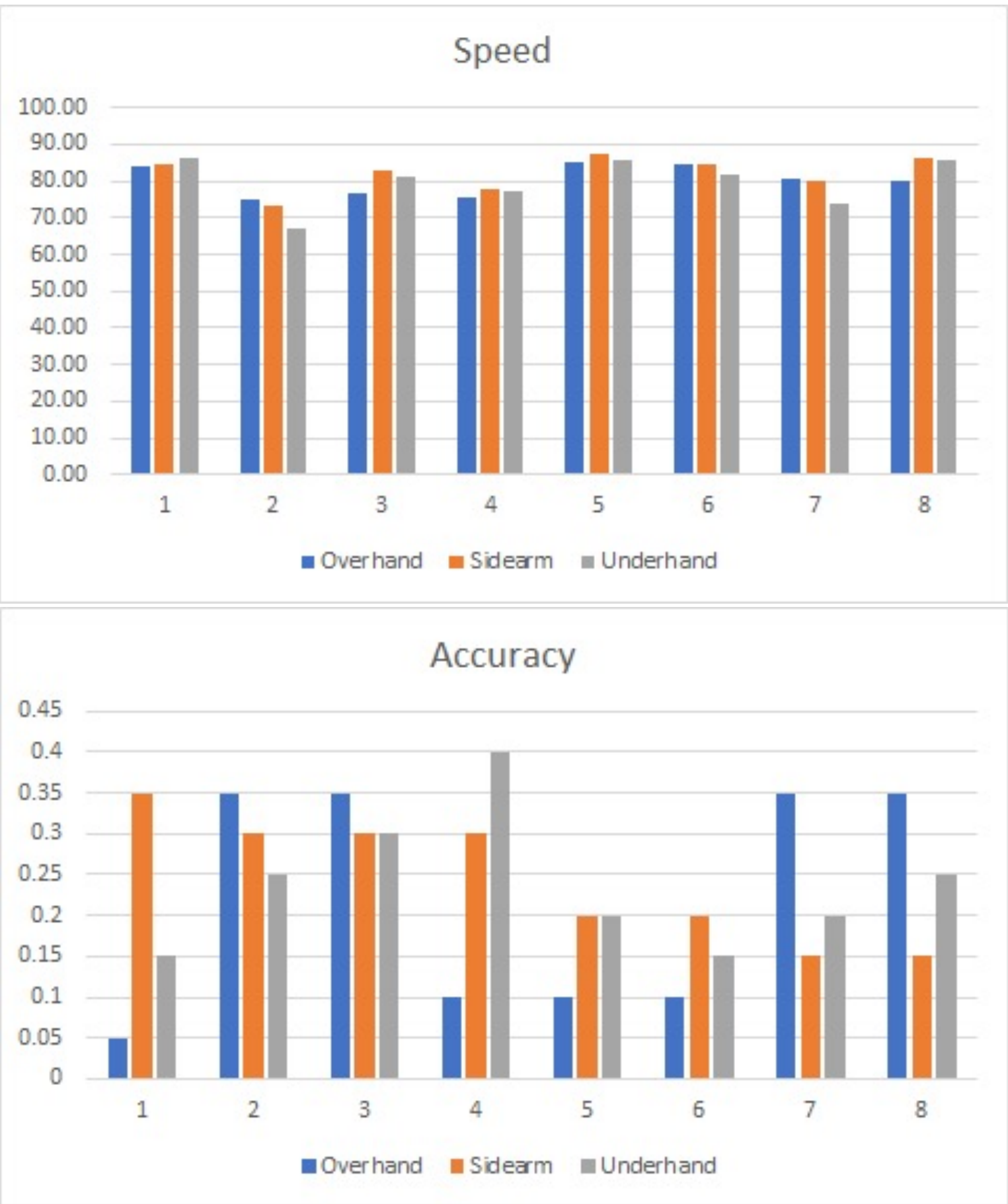
Accuracy based on style & location:

- Underhand top left (34%)
- Sidearm top right (40%)
- Overhand at bottom left (53%)

According to independent t-test results, there were no significant differences between any shots in terms of either speed or accuracy. The p-values ranged from .2-.45 (p<.05).

Conclusion

There were no significant differences for accuracy or speed based on shot type (i.e. overhead, underhand, or sidearm).



References

Charles A., Macaulay, L., Pro Stergiou, Darren Stefanyshyn & Luciano Tomaghelli. (2017). *Kinematic and kinetic analysis of overhand, sidearm and underhand lacrosse shot techniques*, *Journal of Sports Sciences*, 35:23, 2350-2356, DOI: [10.1080/02640414.2016.1267385](https://doi.org/10.1080/02640414.2016.1267385)

Vincent, H.K., Chen, C., Zdziarski, L.A., Montero, C., Vincent, K.R. (2015). *Shooting Motion Differences in High School, Collegiate and Professional Men’s Lacrosse Players*. *Medicine & Science in Sports & Exercise*: May 2015 - Volume 47 - Issue 5S - p 952, DOI: https://journals.lww.com/acsm-msse/fulltext/2015/05001/Shooting_Motion_Differences_in_High_School,.2939.aspx