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I Can Run More but at What Cost: The Effects of Academy Training on High and Low Performing Law Enforcement Recruits

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ABSTRACT

Academy training is utilized to develop the physical abilities of recruits specific to law enforcement. However, academy training typically follows a paramilitary model with specific programming often left to the discretion of the staff. Therefore, even within large-changes in training, intensity specific to the individual recruit may not be considered. Therefore, this study examined whether a one-size-fits-all training modality on more and less fit recruits. Retrospective analysis was conducted on pooled recruit data from four law enforcement agencies to determine if different types of recruitment training (Linear (LP) and Linear (HP) training) were associated with injury. In addition, within-group comparisons of pre- and post-tests were conducted to determine if improvements on vertical jump (VJ) performance were associated with changes in body mass index (BMI). Pre- and post-testing for 75-year-old pursuit (75PR) was conducted and revealed no significant changes in VJ. Conclusions: The data suggest that the current one-size-fits-all training approach may inhibit performance improvements in HP recruits during academy, especially limiting adaptations for upper-body power (MBT) and anaerobic performance (75PR, VI).

METHODS

A cross-sectional, retrospective analysis of data from one law enforcement agency was conducted. Pre- and post-testing academy data from four classes of recruits (174 males: age = 26.38 ± 5.02 years, height = 1.76 ± 0.08 m, body mass = 76.7 ± 10.58 kg) were analyzed across four performance tests.

Recruits underwent pre-testing before the first week of academy training. Physical conditioning assessments consisted of vertical jump (VJ) (only measured in one class), 75-yard pursuit (75PR), medicine ball throw (MBT), and multi-stage fitness test (MSFT). Post-testing was performed in the last few weeks of the 22-week academy depending on class schedule.

To measure training effects on more and less fit recruits, a tertile split was performed for each assessment, with the top third on each pre-test defined as high performers (HP), and the bottom third as low performers (LP). Multiple repeated measures analysis of variance was performed to determine any mean differences for the physical assessments between all recruits, and the HP and LP. Significance for all analyses was set at α = .05. Significant differences were found between pre- and post-tests in the same tests for the combined recruit data, suggesting training improvements for both types of performance. Further analysis showed significant interactions between time and the HP and LP for the 75PR, MBT, and MSFT. Both HP and LP improved in the MSFT, by 32.26% and 120.11%, respectively. For the 75PR, HP became 75PR (<p = .001), while LP no significant change on LP. No significant interactions were found for the VJ as well as all recruits, HP, and LP. The data suggest that the current one-size-fits-all training approach may inhibit performance improvements in HP recruits during academy, especially limiting adaptations for upper-body power (MBT) and anaerobic performance (75PR, VI). This is contrasted by the current practice of emphasizing LSD running. While this approach greatly improves aerobic fitness in recruits, it appears to come at the cost of power and speed. Other modalities, such as strength and power training, should be explored in law enforcement academies, as well as ability-based training models.

RESULTS

• Significant differences were found between pre- and post-tests for MBT (p < .001), 75PR (p = .048) and MSFT (p < .001) in combined recruit data, with no significant changes in VJ.

• Significant interactions were found for pre- and post-tests with improvements in the MSFT for HP (p < .001) and LP (p < .001), performance decrements in HP (p < .001) for the 75PR with no change for LP, and LP (p < .001) improving in MBT, with no change for HP.

CONCLUSIONS

The data suggest that the current one-size-fits-all training approach may inhibit performance improvements in HP recruits during academy, especially limiting adaptations for upper-body power (MBT) and anaerobic performance (75PR, VI).

With the current training practices emphasizing interval running without evidence-based work rest ratios and LSD running, aerobic fitness greatly improves in recruits (shown by the increase in completed MSFT shuttles), but at the cost of power and speed.

High volumes of running and current paramilitary training practices that emphasize repetitive training in the sagittal plane (i.e. marching, running, push-ups) could lead to overtraining and injury.3 In support of previous research, the data from this study reinforced that recruits do not all begin at the same fitness level.4 With a one-size-fits-all training approach, intensities vary depending on the recruit’s fitness level potentially resulting in over- or under-training.

A greater prevalence of injury among recruits is often the case; however, little research exists to determine if overall injury or specific injury risk factors in HP and LP recruits could be associated with the training modalities.

Future research should examine the inter-relationships between HP and LP recruits to determine if training improvements should be task- and performance specific. Further research is required to determine if the current practices are appropriate and if there is a need for change in the recruitment training model.

Abbreviations:

INTRODUCTION

• Law enforcement agency (LEA) recruits in California must complete a training academy, often over a 22-week period, which includes a minimum of 36 scheduled physical training sessions. Academy training should ideally prepare recruits for their future work demands, which could include tasks like running, carrying, dragging, jumping, running, crawling, climbing and fighting. These tasks ideally require training adaptations in aerobic capacity, muscular strength, power, and speed.

• Typically, the design for LEA training programs are based on a paramilitary, one-size-fits-all model, which favors interval running without evidence-based work: rest ratios, slow long distance (LSD) running, and local muscular endurance exercises. These tasks ideally require training adaptations in aerobic capacity, muscular strength, power, and speed.

• Due to large class sizes and time constraints, training typically involves programming for large groups, and individualized ability-based training (ABT) is often not considered. However, recruits generally begin academy at various fitness levels.2 With a one-size-fits-all training approach, lower performing recruits may not receive the necessary training stimulus to elicit adequate training adaptations for job performance.

• The purpose of this study was to determine whether physical training during academy leads to changes in physical fitness for recruits from one LEA. A secondary purpose was to determine the effect of a one-size-fits-all training modality on more and less fit recruits.

* Significant (p < .05) interaction from pre to post test.

Figure 1: Descriptive data (mean ± SD) in the A. VJ, B. MBT, C. 75PR, and D. MSFT in LP and HP recruits.