



BALL STATE UNIVERSITY



# The Effect of Corner Color on Olympic Boxing Match Outcomes: Strength and Conditioning Implications

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## Introduction

- Psychological and physiological factors—such as arousal, aggression, and dominance—play a critical role in athletic performance.
- Research indicates that red may confer a competitive edge, potentially due to its association with increased testosterone, aggression, and perceived dominance.
- In Olympic boxing, fighters are randomly assigned to red or blue corners, raising concerns that color assignment may unintentionally influence match outcomes.



## Purpose

- This study examined whether corner color influenced match outcomes during the 2020 Tokyo Olympic Games, with implications for strength and conditioning (S&C) strategies in combat sports.

## Results

### Data

358 Tokyo Olympic boxing matches



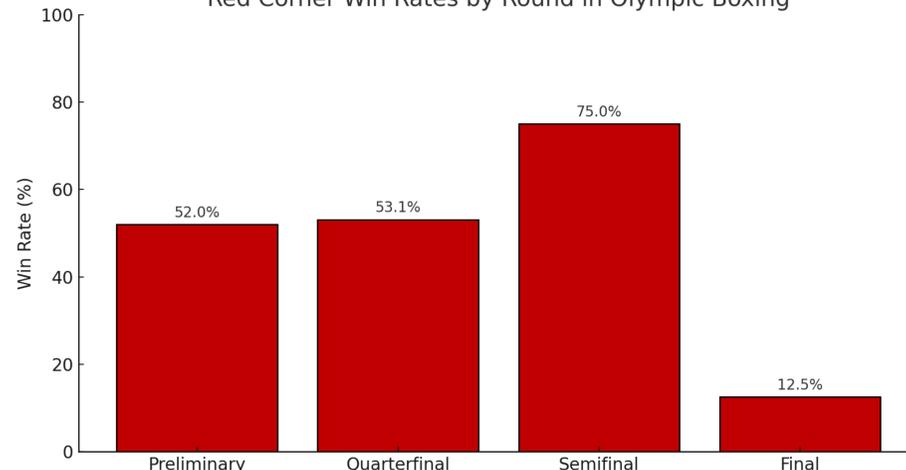
### Data Analysis

- An ordinal logistic regression assessed whether corner color (red vs. blue), round of competition (preliminary, quarterfinal, semifinal, final), and their interaction significantly influenced match outcomes ( $p < 0.05$ ). SPSS Version 25.0 was used for all computations.

## Methods

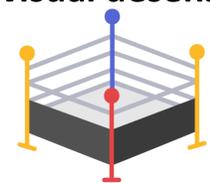
- The analysis revealed a significant relationship between corner color and match outcomes ( $\chi^2 = 19.15$ ,  $p < 0.001$ , Nagelkerke  $R^2 = 0.069$ ), though the effect size was modest.
- Fighters in the red corner won 52.0% of preliminary bouts, 53.1% of quarterfinal bouts, and 75.0% of semifinal bouts, suggesting a possible advantage in earlier rounds.
- However, **this trend reversed in the final round**, where only 12.5% of red-corner fighters were victorious. Statistical tests confirmed that both corner color (Wald  $\chi^2 = 10.12$ ,  $p < 0.001$ ) and the interaction between corner color and round ( $\chi^2 = 18.24$ ,  $p < 0.001$ ) were significant.
- These results indicate that any potential advantage associated with red corner assignment was limited to earlier rounds and diminished as the competition progressed.

Red Corner Win Rates by Round in Olympic Boxing



## Applications

- Incorporate **psychological strategies** (e.g., cognitive reframing, exposure to varied settings) to reduce color-related performance effects.
- **Monitor physiological markers** (e.g., arousal, ANS activity) to optimize athletes' pre-competition readiness.
- Use tactical training simulations with varied environmental and corner conditions to promote consistent performance.



### Implement visual desensitization

- Advocate for governing bodies to assess and revise corner color assignments to ensure competitive fairness.

## Conclusions

- The findings suggest that corner color may influence performance in Olympic boxing, particularly in the early stages of competition. The observed effect could stem from increased arousal, psychological priming, or referee bias.
- In later rounds, where skill, experience, and tactical execution become dominant factors, this advantage appears to dissipate. While the effect size was small, it raises important considerations for competition structure and athlete preparation in combat sports.

## Scan for Abstract

