

Bond University
Research Repository



Fit for Duty, Fit for Life? An Analysis of the Health and Fitness of Deputy Sheriffs after Working in Custody

Moreno, Matthew R. ; Cesario , Karly A. ; Dulla, Joseph; Orr, Rob Marc; Lockie, Robert G.

Published: 01/10/2018

Document Version:
Peer reviewed version

[Link to publication in Bond University research repository.](#)

Recommended citation(APA):

Moreno, M. R., Cesario , K. A., Dulla, J., Orr, R. M., & Lockie, R. G. (2018). *Fit for Duty, Fit for Life? An Analysis of the Health and Fitness of Deputy Sheriffs after Working in Custody*. Poster session presented at The 38th Annual Meeting of the Southwest Regional Chapter of the American College of Sports Medicine, Costa Mesa, United States.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.



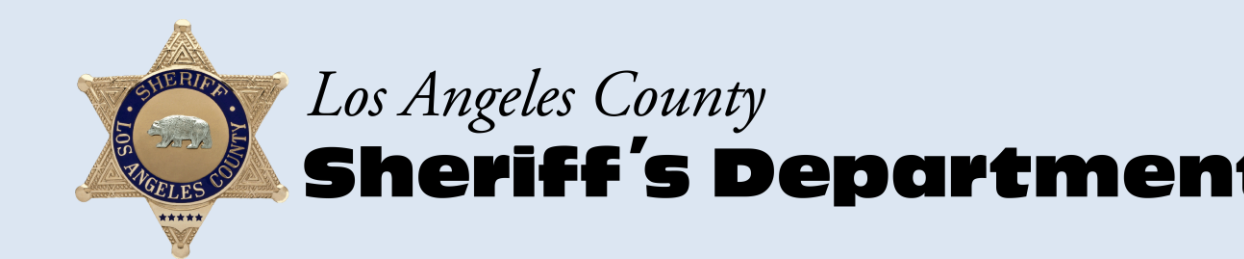
Fit for Duty, Fit for Life? An Analysis of the Health and Fitness of Deputy Sheriffs after Working in Custody

Matthew R. Moreno¹ ♦ Karly A. Cesario¹ ♦ Joseph M. Dulla⁴ ♦ J. Jay Dawes² ♦ Robin M. Orr³ ♦ Robert G. Lockie¹

¹Center for Sport Performance, Department of Kinesiology, California State University, Fullerton, CA, USA. ²Department of Health Sciences, University of Colorado-Colorado Springs, Colorado Springs, CO, USA.

³Tactical Research Unit, Bond University, Robina, Qld, Australia.

⁴Recruit Training Unit, Training Bureau, Los Angeles County Sheriff's Department, Los Angeles, CA, USA.



ABSTRACT

Deputy sheriffs are typically required to work in custody prior to patrol. The sedentary job demands of custody, and lack of a mandated fitness standard, may influence the general health of deputies and their ability to perform patrol job tasks. The purpose of this study was to examine fitness characteristics of deputies after working custody. A retrospective analysis was conducted on 60 (♂ = 48, ♀ = 12; age = 33 ± 6.3 years) deputies from one patrol school class. Health and fitness assessments included: fat mass; body mass index (BMI); resting blood pressure; grip strength; sit and reach; push-ups and sit-ups in 60 s; and recovery heart rate from a YMCA 3-min step test as a measure of aerobic fitness. Data were compared to ACSM age and sex-related norms, or law enforcement norms for push-ups and sit-ups. Analyzing body fat, 1.69% of the deputies were classified as good, 10.17% as fair, 28.81% as poor, and 59.32% as very poor. For BMI, 18.33% were normal, 45% were overweight, 26.67% were class I obesity, and 10% were class II obesity. For blood pressure, 13.33% of the deputies had normal blood pressure, 13.33% had elevated blood pressure, 30% were considered stage 1 hypertension, 41.67% were considered stage 2 hypertension, and 1.67% in a hypertensive crisis. Considering grip strength, 12.07% were above average, 12.07% were average, 15.52% were below average, while 60.34% were poor. For the sit and reach, 1.72% were excellent, 10.34% were very good, 18.97% were good, 25.86% were fair, and 43.1% were deemed as needing improvement. When comparing push-ups to other law enforcement officers, 13.04% were in the 76th-100th percentile, 34.78% in the 51st-75th, 21.74% in the 26th-50th, and 30.43% in the 1st-25th percentile. The same comparison for sit-ups resulted in 10.64% of the class in the 76th-100th percentile, 8.52% in the 51st-75th, 36.18% in the 26th-50th, and 44.69% in the 1st-25th percentile. For the YMCA step test, 5% were above average, 6.67% were average, 21.67% of the deputies were below average, 40% poor, and 26.67% very poor. Post custody assignments, deputy sheriffs exhibit health and fitness trends that were below the general population and other law enforcement officers. Agency staff should encourage, and facilitate, the maintenance of health and fitness of deputies working in custody to ensure deputies are fit for life and duty.

