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A Pilot Analysis of the Effects of Custody Shift Length on the Health and Fitness Characteristics of Deputy Sheriffs

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ABSTRACT

Within law enforcement agencies deputy sheriffs are primarily responsible for maintaining order and protecting a community by enforcing laws. Deputy sheriffs may work in custody facilities, where the primary job tasks are inmate supervision and if necessary, restraint. Following custody, deputy sheriffs may be assigned to patrol, where job tasks include the prevention of illegal activities, emergency response, and ensuring the safety of citizens. Depending on the position, shift hours can range from 8-16 hours (or longer with overtime). Longer shifts may allow for more days off, which in some ways is preferable for some individuals, as it could allow for more family and recreational time. However, long shifts may contribute to greater fatigue and insufficient sleep. The purpose of this study was to provide a pilot analysis as to the potential impact shift length could have on the health and fitness of deputy sheriffs who have been working in custody. A retrospective examination was conducted on 60 deputies. The deputies self-reported their average shift length per week, which provided a split of deputies who typically had custody shift lengths of 12 hours or less (32 males, 5 females), or shifts greater than 12 hours (15 males, 7 females). Health and fitness assessments included: resting heart rate (RHR); resting blood pressure; fat and lean body mass measured via bioelectrical impedance; waist and hip circumference; waist-to-hip ratio (WHR); grip strength; push-ups and sit-ups in 60 s; and recovery heart rate from a YMCA 3-min step test. To compare any differences between the groups, univariate repeated measures ANOVA with sex as a covariate was utilized ($p < 0.05$). After evaluating the information, it was apparent that there were few differences between the groups. However, the RHR of deputies who worked shift hours longer than 12 hours had a significantly lower RHR (80.73 ± 9.47 bpm) in comparison to those deputies working 12 hours or less (94.03 ± 12.36 bpm). Deputies working more than 12 hours also had a significantly lower WHR (0.84 ± 0.07) than those working more than 12 hours (0.89 ± 0.06). Although this is a pilot analysis, working longer shifts had a more favorable RHR and WHR; these longer shifts could have allowed for more time off and the opportunity to make better lifestyle choices. Nonetheless, no other health or fitness characteristics differed between the groups. More investigation is required as to the impacts shift length can have on deputy sheriffs, and strategies to alleviate any negative effects.

INTRODUCTION

- Within law enforcement agencies deputy sheriffs are primarily responsible for maintaining order and protecting a community by enforcing laws. Prior to working patrol, deputy sheriffs may work in custody facilities, where the primary job tasks are inmate supervision and if necessary, restraint.
- Longer work shifts may increase fatigue, decrease alertness, and result in more of a burnout while the officers are performing their daily duties (1, 3). The combination of these factors could potentially impact not only daily workplace tasks/duties, but the overall quality of life of our law enforcement officers.
- However, longer shifts may allow officers to have more days off so they can de-stress and have more time to relax in between work days (2).
- The purpose of this study was to provide a pilot analysis as to the potential impact shift length could have on the health and fitness of deputy sheriffs who have been working in custody.

METHODS

- A retrospective examination was conducted on 60 deputies at the start of Patrol School, which is a three-week skills refresher program used for deputy sheriffs who have been working in custody prior to transferring to patrol duties.
- The deputies self-reported their average shift length per week, which provided a split of deputies who typically had custody shift lengths of 12 hours or less (32 males, 5 females), or shifts greater than 12 hours (15 males, 7 females).
- Health and fitness assessments included: resting heart rate (RHR); resting blood pressure; fat and lean body mass measured via bioelectrical impedance analysis; waist and hip circumference; waist-to-hip ratio (WHR); grip strength for each hand (L and R); push-ups and sit-ups in 60 s; and recovery heart rate from a YMCA 3-min step test.
- Within each group, data was combined for the sexes. To compare any differences between the groups, univariate repeated measures ANOVA with sex as a covariate was utilized ($p < 0.05$)



RESULTS

- There were few differences between the groups (Table 1). However, the RHR of deputies who worked shift hours longer than 12 hours had a significantly lower RHR in comparison to those deputies working 12 hours or less.
- Deputies working more than 12 hours also had a significantly lower WHR than those working more than 12 hours.

Table 1: Characteristics of deputy sheriffs who self-reported mean shift lengths of ≤ 12 hours, or >12 hours.

	≤ 12 hours	>12 hours	<i>p</i> value
Age (years)	31.75 \pm 6.09	32.63 \pm 6.73	.892
Height (cm)	173.27 \pm 7.99	170.81 \pm 8.88	.899
Body Mass (kg)	89.61 \pm 15.45	81.02 \pm 16.66	.241
RHR (bpm)	94.03 \pm 12.36	80.73 \pm 9.47	.000*
Systolic BP (mmHg)	134.24 \pm 16.58	127.32 \pm 14.56	.320
Diastolic BP (mmHg)	88.45 \pm 9.60	83.14 \pm 10.64	.123
Fat Mass (kg)	89.61 \pm 15.45	81.02 \pm 16.66	.241
Lean Body Mass (kg)	33.11 \pm 6.20	34.10 \pm 5.13	.114
Waist Circum. (cm)	94.81 \pm 11.15	87.09 \pm 10.66	.059
Hip Circum. (cm)	106.34 \pm 6.75	103.84 \pm 6.89	.325
WHR	0.88 \pm 0.06	0.83 \pm 0.07	.029*
Push-ups (repetition no.)	39.18 \pm 15.70	38.23 \pm 14.07	.560
Sit-ups (repetition no.)	31.53 \pm 9.63	32.59 \pm 7.620	.396
YMCA Recovery HR (bpm)	122.42 \pm 12.94	118.0 \pm 11.60	.315

* Significant ($p < 0.05$) differences between the two groups.

CONCLUSIONS

- Deputies working longer shifts had a more favorable RHR and WHR. A potential reasoning for this is that the officers engaging in longer shifts are allowed for more time off and the opportunity to make better lifestyle choices, which has been suggested by previous research (2).
- Nonetheless, no other health or fitness characteristics differed between the groups. Since definitive conclusions cannot be made with this pilot data, more investigation is required as to the impacts shift length can have on deputy sheriffs and strategies to alleviate any negative effects

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