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Mitchell, Peter K; Balfany, Katherine ; Dulla, Joseph; Dawes, Jay J.; Orr, Rob Marc; Lockie, Robert G.

Recommended citation(APA):
Mitchell, P. K., Balfany, K., Dulla, J., Dawes, J. J., Orr, R. M., & Lockie, R. G. (2018). *Run To The Hills: The Effects of Academy Training on the Physical Fitness of Law Enforcement Recruits across Three Classes*. Poster session presented at The 38th Annual Meeting of the Southwest Regional Chapter of the American College of Sports Medicine, Costa Mesa, United States.

Run To The Hills: The Effects of Academy Training on the Physical Fitness of Law Enforcement Recruits across Three Classes

Peter K. Mitchell[1] ◆ Katherine Balfany[1] ◆ Joseph M. Dulla[2] ◆ J. Jay Dawes[3] ◆ Robin M. Orr[4] ◆ Robert G. Lockie[1]

[1]Center for Sport Performance, Department of Kinesiology, California State University, Fullerton, CA, USA.
[2]Recruit Training Unit, Training Bureau, Los Angeles County Sheriff's Department, Los Angeles, CA, USA.
[3]Department of Health Sciences, University of Colorado-Colorado Springs, Colorado Springs, CO, USA. [4]Tactical Research Unit, Bond University, Robina, Qld, Australia.
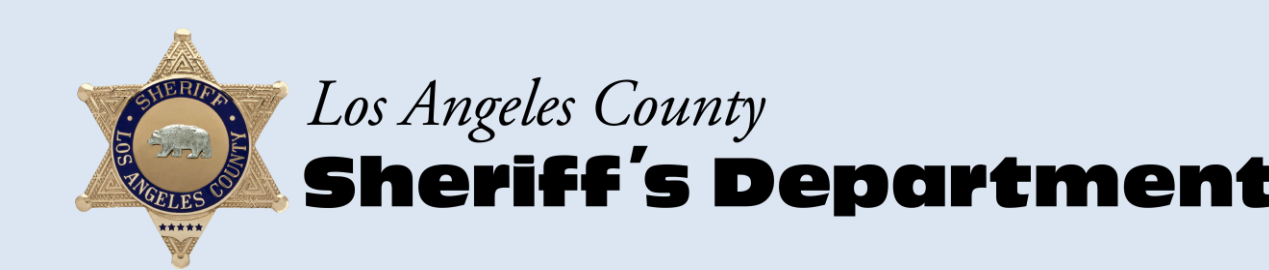
ABSTRACT

Law enforcement agencies (LEA) use the academy period to train recruits in the skills needed to undertake the demands of their job. Exercise programming is the responsibility of staff who tend to follow a paramilitary model, with emphasis on calisthenics, running circuits that lacked evidence-based work:rest ratios, and distance running. Programming is typically not targeted towards individuals or ability based, which could be problematic if recruits within a class have different physical fitness. The purpose of this study was to compare the effects of physical training across three academy classes. Retrospective analysis was conducted on three classes from one LEA (Class 1: ♂ = 62, ♀ = 6; Class 2: ♂ = 47, ♀ = 7; Class 3: ♂ = 51, ♀ = 8). Recruits performed pre- and post-testing in the following assessments: 75-yard pursuit run (75PR), medicine ball throw with a 1.82 kg ball (MBT), and multi-stage fitness test (MSTF). Academy training was conducted over 22 weeks; pre-testing occurred in the week prior to academy, while post-testing occurred in the last few weeks. Multiple repeated measures ANOVA (p<.05) investigated differences in assessment results between classes and pre/post academy training. Due to the nature of LEA academies, each of the classes began their academy training with different fitness levels in at least one assessment. Class 1 (~16.71 s) was significantly faster than Class 3 (~17.42 s) in the 75PR. MBT data showed that Class 3 (~5.40 m) performed poorer than Class 1 and 2 (~6.28-6.60 m). Class 2 (40.79 ± 12.40 shuttles) performed fewer shuttles than Class 1 (48.28 ± 13.61) and 3 (50.00 ± 14.05) in the pre-test MSTF. Following academy, Class 2 was 5% significantly slower on 75PR, while the other two classes showed no improvement. Classes 1 and 3 significantly improved their MBT distance (by 8% and 16%, respectively), while Class 2 showed no change. All three classes completed significantly more shuttles on the MSFT (Class 1: 33%; Class 2: 75%; Class 3: 74%). Given the major improvements in the MSFT, lack of improvement in MBT for one class, and lack of change or decrease in performance in the 75PR (even for Class 3 which started with a lesser 75PR), the data suggests that the physical training programs implemented by staff did not develop recruit's anaerobic capacities in a consistent manner. Given the majority of law enforcement job tasks tend to be anaerobic in nature, physical training programs should consider an increased focus on anaerobic training during academy to optimize job readiness for recruits. Future research should investigate the performance benefits of training programs that include anaerobic and aerobic development.