INTRODUCTION

- Upon graduation from academy Sheriff's deputies are typically assigned to work in a supervisory capacity in custody facilities for several months to potentially several years prior to deployment as a patrol deputy.
- The job demands of working in custody are predominately sedentary and involve the monitoring of inmates and patrolling the facilities.
- Currently, there are no mandatory fitness standards that deputies need to adhere to, and when combined with their sedentary custody assignment, this may negatively influence their overall health and ability to perform their patrol job tasks.
- Officers that are transitioning from working their custody assignment to working patrol are given a 3-week refresher course in patrol job duties, policies, and procedures called Patrol School.
- Potentially, if data were to show that deputies who are coming out of working in custody are more likely to have declined in their health and fitness, Patrol School could be utilized to help deputies make changes to halt any declines in fitness or health.
- Therefore, the purpose of this study was to analyze health and fitness data from a single Patrol School class of deputies to determine their overall health and fitness after working in custody.



METHODS

- A retrospective analysis was conducted on data gathered from a single patrol school class of 60 deputies (Male = 48, Female = 12; age = 33 ± 6.3 years).
- Health and fitness assessments included: fat mass measured from a bioelectric impedance analysis device; body mass index (BMI); resting blood pressure; grip strength; sit and reach; push-ups and sit-ups in 60 s; and recovery heart rate from a 3-minute YMCA step test as a measure of aerobic fitness.
- Data gathered were classified according to norms from the American College of Sports Medicine (2), and law enforcement norms were used for push-ups and sit-ups (1).
- Updated blood pressure and BMI guidelines were used from the World Health Organization and the American Heart Association (3,4).

RESULTS

- Results of the comparison to age and sex related norms are displayed in Figures 1-8.
- The data indicated that across all measures, a majority of deputies displayed worse health characteristics than the general population and poorer physical fitness compared to other law enforcement officers.

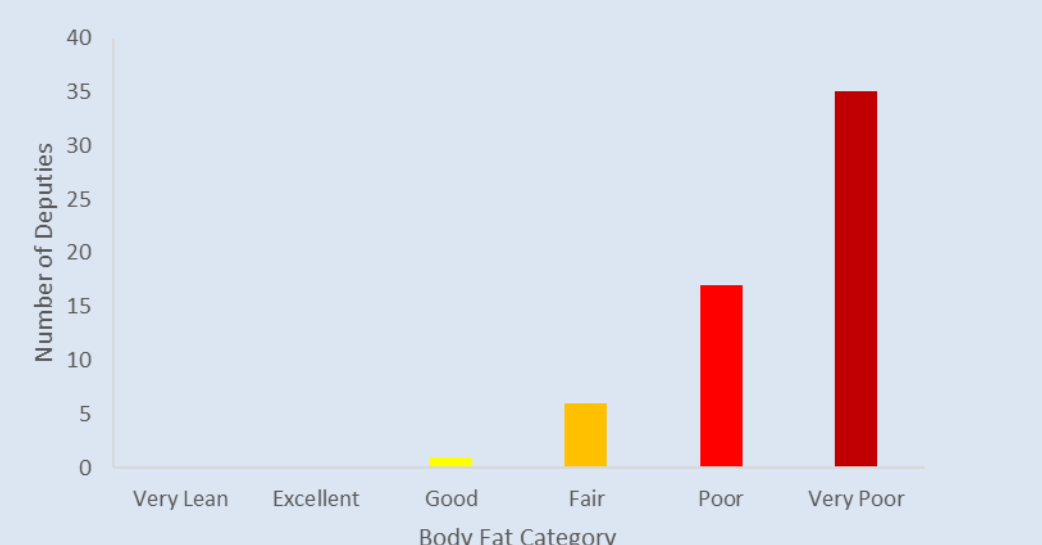


Figure 1. Number of deputies classified according to body fat percentage category.

