



# We Need You: Influence of Hiring Demand and Modified Applicant Testing on the Physical Fitness of Deputy Sheriff Recruits

Robert G. Lockie<sup>1</sup> ♦ Matthew R. Moreno<sup>1</sup> ♦ Megan B. McGuire<sup>1</sup> ♦ Tomas J. Ruvalcaba<sup>1</sup> ♦ Ashley M. Bloodgood<sup>1</sup> ♦ Joseph M. Dulla<sup>2,3</sup> ♦ Robin M. Orr<sup>3</sup> ♦ J. Jay Dawes<sup>4</sup>

<sup>1</sup>Center for Sport Performance, Department of Kinesiology, California State University, Fullerton, Fullerton, CA, USA. <sup>2</sup>Recruit Training Unit, Training Bureau, Los Angeles County Sheriff's Department, Los Angeles, CA, USA. <sup>3</sup>Tactical Research Unit, Bond University, Robina, Qld, Australia. <sup>4</sup>School of Kinesiology, Applied Health and Recreation, Oklahoma State University, Stillwater, OK, USA.



## ABSTRACT

**INTRODUCTION:** Many law enforcement agencies (LEAs) in the USA use physical fitness testing as part of the hiring process. This testing is performed in an attempt to ensure recruits have the underlying physical capacities needed to complete academy training and future job-specific tasks. However, a challenge for many agencies is that they have a high number of positions that need to be filled. For example, the LEA in this study experienced a modification in their applicant testing scoring (ATS; incorporates multiple levels of testing including physical fitness, background checks, and psychological evaluations), and increased the number of annual academy training classes from 10 to 12. This resulted in 100-200 more recruits being trained per year. What is unknown is whether the physical fitness quality of recruits may change as a result of the modified applicant testing. **PURPOSE:** To determine any differences in the physical fitness of deputy sheriff recruits hired under the two different ATS protocols from one LEA. **METHODS:** Retrospective analysis was conducted on seven academy classes hired under an older ATS, and one class hired under the newer ATS. There were 555 recruits analyzed that were hired under the older ATS, including 451 males (age = 27.22 ± 5.90 years; height = 1.75 ± 0.10 m; body mass = 83.38 ± 11.75 kg) and 100 females (age = 27.61 ± 7.34 years; height = 1.63 ± 0.07 m; body mass = 64.80 ± 9.05 kg). From the class hired under the newer ATS, data from 58 recruits were analyzed. This included 45 males (age = 27.71 ± 7.01 years; height = 1.73 ± 0.08 m; body mass = 85.44 ± 15.23 kg) and 13 females (age = 26.46 ± 4.29 years; height = 1.63 ± 0.05 m; body mass = 64.53 ± 9.22 kg). In the week preceding academy, recruits from all classes completed the following assessments: push-ups and sit-ups completed in 60 s (muscular endurance); vertical jump (lower-body power); 2-kg medicine ball throw (upper-body power); 75-yard pursuit run (change-of-direction speed); and the 20-m multistage fitness test (20MSFT; aerobic fitness). Independent samples t-tests ( $p < 0.05$ ) were performed to evaluate any differences in age, height, body mass, and physical fitness between the groups. Data was analyzed with both sexes combined, in addition to males and females separately. **RESULTS:** There were no significant differences between recruits hired under the older and newer ATS when considering all sexes combined and the males. For the females, recruits hired under the older ATS had a 30% significantly greater vertical jump (49.73 ± 20.31 cm vs. 38.20 ± 6.25 cm;  $p < 0.001$ ) and completed 13% more 20MSFT shuttles (46.70 ± 16.18 shuttles vs. 41.23 ± 7.56 shuttles;  $p = 0.048$ ). **CONCLUSIONS:** This preliminary analysis indicated that there were limited differences between recruits in academy classes hired under the LEA's different ATS, and newer recruits were similar to the established fitness standards from the agency. There were select differences, however, for female recruits. Those hired under the newer ATS performed more poorly in the vertical jump and 20MSFT, providing some indication of lesser lower-body power and aerobic fitness, respectively. This is notable given that many LEAs wish to hire more female law enforcement officers, and poorer lower-body power and aerobic fitness has been related to academy separation (i.e. recruits do not complete academy training) in law enforcement recruits. **PRACTICAL APPLICATIONS:** The data suggested that when considering mean values in a range of physical fitness tests, there were limited differences between classes hired under older and newer ATS from one agency. Although more analysis is needed, the LEA in this study appears to be hiring recruits similar in physical fitness to their previous classes. However, it was notable that females in the recruit class hired under the newer ATS exhibited poorer lower-body power measured by the VJ, and aerobic fitness measured by the 20MSFT. LEA staff should ensure that female recruits lacking in a specific physical quality receive appropriate training to develop any shortcomings that could influence their ability to graduate academy.

