



IMPACT OF AN 11-WEEK ACADEMY TRAINING PROGRAM ON AEROBIC, ANAEROBIC, AND LOWER BODY POWER PERFORMANCE IN LAW ENFORCEMENT CADETS



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ABSTRACT

BACKGROUND: Law enforcement requires adequate fitness levels to optimize occupational readiness. Law enforcement academies are responsible for developing a foundation of physical readiness by targeting relevant biomotor abilities, such as anaerobic and aerobic endurance as well as lower body power. However, there is limited research evaluating the effectiveness of academy physical training (PT) programs to improve these outcomes. **PURPOSE:** To assess the efficacy of a law enforcement PT program on anaerobic, aerobic, and lower body power performance in cadets. **METHODS:** 58 cadets (43 males, 15 females; Age: 26.2 ± 6.4 yr; Height: 175.0 ± 10.2 cm; Body mass: 90.3 ± 24.5 kg) completed an 11-week training academy with entry and exit assessments comprised of the 30:15 Intermittent Fitness Test (30-15 IFT), timed 500 m row, and standing long jump as measures of aerobic, anaerobic, and lower body power performance, respectively. The PT program was designed by a certified strength and conditioning practitioner. Specifically, cadets completed 5 sessions per week composed of circuit resistance training, mobility exercises, plyometrics, and interval running. Paired samples t-tests, effect size (Cohen's d), and relative change scores ((% change = posttest - pretest / pretest) x 100) were used to compare pre- vs. post-academy changes in performance outcomes. Significance was set to $p < 0.05$. **RESULTS:** The PT program improved 30-15 IFT ($t(57) = -11.96, p < 0.001; d = -1.57; MD: 1.04 \pm 0.66$ stage, 5.3% increase), 500 m row performance ($t(57) = 6.81, p < 0.001; d = 0.89; MD: -8.6$ s, 6.4% decrease), and standing long jump ($t(57) = 2.74, p < 0.01; d = 0.36; MD: 0.62$ m, 4.5% increase). **CONCLUSION:** These data indicate that an 11-week PT program elicited desirable aerobic, anaerobic, and lower body power fitness responses among law enforcement cadets. **PRACTICAL APPLICATIONS:** Law enforcement training academies are encouraged to employ certified strength and conditioning practitioners to design and implement appropriate PT programs to enhance cadet readiness.

INTRODUCTION

- Law enforcement requires adequate fitness levels to optimize occupational readiness.
- Officers are expected to perform physically demanding tasks (i.e., running, pulling, pushing, lifting, etc.) after periods of inactivity.^{1,2}
- Law enforcement academies are used to prepare cadets for physiological and psychological occupational demands.^{3,4}

AIM

To assess the efficacy of a law enforcement physical training (PT) program on anaerobic, aerobic, and lower body power performance among law enforcement cadets.

METHODS

- Participants: 58 cadets (43 males, 15 females; Age: 26.2 ± 6.4 yr; Height: 175.0 ± 10.2 cm; Body mass: 90.3 ± 24.5 kg) completed an 11-week training academy.
- 5 PT sessions per week composed of circuit resistance training, mobility exercises, plyometrics, and interval running.
- Lower body power (Standing long jump: SLJ), Relative lower body power (SLJ / body mass), Anaerobic (500m row) and aerobic (30:15 Intermittent Fitness Test: IFT) endurance were assessed pre- and post- academy.
- Statistical Analysis: Paired samples t-tests, effect sizes (Cohen's d), and relative change scores ((% change = posttest - pretest / pretest) x 100) were used to assess pre- vs. post-academy changes in performance outcomes. Significance was set to $p < 0.05$.

