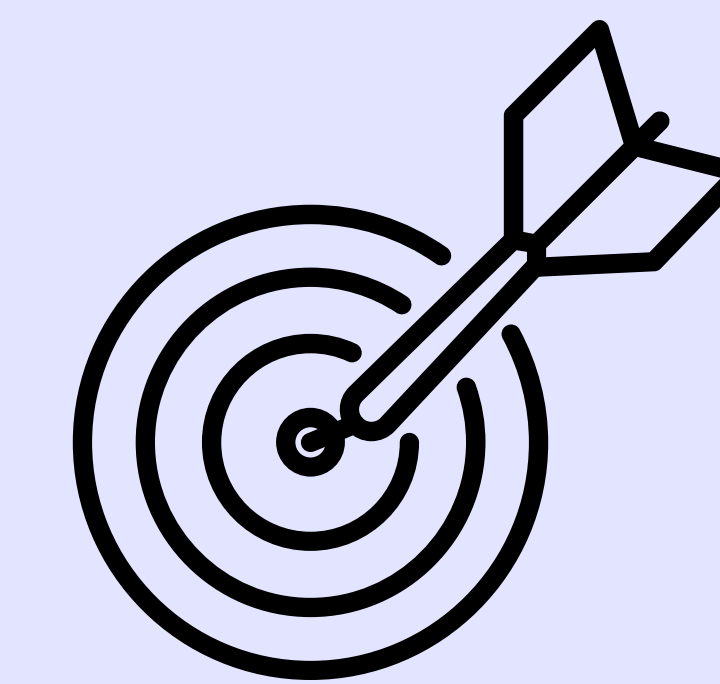


# AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PERSONALITY, SELF-TALK, AND QUIET EYE IN TARGET PERFORMANCE



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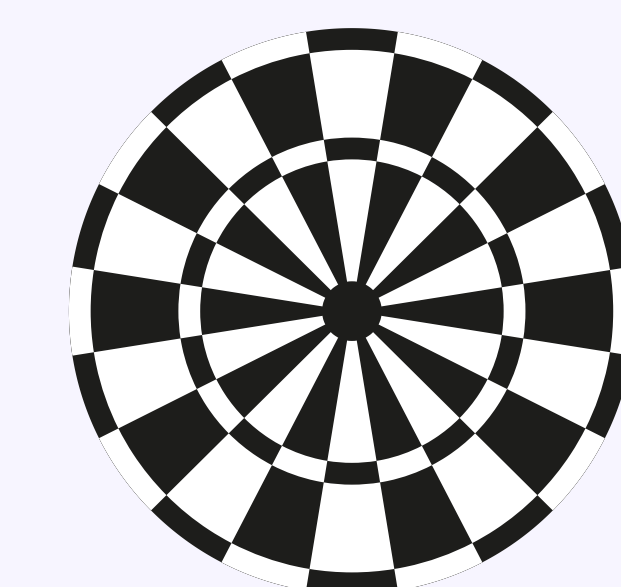
## 01 INTRODUCTION

- Athletes possess an Individual Zone of Optimal Functioning (IZOF), where specific levels of arousal/anxiety lead to peak performance (Kamata et al., 2002).
- Quiet Eye, defined as the final fixation on a target before movement initiation, is a critical cognitive mechanism for accuracy. Longer QE durations are associated with higher skill levels and better performance (Vickers 1996b).
- Over 85% of athletes use self-talk to regulate emotions and arousal. Recent research by Sarig et al. (2023) demonstrates that instructional self-talk can successfully prolong QE durations and improve performance in tasks like golf putting.
- Current literature focuses primarily on instructional vs. motivational self-talk. There is a lack of research on how positive vs. negative self-talk specifically impacts QE durations and accuracy.
- While personality traits (Big Five) influence how athletes perceive stress and regulate emotions, it is unclear how these traits interact with self-talk strategies and QE.