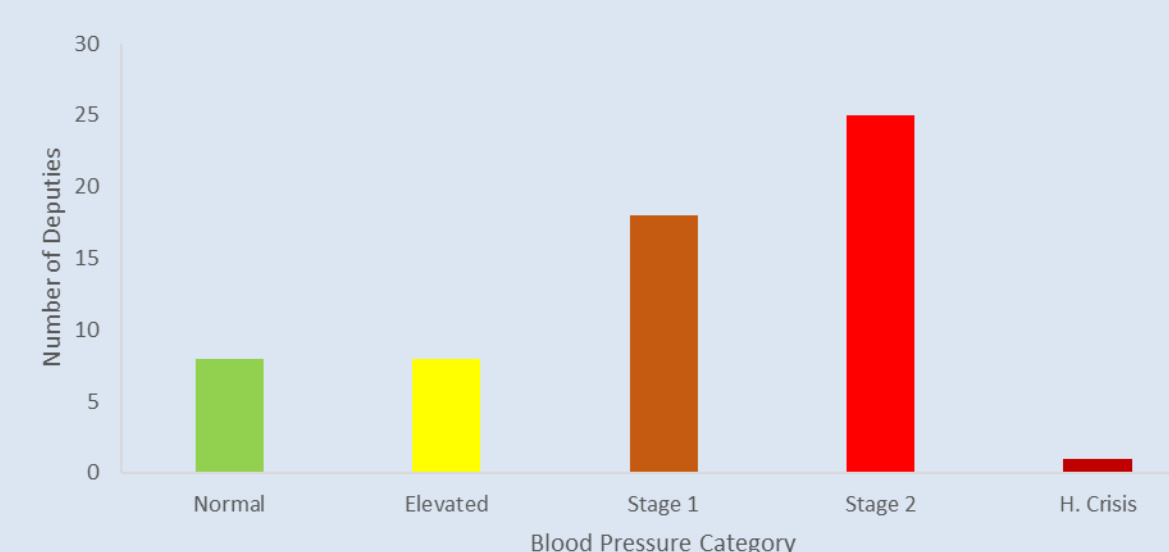


Figure 3. Number of deputies classified through updated blood pressure standards.

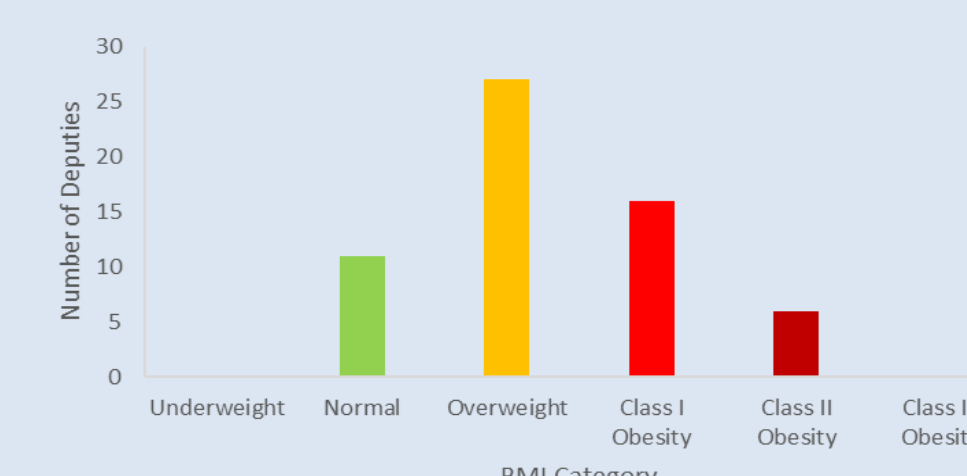


Figure 2. Number of deputies classified according to updated body mass index standards.