METHODS

Pre and Post 11-week training academy performance outcomes:

- Anaerobic endurance: 500 m row
- Aerobic endurance: 30:15 IFT (Figure 1)
- Lower body power: Standing Long Jump

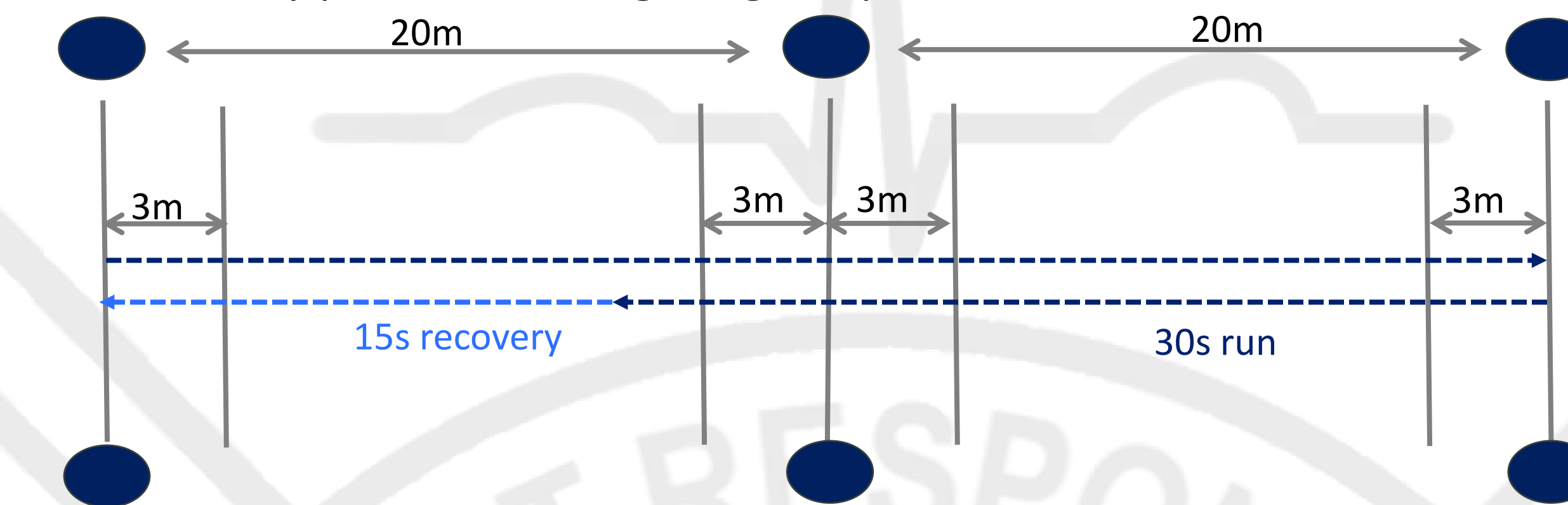


Figure 1: Schematic of the 30:15 Intermittent Fitness Test (IFT).⁵

RESULTS

- Improved 500 m row by 6.4% ($t(57) = 6.81, p < 0.001; d = 0.89; MD: -8.6$ s; Figure 2).
- Improved IFT performance by 5.3% ($t(57) = -11.96, p < 0.001; d = -1.57; MD: 1.04 \pm 0.66$ stage; Figure 3).
- Improved Standing long jump by 4.5% ($t(57) = 2.74, p < 0.01; d = 0.36; MD: 62$ cm; Figure 4).