## INTRODUCTION

- Many law enforcement agencies (LEAs) in the USA use physical fitness testing as part of the hiring process. This testing is performed in an attempt to ensure recruits have the underlying physical capacities needed to complete academy training and future job-specific tasks. Indeed, research has indicated that recruits who display better muscular endurance (measured by number of push-ups completed in 60 s), superior lower-body power (measured by a vertical jump); faster change-of-direction speed (measured by a 75-yard pursuit run; 75PR), and better aerobic fitness (measured by the 20-m multistage fitness test; 20MSFT) are more likely to graduate from academy.<sup>1,2</sup>
- A challenge for many law enforcement agencies is that they have a high number of positions that need to be filled. For example, the agency in this study modified their applicant testing scoring (ATS; incorporates multiple levels of testing including physical fitness, background checks, and psychological evaluations), and increased the number of annual academy training classes from 10 to 12. This resulted in 100-200 more recruits being trained per year. What is not known is whether the physical fitness quality of recruits may change as a result of the modified applicant testing.
- The purpose of this study was to determine any differences in the physical fitness of deputy sheriff recruits hired under the two different ATS protocols from one law enforcement agency.

## METHODS

- Retrospective analysis was conducted on seven academy classes hired under an older ATS, and one class hired under the newer ATS. There were 555 recruits analyzed that were hired under the older ATS, including 451 males and 100 females. From the class hired under the newer ATS, data from 58 recruits were analyzed, including 45 males and 13 females.
- In the week preceding academy, recruits from all classes completed the following assessments: push-ups and sit-ups completed in 60 s (these tests measured muscular endurance); vertical jump (indirect measure of lower-body power); 2-kg medicine ball throw (indirect measure of upper-body power); 75PR (change-of-direction speed); and the 20MSFT (number of completed shuttles indicated aerobic fitness).<sup>3</sup>
- Independent samples t-tests ( $p < 0.05$ ) were utilized to calculate any differences in age, height, body mass, and physical fitness between the older and newer ATS groups. Data was analyzed with both sexes combined, in addition to males and females separately.

## RESULTS

- There were no significant differences between recruits hired under the older and newer ATS when considering both sexes combined ( $p = 0.09-0.97$ ; Table 1) and the males ( $p = 0.07-0.68$ ; Table 2).
- For the females (Table 3), recruits hired under the older ATS had a 30% significantly greater vertical jump ( $p < 0.001$ ) and completed 13% more 20MSFT shuttles ( $p = 0.048$ ). There were not other between-group differences for the female recruits ( $p = 0.07-0.96$ ).

**Table 1.** Descriptive and fitness testing data from recruits hired under an older ATS (n = 555), vs. one class hired under the LEA's new ATS (n = 58).

	Older ATS	Newer ATS
Age (years)	27.29 ± 6.18	27.43 ± 6.48
Height (m)	1.73 ± 0.11	1.71 ± 0.09
Body Mass (kg)	79.99 ± 13.37	80.75 ± 16.56
Push-ups (no.)	42.52 ± 14.42	42.45 ± 14.82
Sit-ups (no.)	35.69 ± 9.12	33.98 ± 7.43
VJ (cm)	55.79 ± 14.87	52.27 ± 15.90
MBT (m)	5.77 ± 1.22	5.96 ± 1.51
75PR (s)	17.25 ± 3.16	16.76 ± 1.02
MSFT shuttles (no.)	53.52 ± 17.81	49.98 ± 14.07

**Table 2.** Descriptive and fitness testing data from male recruits hired under an older ATS (n = 451), vs. one class hired under the LEA's new ATS (n = 45).

