



TACTICAL FITNESS AND NUTRITION LAB

The Effect of Age On Southern California Law Enforcement Recruitment Physical Fitness Assessments



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INTRODUCTION

- A career in law enforcement, although physically demanding, is one that serves a rewarding and greater purpose in maintaining balance within society (1).
- Many agencies have a diverse recruit pool who may vary widely in age. These differences may impact academy graduation as older recruits may have a more difficult time recovering from the rigors of training compared to their younger counterparts (4).
- The purpose of this study was to determine if significant differences exist in performance on select physical fitness assessments among law enforcement recruits by age category.

METHODS

- A retrospective analysis was conducted on data from 308 female recruits (age: 26.50±5.07) and 1640 male recruits (age: 26.96±6.06) from a southern California law enforcement agency.
- During the hiring process, recruits completed the following physical fitness assessments: 75-yard pursuit run (75PR); 60-s push-ups; 60-s arm ergometer; 60-s sit-ups; and 2.4-km (1.5-mile) run.
- A Multivariate analysis, with age group and sex as the fixed factor was utilized to determine between-group fitness differences ($p < 0.05$).

RESULTS

- Among the female recruits, 20-29-year-old female recruits had significantly faster PR75 times compared to those in the 30-39 age group ($p = 0.001$).
- In regard to male recruits, those within the 20-29 age group exhibited significantly PR75 faster times than the following age groups: 30-39 ($p = 0.002$), 40-49 ($p < 0.001$), and 50-59 ($p = 0.003$).
- Additionally, male recruits from the 30-39 age group had significantly faster PR75 times compared to those in the 40-49 age group ($p < 0.001$).
- Additionally, male recruits in the 20-29 age group had significantly faster 1.5-mile times than those in the 30-39 age group ($p < 0.001$).

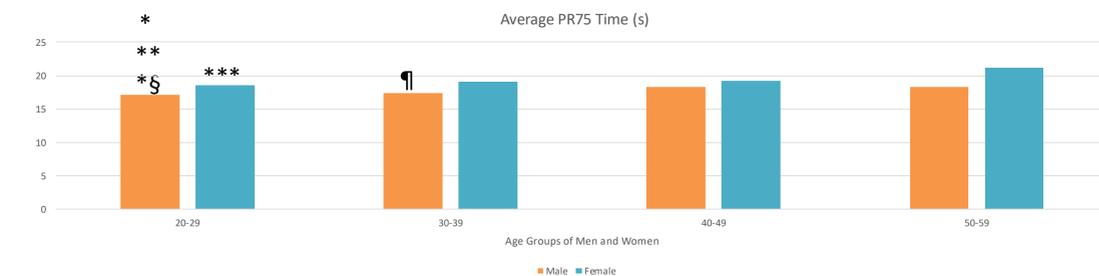


Figure 1. Average performance scores for males and females across different age groups on PR75
 *§ denotes 20-29 males significantly faster than 30-39 males, * denote 20-29 males significantly faster than 40-49 males, ** denotes 20-29 males significantly faster than 50-59 males. ¶ denotes 30-39 males significantly faster than 40-49 males
 ** denotes 20-29 females were significantly faster than 30-39 females

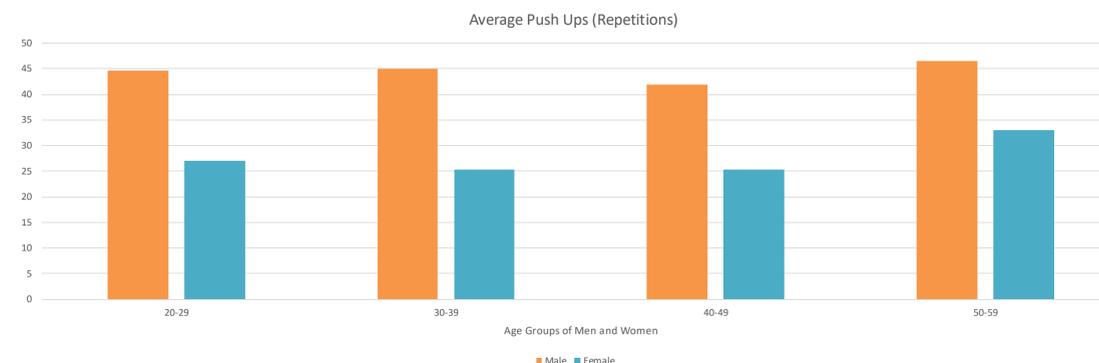


Figure 2. Average performance scores for males and females across different age groups with push-ups (PU)

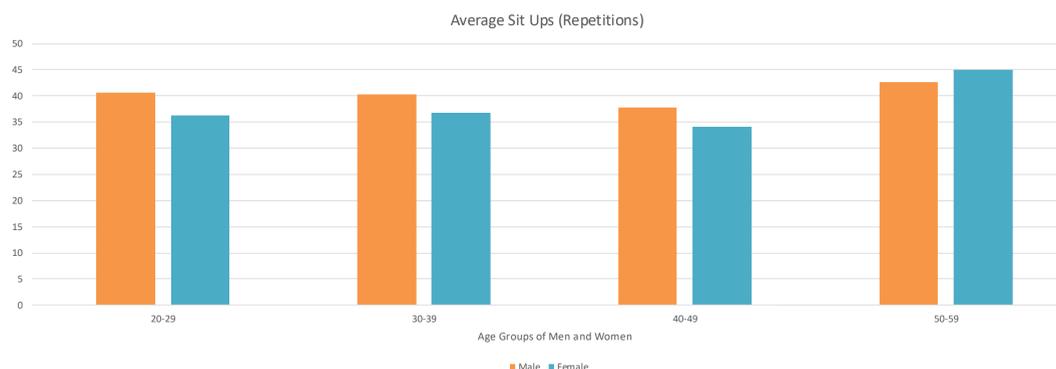


Figure 3. Average performance scores for males and females across different age groups with sit ups (SU)

