

Don't drag me down: Investigating the body or victim drag in graduated and incoming deputy sheriff recruits

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ABSTRACT

INTRODUCTION: An essential job task for law enforcement officers is a body drag (BD), where they must drag a civilian or officer from a hazardous environment. In California, a BD with a 75-kg dummy is a test within the Work Sample Test Battery (WSTB). Recruits must drag the dummy 9.75 m in under 28 s to attain points for the WSTB. Maximal strength should contribute to this task, although this quality is not often a focus of traditional law enforcement academy training. This is notable considering current US population data; the average adult male weighs ~89 kg, while the average adult female weighs ~77 kg. This suggests the dummy mass should increase to match the mass of people an officer may encounter, especially if the officer may need to drag a fellow officer who is wearing their daily duty loads. However, further investigations of the BD are required before adjustments to dummy mass are made. **PURPOSE:** To compare the BD between graduated (GRAD) and incoming (INC) male and female Deputy Sheriff recruits, determine percentile rankings for the BD in GRAD recruits, and detail how INC recruits compare to this standard. **METHODS:** Retrospective analysis on nine GRAD classes (males = 542; females = 101), and two INC (males = 145; females = 46) from one agency was conducted. The GRAD classes completed the BD in the final weeks of their 22-week academy; the INC completed the BD in the week prior to their academy. The BD required the recruit to lift the dummy to standing and drag it 9.75 m as quickly as possible. Timing commenced once the dummy began to move during the drag from the standing position. To compare differences between the GRAD and INC recruits by sex, a one-way ANOVA with Bonferroni post hoc was utilized. GRAD and INC recruits were ranked according to BD, and allocated into percentile ranks, based on GRAD data, with the number of males and females in each rank indicated. **RESULTS:** The GRAD males (4.76 ± 0.84 s) completed the BD faster than all groups. The INC males (6.23 ± 2.23 s) were faster than the two female groups, and the GRAD females (6.95 ± 1.89 s) were faster than the INC females (10.60 ± 3.49 s; $p < 0.01$ for all comparisons). The percentile ranking data is shown in Table 1. There was a disproportionate number of females in the lower percentiles for both the GRAD (69% of females in the bottom 20%) and INC (98% of females in the bottom 20%) groups. **CONCLUSIONS:** GRAD recruits generally completed the BD faster than INC recruits, which was expected as they have had specific training. Nonetheless, most INC recruits completed the BD within acceptable WSTB standards. What is notable, however, is the performance of females in the BD. Although males tend to be stronger and heavier, appropriate absolute strength training can still improve this quality in females, which could be life-saving if they need to complete the BD when on shift. **PRACTICAL APPLICATIONS:** LEA staff should place a greater emphasis on developing absolute strength in their recruits, especially in female recruits, who on average, have lower strength values than their male counterparts. If there are changes made to the dummy mass due to population increases in body mass, absolute strength training should be a greater focus of academy. INC recruits should be encouraged to develop their absolute strength prior to academy, as this would be an important quality for tasks such as the BD.

INTRODUCTION

- An essential job task for law enforcement officers is a body drag (BD), where an officer must drag a civilian or colleague from a hazardous environment. In California, a BD of 9.75 m with a 75-kg dummy is a test within the Work Sample Test Battery (WSTB) that recruits must complete. The BD must be completed in under 28 s to attain points within the WSTB so they can graduate academy.
- Maximal strength measured by a one-repetition maximum back squat has been related to a victim drag with a 79.5-kg dummy in recreationally-trained men.⁴ It could be expected that this would be the same for the 75-kg BD. However, absolute strength training is not often a focus of traditional law enforcement academy training.
- The weight of the dummy is an issue considering current US population data. The average adult male weighs ~89 kg, while the average adult female weighs ~77 kg.² If an officer must drag a colleague, this disparity would be exacerbated as their colleague will be wearing their daily duty loads, which can weigh ~10 kg.¹
- These data^{1,2} imply the dummy mass should increase to match population changes; however, further investigations of the BD are required before any adjustments are made. The purpose of this study was to compare the BD between incoming (INC) and graduated (GRAD) male and female Deputy Sheriff recruits, determine percentile rankings for the BD in GRAD recruits, and detail how INC recruits compare to this standard.