INTRODUCTION

- Law enforcement agencies (LEA) use the academy period to train recruits in the skills needed to undertake the demands of their job. Recruits must become prepared for the many physical rigors of law enforcement, which can include: jumping, vaulting, sprinting, dragging, pursuing fleeing suspects, and controlling those resisting arrest (1,4).
- As recruits make the transition from the general population to becoming law enforcement personnel, they may not be accustomed to the amount and type of physical training that will be demanded in law enforcement (2). This indicates the need for academy fitness programming that should be specific to the demands of law enforcement.
- Ideal training for recruits should include exercises that emphasize the movements and explosiveness needed for the daily tasks of law enforcement (2). Other considerations should be muscular strength and endurance, anaerobic power, flexibility, and injury prevention (1-3).
- Exercise programming is the responsibility of staff who tend to follow a paramilitary model. However, there is a tendency for the majority of law enforcement academy physical training sessions to be centered around calisthenics and running circuits that may lack evidence-based practice (1,4).
- The purpose of this study was to compare the effects of physical training across three academy classes through pre- and post-academy assessment to determine the effectiveness of the training regimen implemented by the academy training staff.

METHODS

- Retrospective analysis was conducted on three classes from one law enforcement agency:
  - Class 1: males = 62 (age=25.7 years ± 4.13, height=178.2cm ± 6.41, body mass=81.7kg ± 10.28), females = 6 (age=26.5 years ± 3.27, height=164.3cm ± 10.44, body mass=66.6kg ± 10.29)
  - Class 2: males = 47 (age=26.9 years ± 5.98, height=173.7cm ± 9.11, body mass=81.0kg ± 12.28), females = 7 (age=26.4 years ± 6.32, height=165.0 cm ±7.80, body mass=66.0 kg ± 12.28)
  - Class 3: males = 51 (age=26.8 years ± 5.42, height=175.9cm ± 6.96, body mass=81.9kg ± 10.29), females = 8 (age=26 years ± 3.63, height=164.4cm ± 9.06, body mass=67.5kg ± 10.55)
- Recruits performed pre- and post-academy testing in the following assessments: medicine ball throw with a 2 kg ball (MBT), 75-yard pursuit run (75 PR), and the multi-stage fitness test (MSFT).
- Academy training was conducted over 22 weeks. Pre-testing occurred in the week prior to the academy start. Depending on the schedule for each class, post-testing was conducted during the last few weeks of the academy.
- Multiple repeated measures ANOVA ($p < .05$) investigated the differences in assessment results between classes and pre/post-academy training.

RESULTS

- Due to the nature of law enforcement academies, each of the classes began their academy training with different fitness levels in at least one assessment. Class 3 performed significantly lower on MBT than Classes 1 ($p = 0.023$) and 2 ($p = 0.002$). Class 3 was significantly slower ($p = 0.003$) than Class 1 on 75 PR. Class 2 performed significantly fewer shuttles than Classes 1 ($p = 0.011$) and 3 ($p = 0.002$).
- Post-academy assessment of the MBT showed significant improvement in Classes 1 ($p = 0.010$) and 3 ($p < 0.001$). The 75 PR did not improve in Classes 1 and 3, while Class 2 performed significantly ($p < 0.001$) poorer. MSFT showed all three classes having significant ($p < 0.001$ for all three classes) improvement in the amount of shuttles completed.
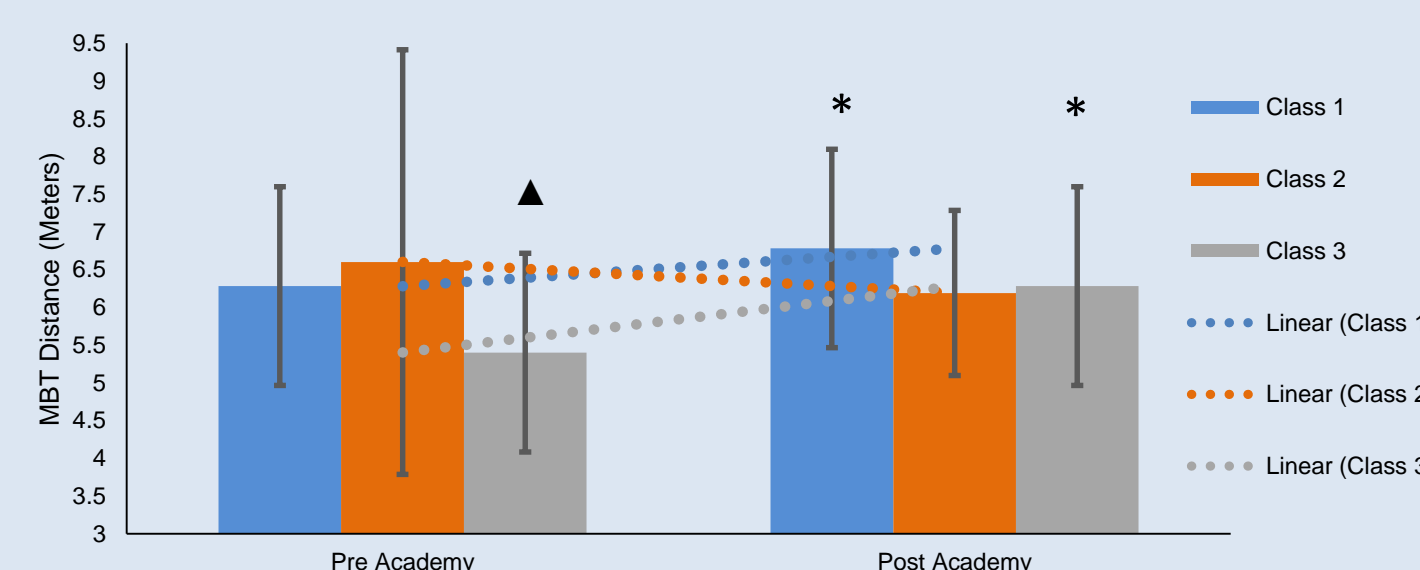
* Significant ($p < 0.05$) improvement in performance from pre-academy to post-academy.
▲ Class performed significantly poorer than the other two classes in pre-academy assessments.