**Questions:** Are quiet eye durations impacted by the use of positive and negative self-talk? Does longer quiet eye duration lead to closer proximity to the target? Can the big five personality traits be used to predict athletic performance?

**Hypothesis:** H1: Participants will have the longest QE durations in the positive self-talk condition when compared to the control and negative self-talk conditions. H2: Participants will have better dart performance scores in the positive self-talk condition when compared to the control and negative self-talk conditions. H3: Participants with longer QE durations will perform better than those with shorter quiet-eyed durations

## 02 METHODS



### Participants

- 37 participants from Florida State University with no known visual impairments.

### Materials

- Qualtrics Survey including:
  - Demographics questionnaire
    - Age, gender, ethnicity, athletic background, type of sport, number of sports, and dart experience
  - Big Five Inventory (John, 1999)
    - 44-item, 5-point Likert Scale measuring Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism
  - Automatic Self Talk Questionnaire for Sports (Zourbanos et al., 2009)
    - 40-item, 5-point Likert Scale measuring participants' self-talk disposition, normally used in sporting contexts.
- Tobii Eye Tracker 3
  - Uses near-infrared light to illuminate the eyes and capture pictures of the pupils and corneal reflections
- Dart Board and Throwing Darts
  - A standard dart board and 3 darts were used to measure target performance