METHODS

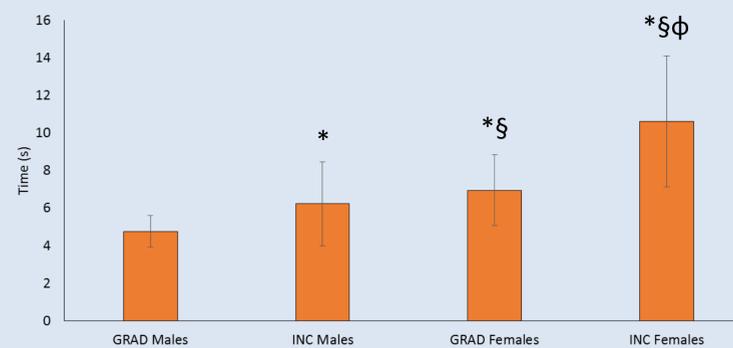
- Retrospective analysis on two INC classes (145 males: age = 27.07 ± 6.87 years; height = 1.75 ± 0.07 m; body mass = 83.67 ± 11.56 kg; 46 females: age = 26.39 ± 4.50 years; height = 1.59 ± 0.05 m; body mass = 62.09 ± 7.39kg) and nine GRAD classes (542 males: age = 26.72 ± 5.13 years; height = 1.76 ± 0.07 m; body mass = 83.10 ± 12.50 kg; 101 females: age = 26.68 ± 4.65 years; height = 1.63 ± 0.07 m; body mass = 65.87 ± 12.17 kg) from one agency was conducted.
- The INC classes completed the BD in the week prior to their academy; the GRAD classes in the final weeks of their 22-week academy. Recruits were instructed to lift the dummy and stand stationary before initiating the drag (Figure 1), and they were to drag the dummy 9.75 m as quickly as possible.³ Timing commenced once the dummy began to move, and finished when the feet of the dummy passed the finish line. Time was measured via a stopwatch by a qualified instructor.³
- A one-way analysis of variance, with Bonferroni post hoc, was utilized to compare any differences between the INC and GRAD recruits by sex ($p < 0.05$). INC and GRAD recruits were also ranked according to BD, and allocated into percentile ranks. The percentile ranks were based on GRAD data. Additionally, the number of INC and GRAD males and females in each rank was indicated.



Figure 1. Starting position for the BD.

RESULTS

- The GRAD males completed the BD faster than all groups (Figure 2). The INC males were faster than the two female groups, and the GRAD females were faster than the INC females.
- The percentile ranking data is shown in Table 1. There was a high number of females in the lower percentiles for both the GRAD (69% of females in the bottom 20%) and INC (98% of females in the bottom 20%) groups.



* Significantly ($p < 0.05$) slower than GRAD male recruits.

§ Significantly slower than INC male recruits.

φ Significantly slower than GRAD female recruits.

Figure 2. Descriptive data (mean ± SD) in the BD for INC and GRAD male and female recruits.

Table 1. Percentile rankings for body drag (BD) time based on graduated (GRAD) recruit data, and comparisons with incoming (INC) recruits.

Percentile Rank	BD Time (s)	GRAD (n = 643)		INC (n = 191)	
		Males	Females	Males	Females
90-100	≤3.90	86	0	0	0
80-89	3.93-4.10	50	0	2	0
70-79	4.14-4.40	73	2	4	0
60-69	4.41-4.60	56	1	4	0
50-59	6.61-4.90	64	1	7	0
40-49	4.91-5.10	56	8	5	0
30-39	5.11-5.46	54	6	22	1
20-29	5.47-5.80	54	13	24	0
10-19	5.81-6.70	37	26	43	3
<10	6.71≤	12	44	34	42

CONCLUSION

- GRAD recruits generally completed the BD faster than INC recruits, which was expected as they have had specific training.³ Nonetheless, most INC recruits completed the BD within acceptable WSTB standards without specific training from academy.
- What is notable, however, is the performance of females in the BD. Although males tend to be stronger and heavier, appropriate absolute strength training could still improve this quality in females. Improving strength in female Deputy Sheriffs could be life-saving if they need to complete the BD when on duty.

PRACTICAL APPLICATIONS

- A greater emphasis must be placed on developing absolute strength in Deputy Sheriff recruits. This is especially important for female recruits, who on average, have lower strength values than their male counterparts and this affects critical task performance as indicated by the BD.
- If there are changes made to the dummy mass due to population increases in body mass, absolute strength training should become a greater focus of academy. In addition to this, INC recruits should be encouraged to develop their absolute strength prior to academy, as this would be an important quality for critical law enforcement job tasks such as the BD.

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