Figure 1. MBT distance from pre academy assessment to post academy assessment for three classes.
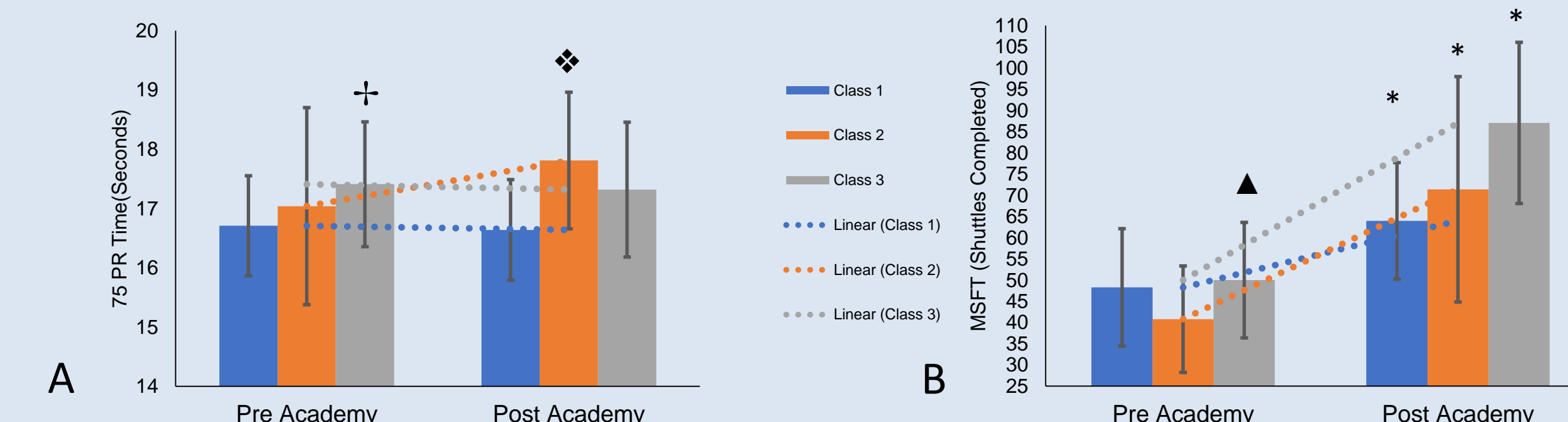
* Significant ($p < 0.05$) improvement in performance from pre-academy to post-academy.
❖ Significant ($p < 0.05$) decrease in performance from pre- to post-academy.
▲ Class performed significantly ($p < 0.05$) poorer than the other two classes in pre-academy assessments.
✣ Class performed significantly ($p < 0.05$) poorer than Class 1.

Figure 2. The 75 PR time (A) and MSFT shuttles (B) from pre-academy assessment to post-academy assessment for three classes.

CONCLUSIONS

- The data indicated that there were major improvements in the MSFT for all three classes, a lack of improvement in MBT for Class 2 (MBT distance decreased, however it was not statistically significant), and lack of change or even decreases in performance in the 75 PR (even for Class 3 which started with a significantly slower performance in 75 PR).
- These results suggest that the physical training programs implemented for these academy classes consistently focused on aerobic development. This would suggest a greater implementation of interval running and long slow distance running, which is typical of law enforcement academies (1,4).
- However, the data also suggests that training staff did not focus on developing recruit's anaerobic capacities in a consistent manner. Given the majority of law enforcement job tasks tend to be anaerobic in nature (1,4), physical training programs should consider an increased focus on developing anaerobic power during the academy to optimize job readiness for recruits.
- Future research should investigate the performance benefits of training programs that include anaerobic and aerobic development, as well as ability-based modalities.

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