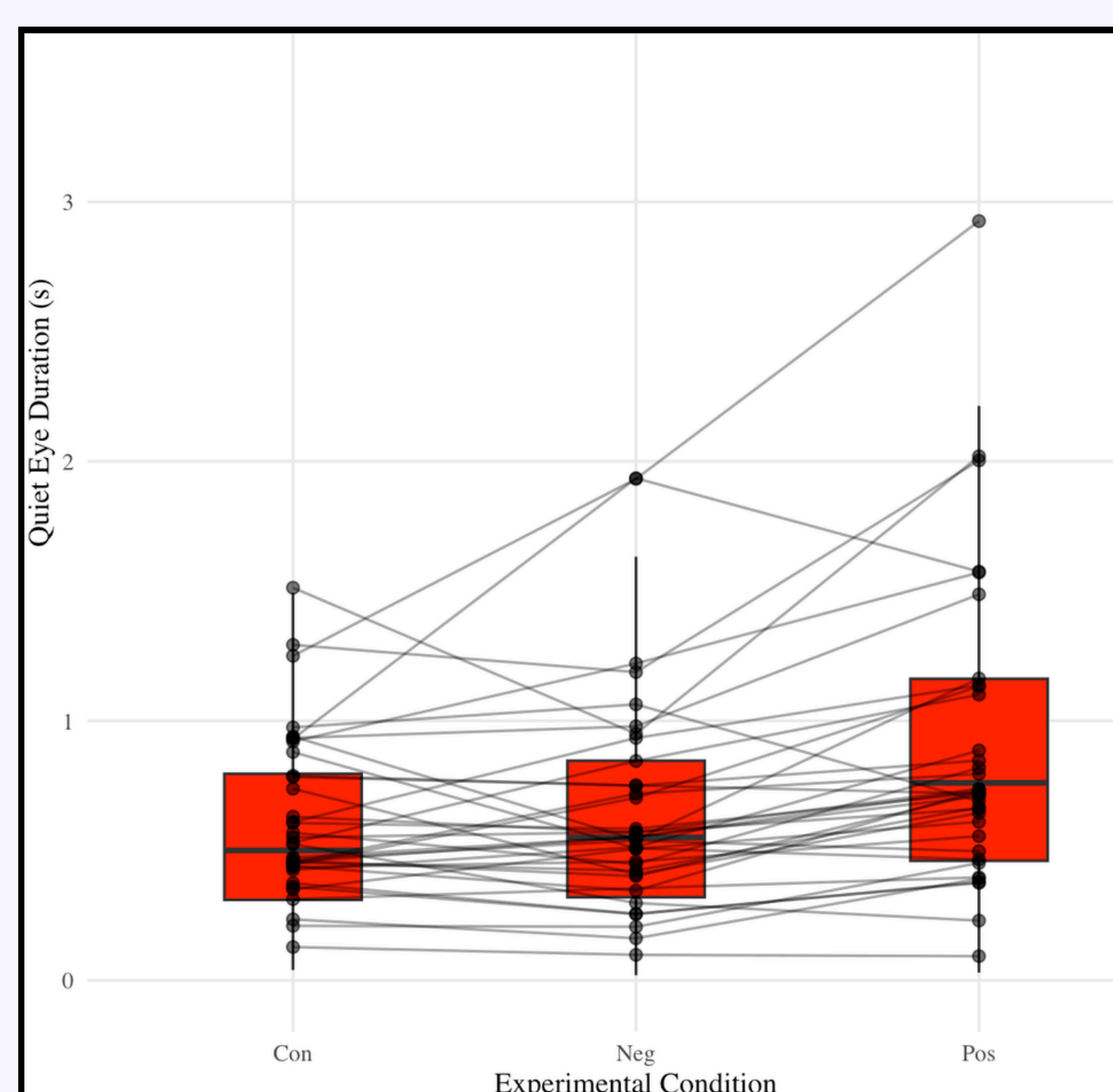
### Procedures

- Participants provided informed consent and completed the Qualtrics Survey in the lab prior to the Dart Throwing Task.
- Participants calibrated eye tracking glasses and began with 4 warm-up throws.
- Participants threw three sets of 12 dart throws under 3 conditions: positive self-talk, negative self-talk, and a control.
- Following each throw, the distance was measured in centimeters from the bullseye to the dart and recorded.

### Data Analysis

- Quiet eye durations were analyzed through Tobii Lab Pro
- IBM SPSS analysis was used to run a Linear Mixed-Effects Model on BFI, ASTQS, quiet eye, and dart scores

