

# The Effects of Noise and Self-talk on Serving Accuracy in Volleyball

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## Abstract

Volleyball serving accuracy is a key skill in the sport, but auditory stimuli (noise) can distract players. In this study, I examine whether self-talk can protect against distraction caused by external noise and enhance serving accuracy. Self-talk has been widely researched and shown to aid in focus and improving performance in a variety of sports. I propose that the mechanism underlying such improvement involves reduction of a distraction typically caused by external auditory stimuli. Participants served to targets on a court under four conditions, one baseline, one with noise, one with self-talk, and one with noise and self-talk, to determine the interactions between noise, self-talk, and serving accuracy. No statistically significant differences were found.

## Introduction

### Research Question

- Can self-talk (ST) be used to moderate the effects of external auditory stimuli (noise) distractions on serving accuracy in volleyball?

### Hypothesis

- Self-talk can protect against the negative effects of external auditory stimuli on serving accuracy.

### Background

- Crowds typically make loud noises and taunts to divert athlete's attention and cause them to error. Attentional control is important for sports performance and leads to improvements for sports such as basketball (Güldenpenning et al., 2020), golf (Ziv and Lidor, 2015), and tennis (Ducrocq et al., 2016).
- Selective attention allows for an athlete to be able to choose what they allocate their attention towards. External auditory stimuli can be distracting, leading to performance deficits (Otte et al., 2020, Oldfield et al., 2024). Athletes need to load their own relevant auditory cues to override irrelevant crowd speech.
- Volleyball serving is a self-paced, closed task. Time between contact of the ball and the player's hand is between 0.004-0.006 seconds, so attentional demand is high (Scheffke and Gronek, 2011).
- Self-talk (ST) is the use of verbal cues directed to the self to affect performance (Galanis et al., 2022). Research concerning the effects is mixed, however, it seems most beneficial for novice athletes in improving performance and focusing attention (Zetou et al., 2012, Hatzigeorgiadis et al., 2013).

## Methods

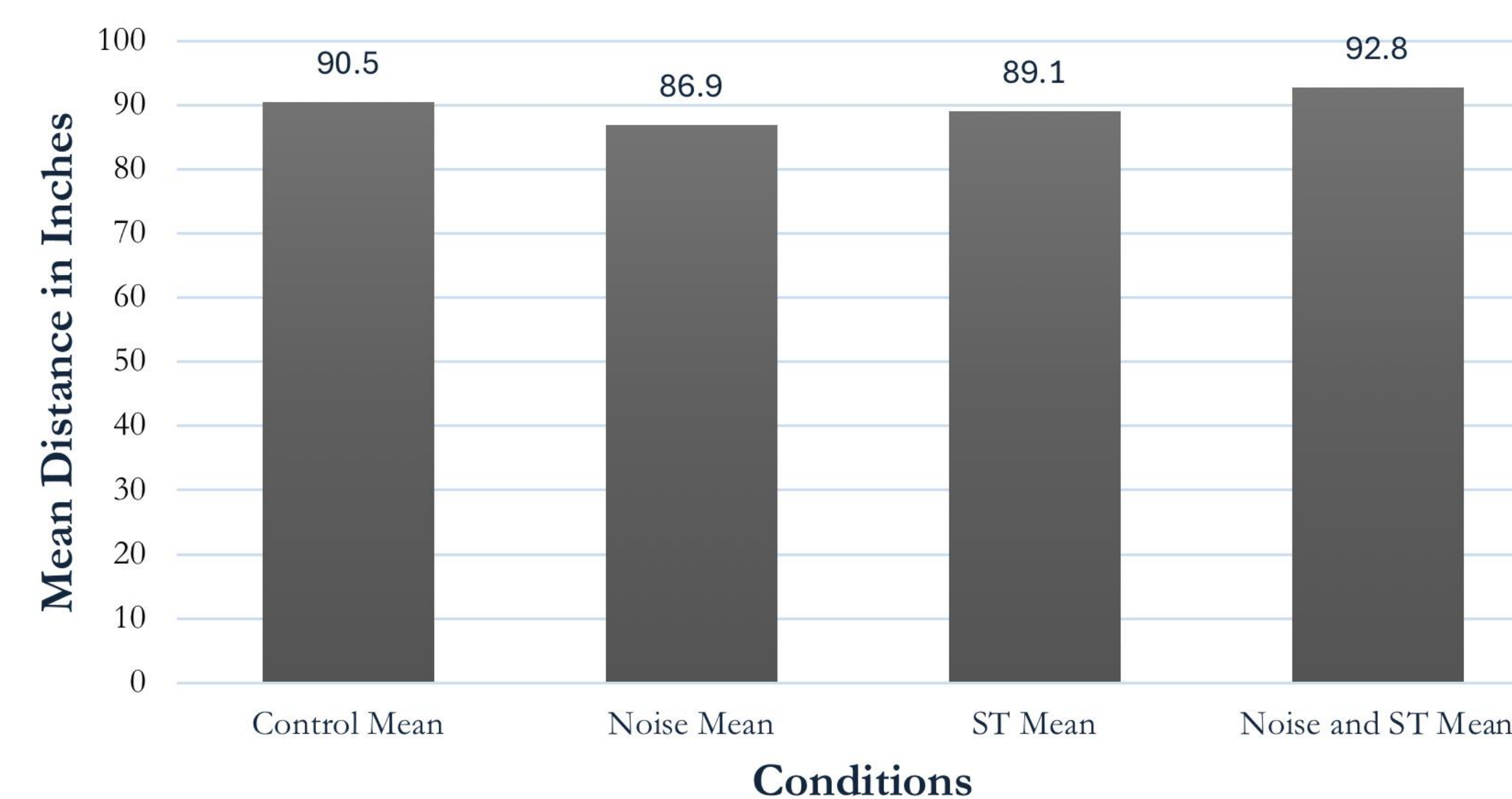
- The researchers used a within-subjects design.
- 25 subjects were recruited. Subjects were 18 years old or older, had volleyball experience, and could serve a volleyball.
- The study took place in a local high school gym.
- 4 conditions: control, noise, ST, ST and noise
- Subjects aimed to hit a cone in each of the 6 spots on the court and served 6 times each condition to measure accuracy.
- Accuracy was measured as the distance from the cones measured in inches.
- A repeated measures ANOVA test was run.

