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The Effects of Working in Custody on Body Composition and Strength Endurance in Deputy Sheriffs

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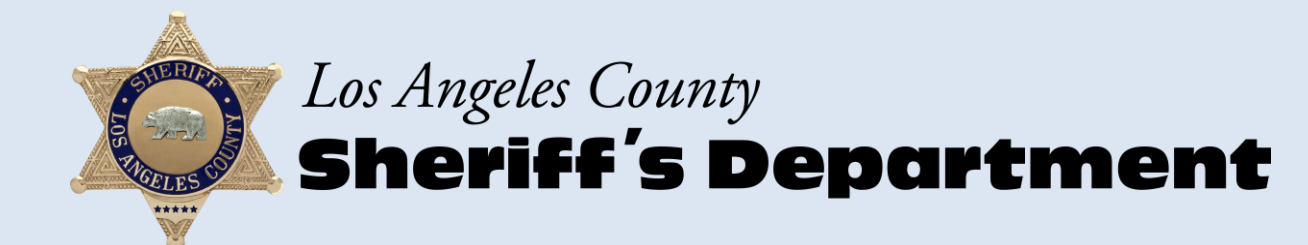
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INTRODUCTION

- Deputy sheriffs in the USA can be commonly required to work in custody facilities (e.g., jails and court lockup facilities) following the completion of academy training. The physical demands of custody work are generally lower than that of working on patrol, with a greater degree of inmate supervision and relatively sedentary work (e.g., office administrative duties).
- Depending on the county and staffing numbers, deputy sheriffs may also be required to work mandatory overtime.⁴ The change in occupational demands following academy, in addition to long working hours (shift lengths ranging from 8-16 hours),⁴ could negatively affect the body composition and physical fitness (often measured by strength endurance tests in law enforcement populations) of deputy sheriffs.
- The purpose of this study was to compare body composition, as measured by body mass index (BMI), and strength endurance, measured by maximal push-ups and sit-ups, between deputy sheriff recruits and incumbents from one law enforcement agency (LEA).

METHODS

- Retrospective analysis was conducted on two academy classes and one patrol school class from a single LEA. The academy classes comprised 129 recruits (114 males and 15 females), while the patrol school class encompassed 59 incumbent deputy sheriffs (47 males and 12 females). Patrol school is a brief three-week skills refresher program completed by incumbent deputy sheriffs who are transitioning from working in custody to working in patrol.
- Height and body mass was measured either during the final weeks of academy for recruits or during the first week of patrol school for incumbents. BMI was then derived from height and body mass. Physical fitness was measured by maximal push-ups and sit-ups completed in 60 seconds (s), as a metric for strength endurance. Recruits completed these assessments in the last weeks of academy, while incumbents performed the push-up and sit-up assessments during the first week of patrol school.
- Data was combined for males and females within the recruit and incumbent groups. A multivariate analysis of variance, with sex as a covariate, was utilised to compare the recruits and incumbents. Significance was set at $p \leq 0.05$.

RESULTS

- Table 1 displays the descriptive data for the recruit and incumbent groups. The incumbent officers were older than the recruits, as well as being shorter and heavier. This also meant the incumbent officers had a significant 12% greater BMI compared to the recruits.
- The incumbent officers completed significantly less push-ups and sit-ups compared to the recruits, by 32% and 51%, respectively.

Table 1. Descriptive data (mean \pm SD) for age, height, body mass, body mass index, and push-ups and sit-ups completed in 60 s, for deputy sheriff recruits and incumbent officers.

	Recruits (n = 129)	Incumbents (n = 59)	p value
Age (years)	25.53 \pm 4.96	32.08 \pm 6.30*	<0.01
Height (m)	1.77 \pm 0.09	1.72 \pm 0.08*	0.01
Body Mass (kg)	81.00 \pm 11.62	86.46 \pm 16.32*	<0.01
Body Mass Index (kg/m ²)	25.94 \pm 2.71	28.93 \pm 3.94*	<0.01
Push-ups (no.)	58.19 \pm 1.20	39.73 \pm 1.77*	<0.01
Sit-ups (no.)	65.48 \pm 12.04	31.92 \pm 8.90*	<0.01

* Significantly ($p < 0.05$) different from the recruit group.

DISCUSSION

- The results indicated that incumbent deputies who have been working in custody have a greater BMI compared to recruits completing academy training. Although there are limitations with using BMI as a measure of body composition,⁵ the data from this study indicated that the incumbent officers were in the higher range of the 'overweight' classification, with several individual incumbent deputies classified as 'obese'. Dawes et al.² documented that a higher BMI was associated with lesser performance on job-specific defensive tactics training in state patrol officers. Furthermore, a higher BMI has been linked to cardiovascular health risks,¹ which is notable given the preponderance for cardiovascular disease in law enforcement populations.⁶
- The incumbent deputies also demonstrated poorer physical fitness as measured by maximal push-up and sit-up assessments when compared to the recruits. Orr et al.³ stated that the job demands of law enforcement (i.e., shift work, predominance of sedentary activities, and decreased opportunities for physical activity) negatively impacts the fitness of law enforcement personnel.
- Although other lifestyle factors may contribute, the nature of custody and the inherent shift work demands of custodial law enforcement appear to negatively impact the body composition and fitness measured by strength endurance in deputy sheriffs. This could negatively impact job performance for deputy sheriffs as they transition from custody to patrol, in addition to harming their long-term health and well-being.

PRACTICAL APPLICATIONS

- Staff within LEAs should ideally attempt to provide work conditions and incentives that encourage deputy sheriffs to remain physically active following academy graduation and their first posting. This could positively impact on-the-job performance and the long-term health of deputy sheriffs, both of which are essential for career longevity.
- Future research should track the body composition, health, and fitness of deputy sheriffs throughout their careers to document whether the job performance and health of individuals can be optimized within the constraints of the job.

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