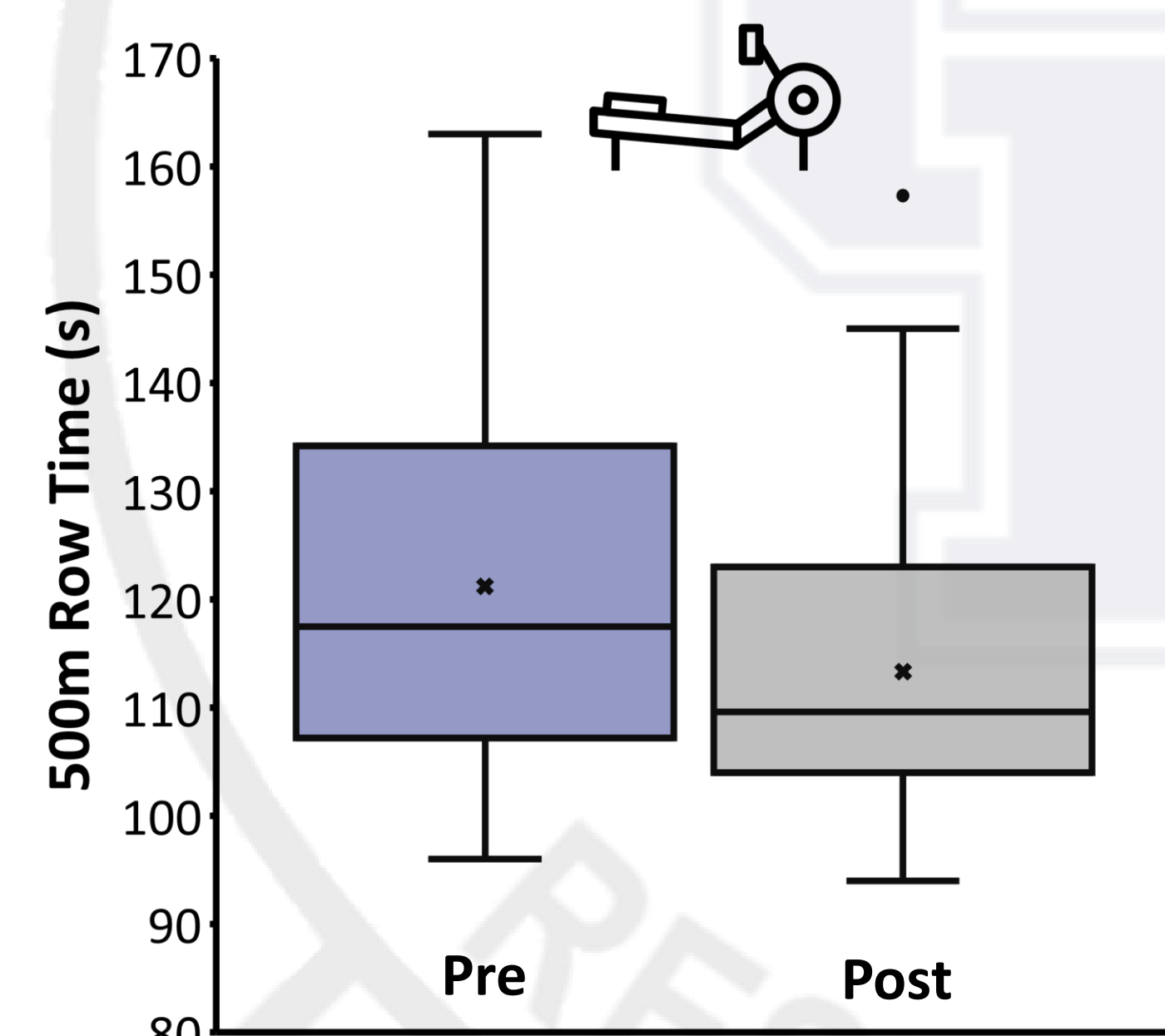


Figure 2. Comparison of cadets' 500m row performance pre- vs post-academy.