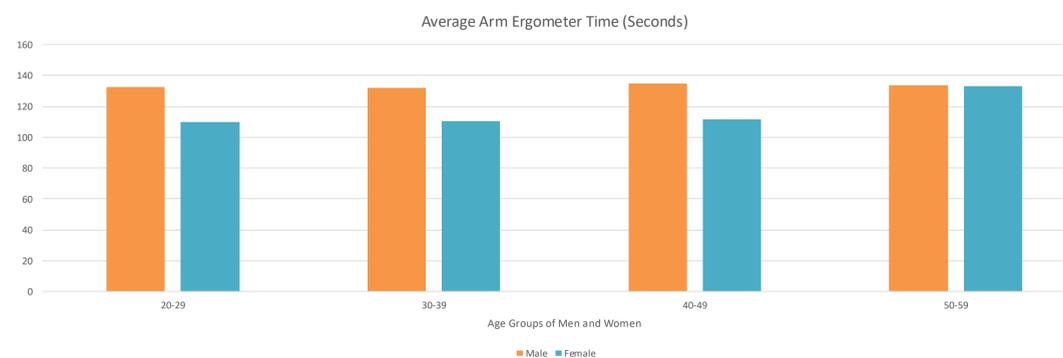


Figure 4. Average performance scores for males and females across different age groups with arm ergometer time (seconds)

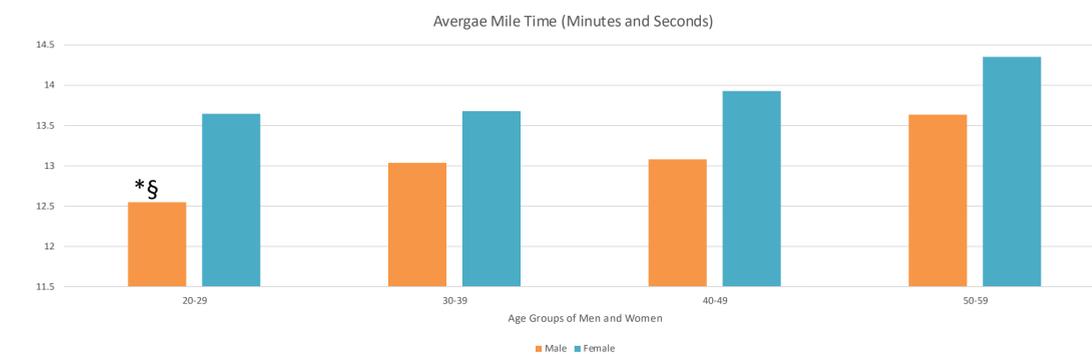


Figure 5. Average performance scores for males and females across different age groups with mile run time (minutes and seconds)
 *§ denotes 20-29 males significantly faster than 30-39 males

CONCLUSIONS

- Based on these findings, it appears that on average younger recruits are more likely to achieve faster times in both aerobic and anaerobic physical fitness assessments.
- However, no significant differences were found within different age groups of male and female recruits for both the push-up and arm ergometer assessments.
- This may suggest that age may not influence the muscular endurance, workload efficiency, and muscular strength of the upper body in both male and female recruits.

PRACTICAL APPLICATIONS

- With the diverse pool of law enforcement recruits seen within the Southern California region, strength and conditioning professionals within these agencies should possess an understanding of the influence of one's age and its effect on different physiological factors (i.e., aerobic endurance, anaerobic endurance, and recovery) (5, 4).
- Understanding these nuances and the impact of age on fitness is essential in creating tailored programs to not only ensure success within the academy, but beyond the academy as well (2, 3).

References
 1. Beck AG, Clancy J, Yates JW, et al. Relationship of physical fitness measures vs. occupational physical ability in campus law enforcement officers. *The Journal of Strength & Conditioning Research* 29: 2340-2350, 2015.
 2. Dawes JJ, Orr RM, Flores RR, et al. A physical fitness profile of state highway patrol officers by gender and age. *Annals of occupational and environmental medicine* 29: 1-11, 2017.
 3. Lockie RG, Rodas KA, Dawes JJ, et al. How does time spent working in custody influence health and fitness characteristics of law enforcement officers? *International Journal of Environmental Research and Public Health* 18: 9297, 2021.
 4. Tanaka H, Seals DR. Endurance exercise performance in Masters athletes: age-associated changes and underlying physiological mechanisms. *The Journal of physiology* 586: 55-63, 2008.
 5. Woo JS, Deleath C, Stratton JR, Levy WC. The influence of age, gender, and training on exercise efficiency. *Journal of the American College of Cardiology* 47: 1049-1057, 2006.