## 03 RESULTS

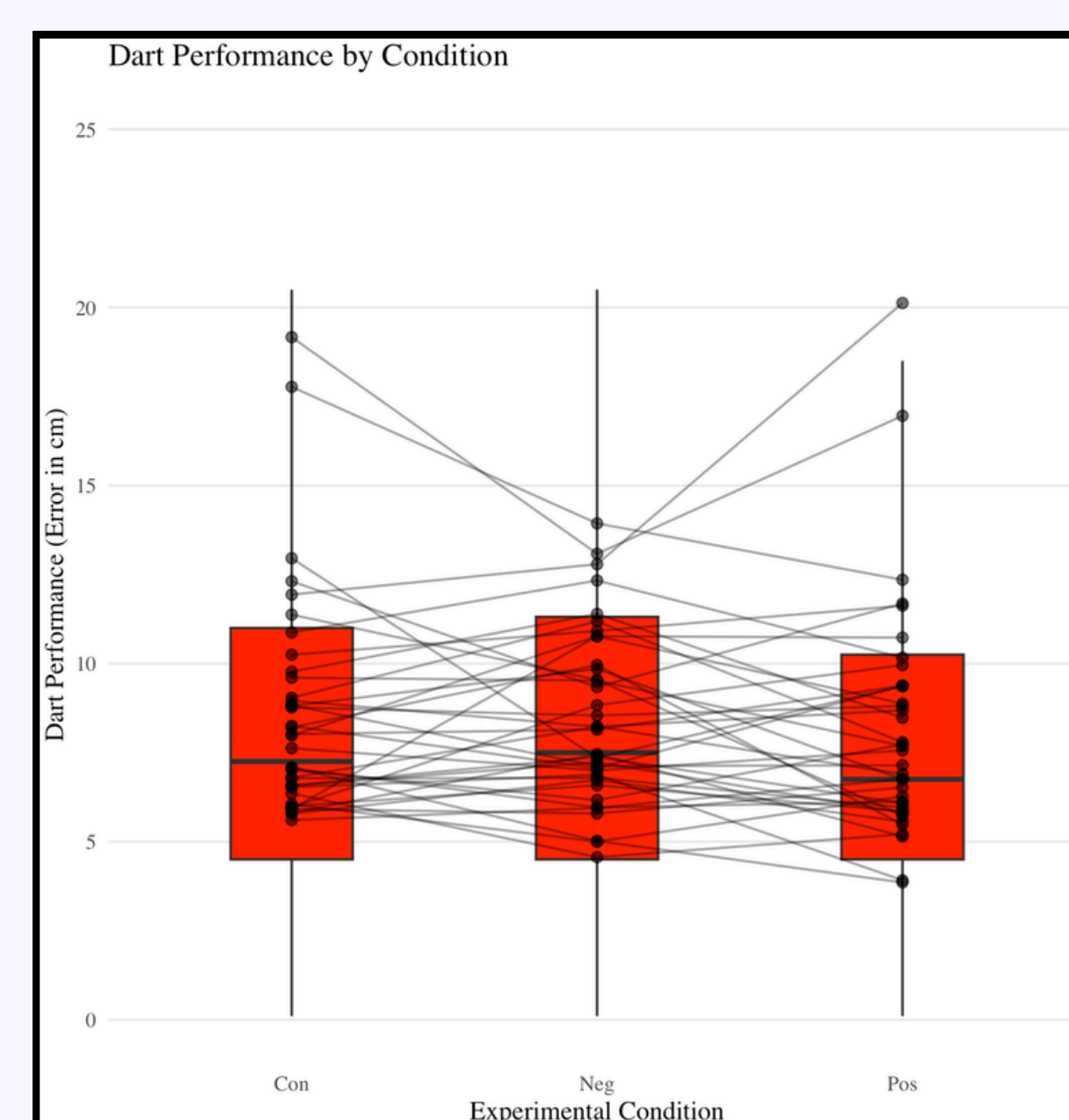


**H1:** Main effect of the condition

- $F(2, 1155.6) = 51.12, p < .001$

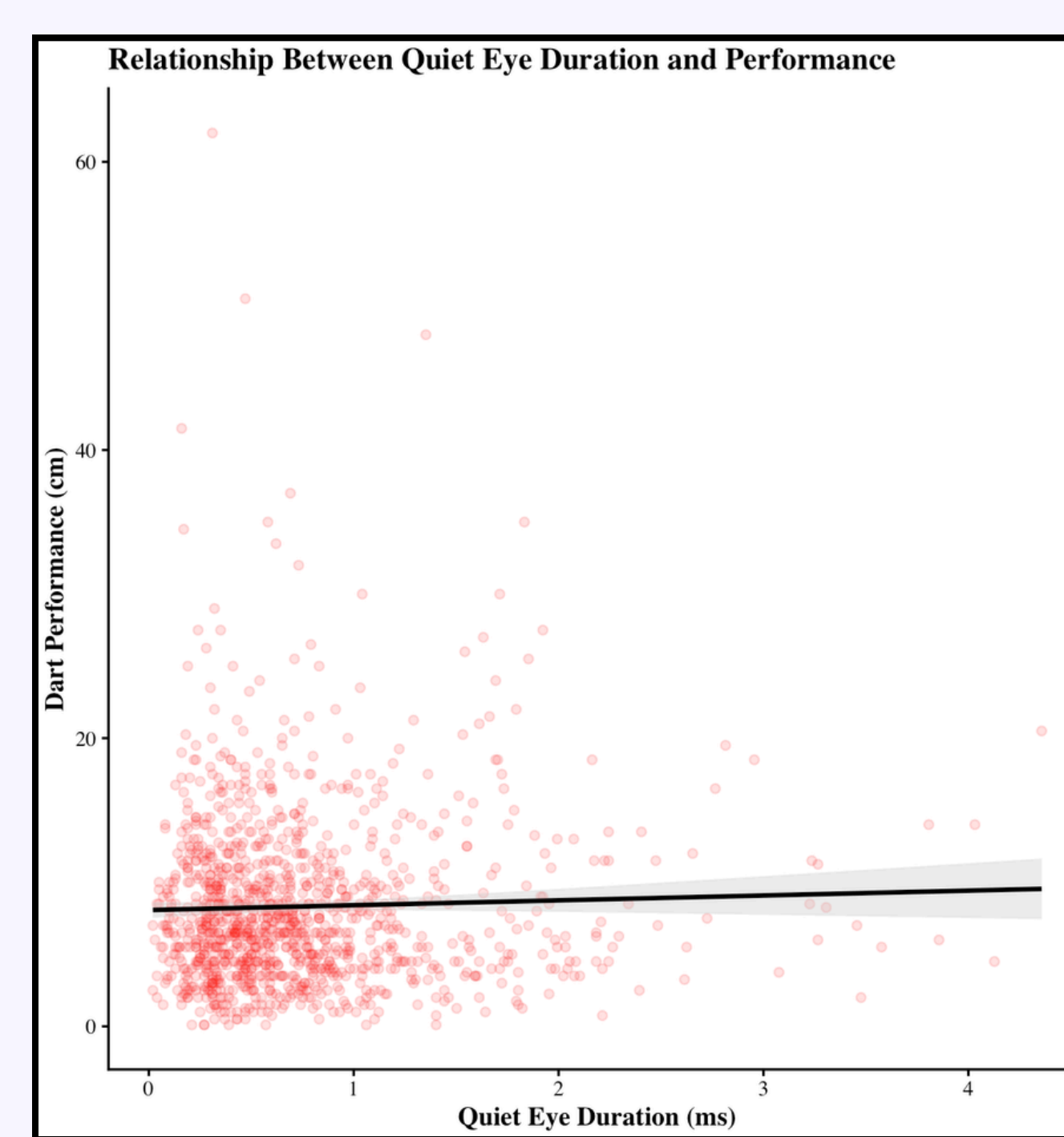
The positive condition was significantly longer than the control and the negative conditions

- Estimate = 0.28,  $SE = 0.03, t(1156) = 9.41, p < .001$
- Estimate = 0.24,  $SE = 0.03, t(1155) = 7.98, p < .001$



**H2:** A Linear Mixed-Effects Model showed no significant main effect of self-talk condition on dart-task performance.

- $p = 0.49$



**H3:** QE duration was not a significant predictor of dart performance

- $p = 0.24$

## 04 CONCLUSION

### Hypotheses were partially supported

- 1) Supported: Positive instructional self-talk significantly lengthened Quiet Eye (QE) duration compared to both control and negative self-talk conditions ( $p < .001$ ).
- 2) Not Supported: Although positive self-talk showed a slight trend toward better accuracy, there was no significant effect of self-talk condition on dart-task performance.
- 3) Not Supported: Increased QE duration did not significantly predict higher dart-throwing accuracy in this specific model ( $p = .242$ ).

### Our results support the work of:

- Zuber et al. (2022): Instructional self-talk can successfully direct attention toward task-relevant cues, such as the target.
- Vickers (1996): QE represents a critical period of cognitive processing; our study confirms this period can be manipulated through verbal cues.

### Limitations:

- The sample ( $N = 37$ ) may have been too small to detect subtle performance changes.
- Baseline dart-throwing experience was not controlled, leading to high error variability.
- A single session of self-talk may not be enough to overcome established physical mechanics in fine-motor tasks.

### Future Research:

- Study if extended use of self-talk leads to significant performance gains over time.
- Examine how self-talk affects QE under high-anxiety or competitive conditions.
- Investigate if skill level changes the relationship between QE and performance.

## REFERENCES

Scan the qr code to see a list of references.