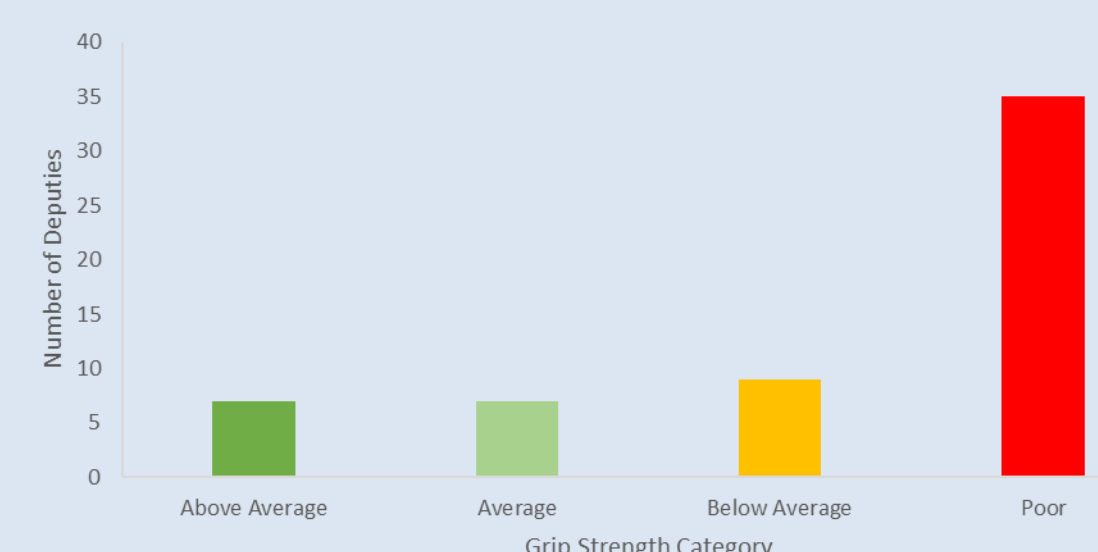


Figure 4. Number of deputies classified using ACSM guidelines for 2 hand totals for grip strength.



Figure 5. Number of deputies classified using ACSM guidelines for sit and reach flexibility.

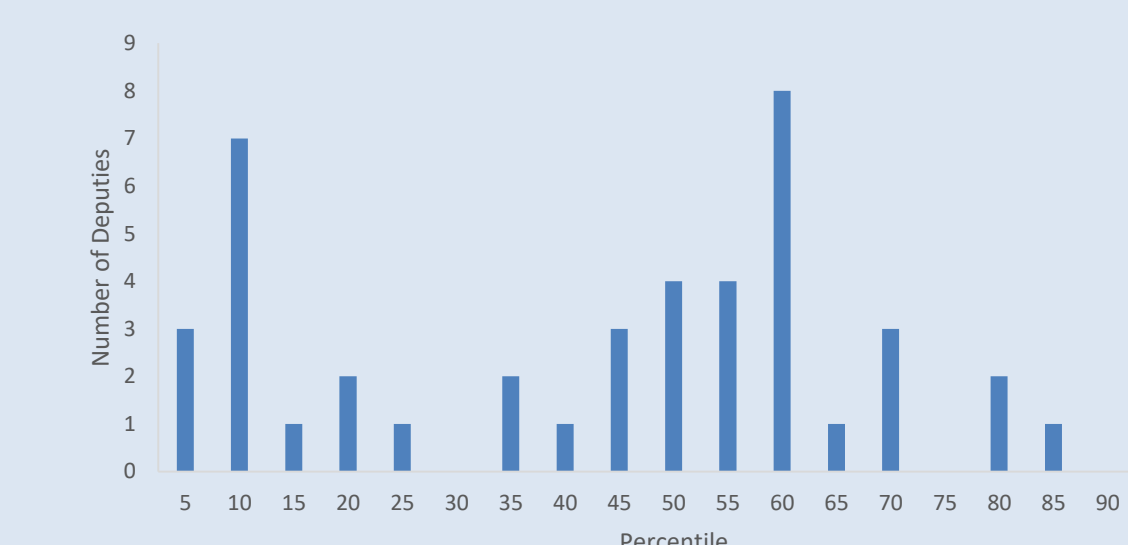


Figure 7. Number of deputies and their performance rank on a 60-s maximal push-up test compared to other law enforcement officers.