## Results

- Mauchly's test indicated that the assumption of sphericity had been met,  $X^2(5) = .35, p = .997$ .
- The effect of self-talk on accuracy was not significant at the .05 level,  $F(3, 72) = 0.34, p = .798$ , partial  $\eta^2 = .11$ .

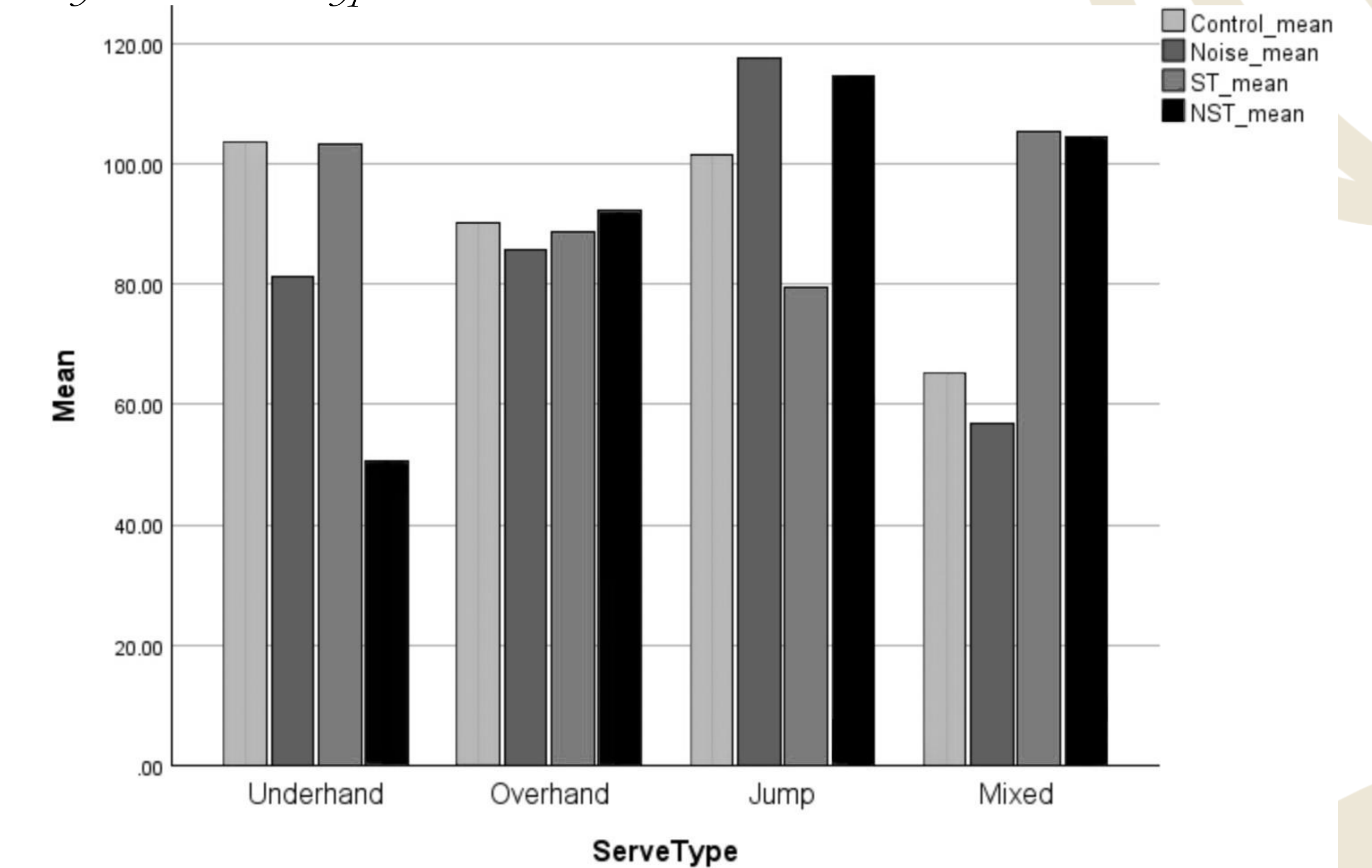
	Mean	Std. Deviation	N
Control Mean	90.5	28.6	25
Noise Mean	86.9	39.1	25
ST Mean	89.1	34.4	25
Noise and ST Mean	92.8	34.1	25