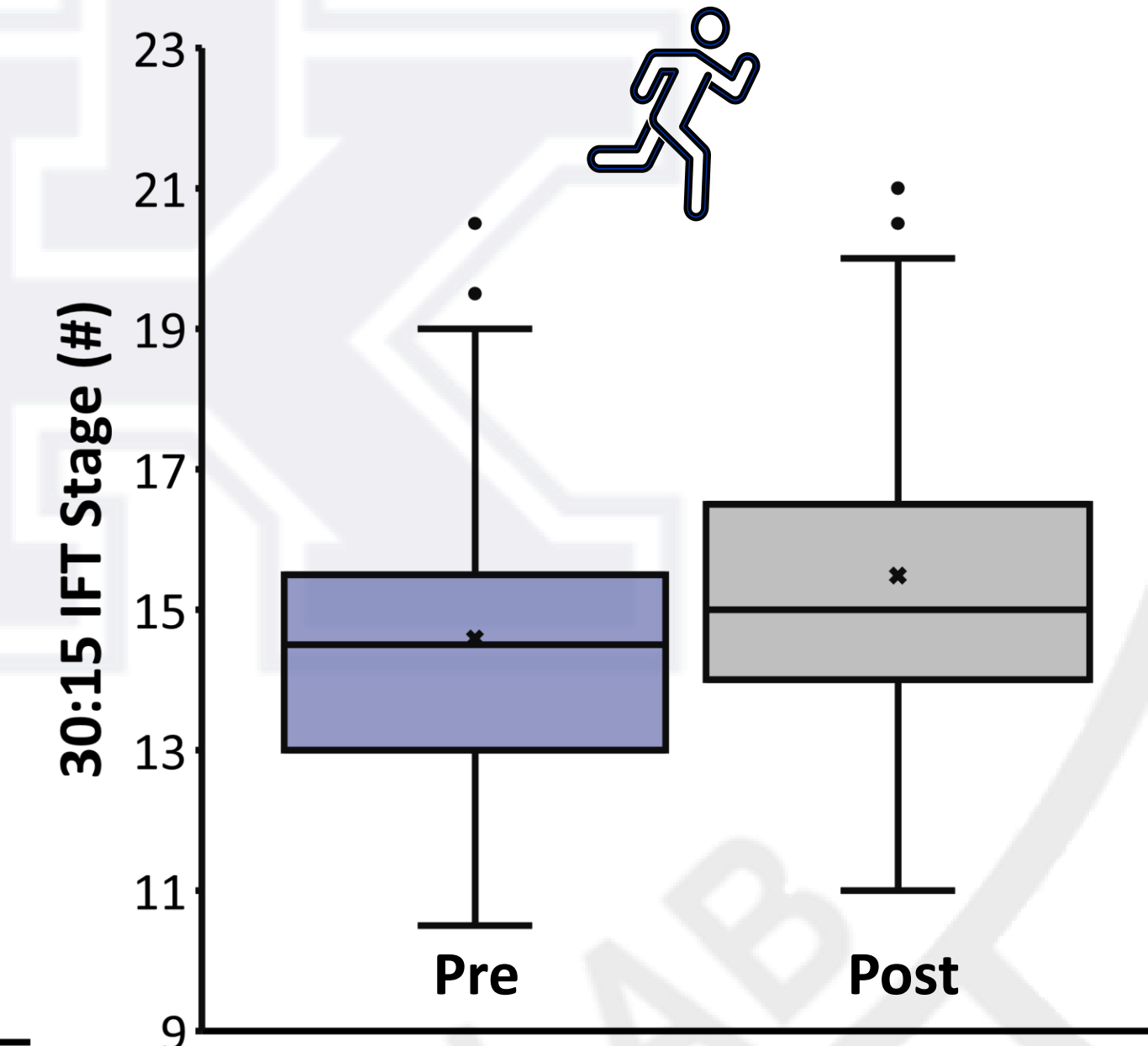


Figure 3. Comparison of cadets' 30:15 IFT performance pre- vs. post-academy.