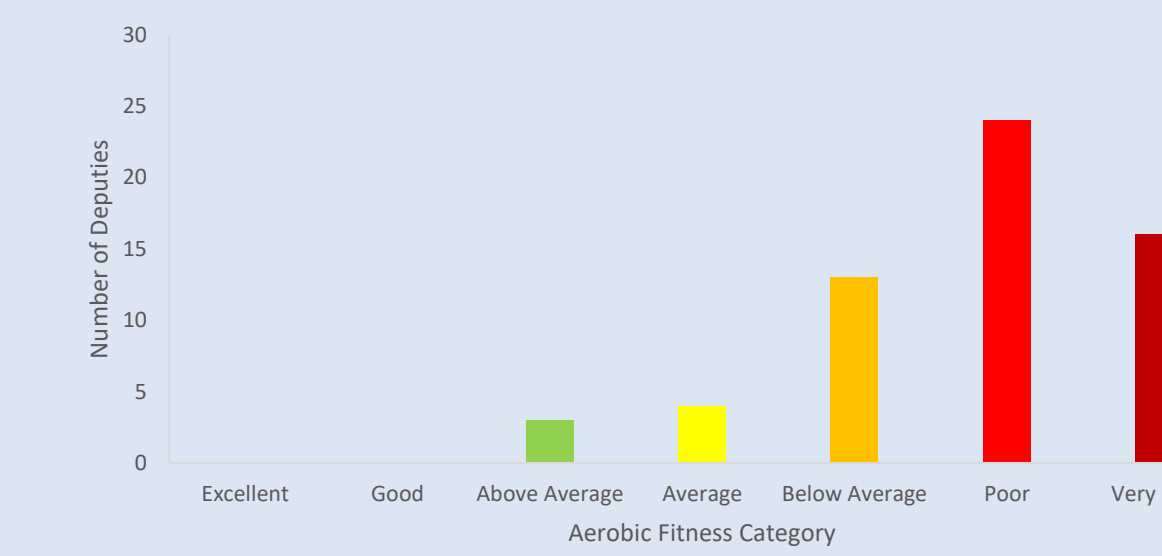


Figure 6. Number of deputies classified by their recovery heart rate category after a YMCA step test using ACSM guidelines.

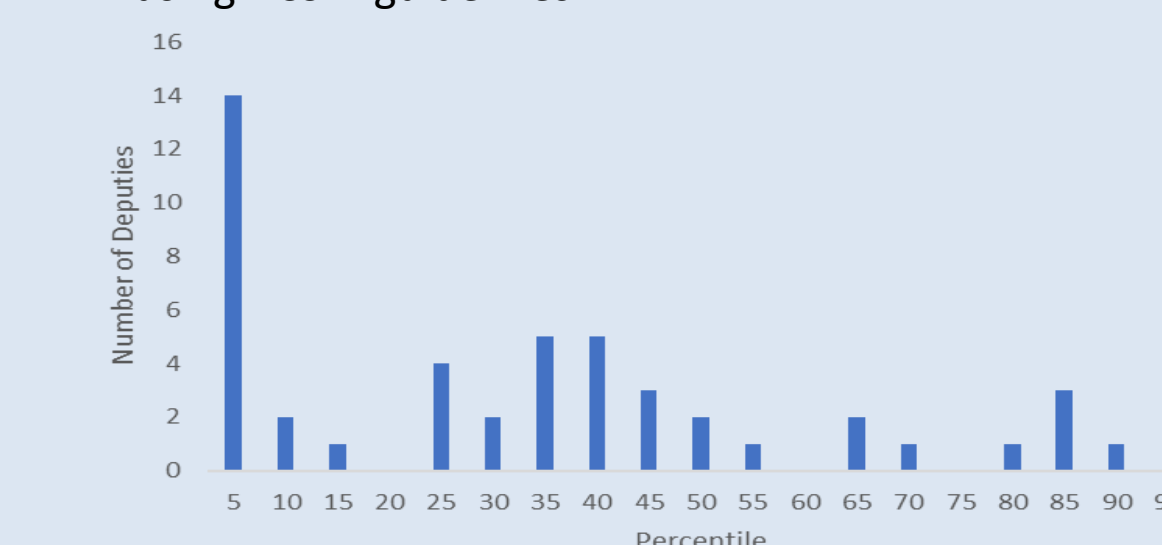


Figure 8. Number of deputies and their performance rank on a 60-s maximal sit-up test compared to other law enforcement officers.

CONCLUSIONS

- For health characteristics, a majority of the class displayed larger than average amounts of body fat (88.13% poor and very poor combined), were classified as overweight or higher (81.67% overweight+), had higher than normal blood pressure according to updated standards (86.67% elevated+), and had poor grip strength (75.86 below average and poor combined).
- When analyzing the fitness characteristics, a majority of the class had poor aerobic fitness as measured by the YMCA step test (88.34% below average, poor and very poor combined) and as Figures 7 and 8 show, performed close to average in the push-up while tending to perform worse in the sit-ups.
- These data indicated that deputies post custody assignment are exhibiting poor health and fitness characteristics which may impact job performance and quality of life.
- Agencies should attempt to facilitate opportunities for deputies working in jails to maintain their health and fitness.

References

1. Dawes JJ, Orr RM, Flores RR, Lockie RG, Kornhauser C, Holmes R. A physical fitness profile of state highway patrol officers by gender and age. *Ann Occup Environ Med* 29(1): doi:10.1186/s40557-017-0173-0, 2017.
2. Riebe D, Ehrman JK, Liguori G, Magal M, American College of Sports M. *ACSM's guidelines for exercise testing and prescription*. 2018.
3. Whelton PK, Carey RM, Aronow WS, Casey DE, Collins KJ, Himmelfarb CD, DePalma SM, Gidding S, Jamerson KA, Jones DW. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APHA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 71(19):e127-e248, 2018.
4. World Health Organization. Body Mass Index. <http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle/body-mass-index-bmi> In: 2018.