	Older ATS	Newer ATS
Age (years)	27.61 ± 7.33	26.46 ± 4.29
Height (m)	1.63 ± 0.07	1.63 ± 0.05
Body Mass (kg)	64.80 ± 9.05	64.53 ± 9.22
Push-ups (no.)	26.13 ± 10.09	26.69 ± 7.02
Sit-ups (no.)	32.03 ± 7.83	33.08 ± 6.30
VJ (cm)	49.73 ± 20.31	38.20 ± 6.25
MBT (m)	4.09 ± 0.75	4.08 ± 0.39
75PR (s)	18.38 ± 1.12	17.79 ± 0.89
MSFT shuttles (no.)	46.70 ± 16.18	41.23 ± 7.56

**Table 3.** Descriptive and fitness testing data from female recruits hired under an older ATS (n = 100), vs. one class hired under the LEA's new ATS (n = 13).

	Older ATS	Newer ATS
Age (years)	27.22 ± 5.90	27.71 ± 7.01
Height (m)	1.75 ± 0.10	1.73 ± 0.08
Body Mass (kg)	83.38 ± 11.75	85.44 ± 15.23
Push-ups (no.)	46.14 ± 12.57	47.00 ± 13.29
Sit-ups (no.)	36.48 ± 9.20	34.24 ± 7.77
VJ (cm)	57.18 ± 13.00	56.34 ± 15.53*
MBT (m)	6.15 ± 0.97	6.50 ± 1.26
75PR (s)	17.01 ± 3.42	16.46 ± 0.85
MSFT shuttles (no.)	55.00 ± 17.70	52.51 ± 14.56*



\* Significantly ( $p < 0.05$ ) different from recruits hired under the older ATS.

## CONCLUSION

- This study indicated that there were limited differences between recruits in academy classes hired under the agencies' different ATS, and newer recruits were similar to established fitness standards.
- There were certain differences for female recruits. Those hired under the newer ATS had lesser lower-body power as measured by the vertical jump, and lesser aerobic fitness as measured by the 20MSFT. This is notable given that many LEAs wish to hire more female law enforcement officers, and poorer lower-body power and aerobic fitness has been related to academy separation (i.e. recruits do not complete academy training) in law enforcement recruits.<sup>1,2</sup>

## PRACTICAL APPLICATIONS

- The data suggested that there were limited differences between classes hired under older and newer ATS from one agency. Although more analysis is needed, the LEA in this study appears to be hiring recruits similar in physical fitness to their previous classes.
- It was notable that females in the recruit class hired under the newer ATS exhibited poorer lower-body power measured by the VJ, and aerobic fitness measured by the 20MSFT. Agency staff should ensure that female recruits lacking in a specific physical quality receive appropriate training to develop any shortcomings that could influence their ability to graduate academy.

### References

1. Dawes, JJ, Lockie, RG, Orr, RM, Kornhauser, C, and Holmes, RJ. Initial fitness testing scores as a predictor of police academy graduation. *J Aust Strength Cond* 27: 30-37, 2019.
2. Lockie, RG, Balfany, K, Bloodgood, AM, Moreno, MR, Cesario, KA, Dulla, JM, Dawes, JJ, and Orr, RM. The influence of physical fitness on reasons for academy separation in law enforcement recruits. *Int J Environ Res Public Health* 16: 372, 2019.
3. Lockie, RG, Ruvalcaba, TR, Stierli, M, Dulla, JM, Dawes, JJ, and Orr, RM. Waist circumference and waist-to-hip ratio in law enforcement agency recruits: Relationship to performance in physical fitness tests. *J Strength Cond Res* 34: 1666-1675, 2020.