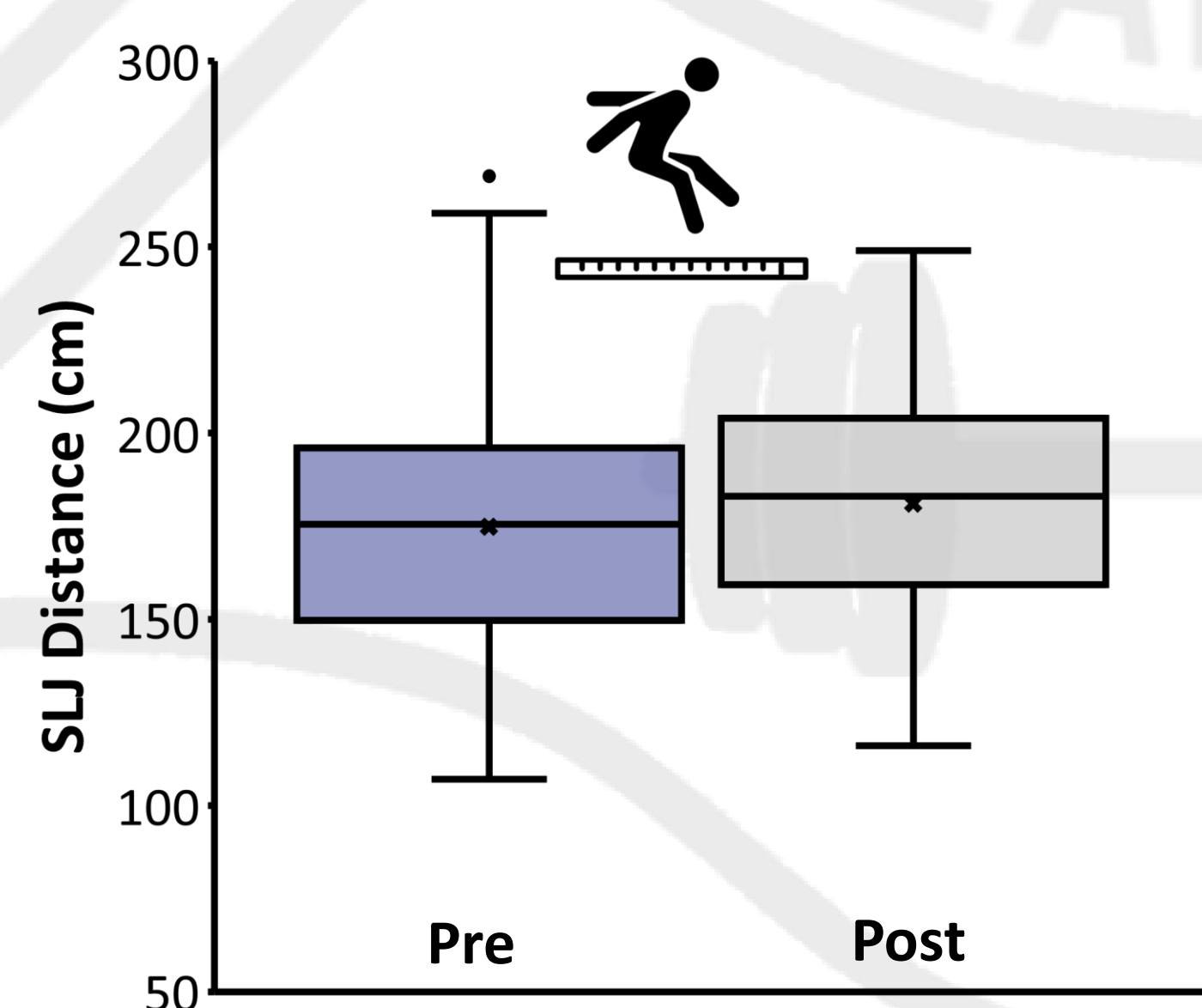


Figure 4. Comparison of cadets' standing long jump distance pre- vs post-academy.