Accuracy Across Conditions



Note. The figure displays the average distance recorded in inches from the targets in all 4 conditions.

Accuracy Across Serve Type and Condition



Note. The figure displays the average distance recorded in inches from the target for each serve type in all four conditions.

## Discussion

- ST and noise did not have a statistically significant effect on serving accuracy. This may be due to floor effects.
- Limitations: Sampling method and sample size were the two main limitations in this study. Only 25 participants were recruited with a limited level of playing experience.
- Future directions: Replication of the study with a larger, more diverse sample may yield different results. Training participants in the use of ST over multiple sessions may help in the development of a routine, leading to different accuracy outcomes.

### Conclusions

- We failed to reject the null hypothesis. No statistically significant effects were found.

## References

- Ducrocq, E. et al. (2016). Training attentional control improves cognitive and motor task performance. *Journal of Sport and Exercise Psychology* 38(5), pp521-533. <https://epubs.ubk.ac.uk/doi/epint/18817/1/18817.pdf>
- Galanis et al. (2022). Effects of a strategic self-talk intervention on attention functions. *International Journal of Sport and Exercise Psychology* 20(5), pp 1368-1382. <https://doi.org/10.1080/1612197X.2021.1963304>
- Güldenpenning et al. (2020). Processing deceptive information in sports: Individual differences for responding to head fakes depends on the attentional capability of the observer. *Psychology of Sport & Exercise* 91, pp 1-7. <https://doi.org/10.1016/j.psychsport.2020.101764>
- Hatzigeorgiadis et al. (2013). Self-talk and competitive sport performance. *Journal of Applied Sport Psychology* 26(1), pp 82-95. <https://doi.org/10.1080/10413200.2013.790095>
- Oldfield et al. (2024). The effects of different types of crowd noise on penalty taking performance in football. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2024.2432926>
- Otte et al. (2020). What do you hear? The effect of stadium noise on football players' passing performances. *European Journal of Sport Science* 21(7), 1035-1044. <https://doi.org/10.1080/17461391.2020.1890714>
- Scheffke, T., Gronek, P. (2011). Improving attentional processes in sport: sport specific issues during effective playing time. *Studies in physical culture and tourism* 18(1), p. 11. [www.researchgate.net/publication/166682709/Scheffke%20Gronek%201813.pdf](https://www.researchgate.net/publication/166682709/Scheffke%20Gronek%201813.pdf)
- Zetou et al. (2012). The effect of self-talk in learning the volleyball service skill and self-efficacy improvement. *Journal of Human Sport and Exercise* 7(4), pp 794-805. <https://www.researchgate.net/publication/301025283007.pdf>
- Ziv, G., Lidor, R. (2015). Focusing attention instructions, accuracy, and quiet eye in a self-paced task—an exploratory study. *International Journal of Sport and Exercise Psychology* 13(2), pp 104-120. <http://dx.doi.org/10.1080/1612197X.2014.946246>