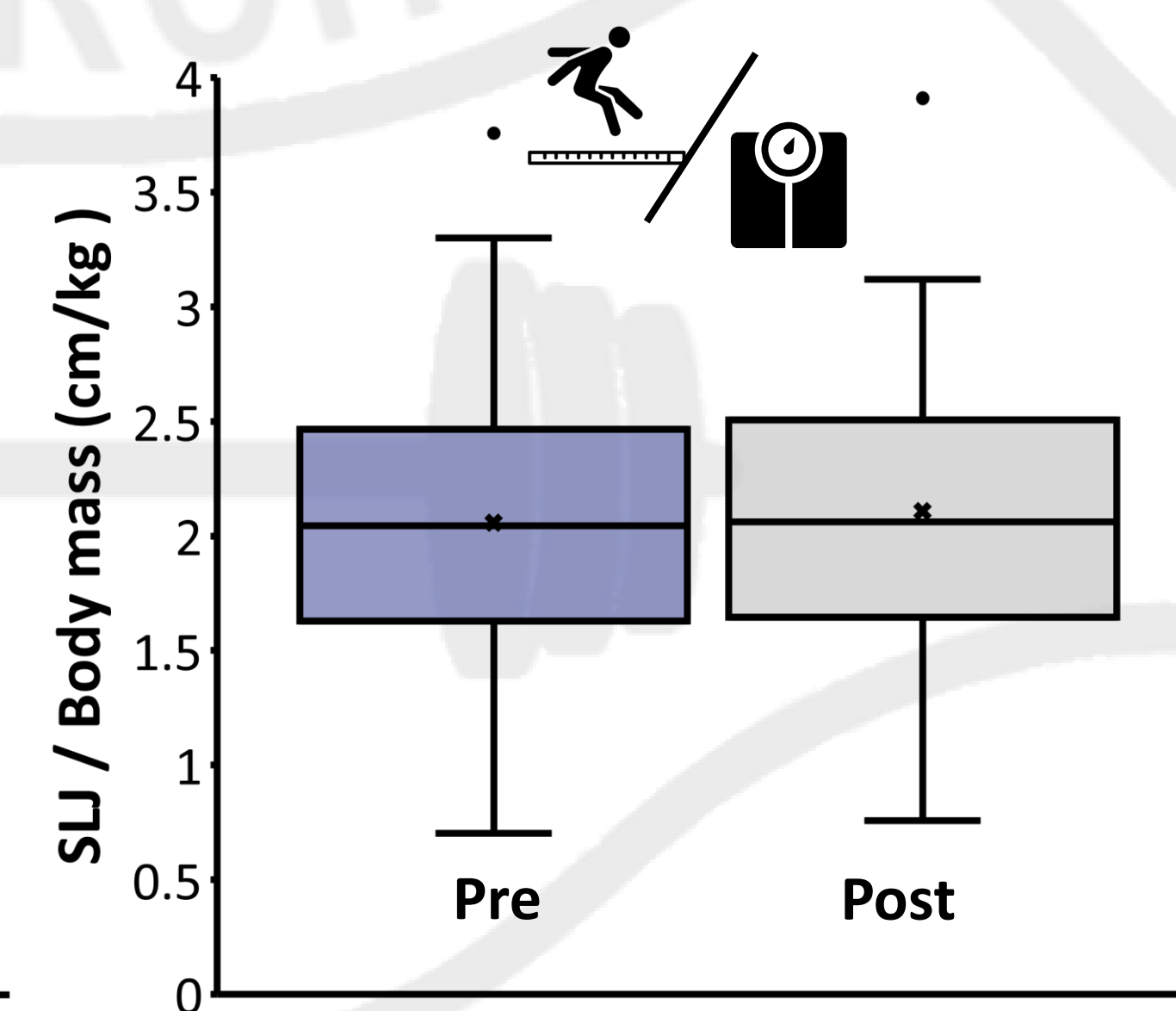


Figure 5. Comparison of cadets' standing long jump distance relative to body mass pre- vs post-academy.

CONCLUSION

- 11-week law enforcement recruit academy PT program improved:

- Anaerobic endurance by 6.4%
- Aerobic endurance by 5.3%
- Lower body power by 4.5%



PRACTICAL APPLICATION

- Law enforcement training academies are encouraged to employ certified strength and conditioning practitioners to design and implement appropriate PT programs.
- Evidence-based PT Programs will enhance officers' health, safety, and occupational readiness.

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