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Academy Graduation and the Physical Fitness of Police Recruits

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ABSTRACT

INTRODUCTION: Success of recruit graduation from police academies is vital in order to reduce administrative costs from those who separate from academies due to either self-termination or injury. Since law enforcement academies can be physically demanding on recruits, the physical fitness of recruits may influence whether they graduate academy. PURPOSE: To determine whether physical fitness levels of recruits prior to starting academy affect graduation success. METHODS: Retrospective fitness data for 311 (M = 260, F = 51) recruits (age: 27.50 ± 6.08 yrs., ht: 1.73 ± 0.09 m, wt: 79.75 ± 13.75 kg) from four training academies were analyzed. The fitness tests included: grip strength (left and right hands, and sum of both hands); vertical jump (VJ); 75-yard pursuit run; 2-kg medicine ball throw; push-ups, sit-ups, and arm ergometer revolutions performed in 60 seconds; multistage fitness test (MSFT) shuttles; and estimated VO_{2Max} from the MSFT. Recruits were categorized into graduated (n = 269) and separated (did not graduate; n = 42) groups. Independent samples t-tests were performed to evaluate any differences in mean scores between groups. Independent sample t-tests were also performed on the same variables to evaluate any between-group differences based on sex. Significance was set at $p \leq 0.05$. RESULTS: Separated recruits were significantly older, and performed poorer in every fitness test ($p \leq 0.02$) except for right-hand and combined grip strength. Females who separated scored significantly lower in the arm ergometer and estimated VO_{2Max} ($p \leq 0.02$). Males who separated were older and scored significantly ($p \leq 0.03$) lower in all fitness tests except right-hand and combined grip strength and the VJ. CONCLUSIONS: Future recruits, both male and female, preparing to participate in academy training should focus on improving multiple aspects of fitness, including their muscular endurance, lower-body power, and cardiorespiratory endurance, in order to better their chances of graduating from academy. Coaches and physical training instructors responsible for conditioning recruits should also emphasize improving these physical fitness levels as well.

INTRODUCTION

- The success of recruit graduation from police academies is vital in order to reduce administrative costs from those who separate from academies due to either self-termination or injury.

- Since law enforcement academies can be physically and psychologically demanding on recruits (4), the physical fitness of recruits may influence whether they graduate academy.

- Most law enforcement agencies require a set minimal level of physical fitness from their recruits in order to be accepted in the academy as a future police officer; however, these standards can vary by state, city, or county.

- Although one of the police academy's intentions is to train recruits to be able to tolerate specific physical challenges involved in the job of policing once having graduated (4), starting academy training at lower physical fitness levels (which might be the bare minimum required by their agency) may influence the amount and time of improvement of a recruit's proficiency in occupational related tasks.

- The purpose of this study was to determine whether the physical fitness levels of recruits prior to starting academy affected graduation success.

METHODS

- Retrospective analysis on 311 (males = 260, females = 51) recruits (age: 27.50 ± 6.08 years, height: 1.73 ± 0.09 m, body mass: 79.75 ± 13.75 kg) from four training academies were analyzed. Recruits were categorized into graduated (GRAD, n = 269) and separated (SEP, did not graduate; n = 42) groups. This information was provided by the agency. Recruits that separated did so at different time points during academy and for different reasons (e.g. physical fitness and academic failures, injuries, personal reasons). All separated recruits were pooled together.

- Fitness tests were conducted on the first day of academy training, and included : grip strength (left and right hands, sum of both hands); vertical jump (VJ); 75-yard pursuit run (75PR); 2-kg medicine ball throw (MBT); push-ups (PU), sit-ups (SU), and arm ergometer (AE) revolutions performed in 60 s; multistage fitness test (MSFT) shuttles; and estimated VO_{2Max} from the MSFT.

- Data analysis was modelled on that from previous research (1). Independent samples t-tests were performed to evaluate any between-group differences on the data for all recruits. The sexes were also analyzed separately, with independent sample t-tests performed again on the same variables to evaluate between-group differences. Significance for all analyses was set at $p \leq 0.05$.

RESULTS

- When both sexes were combined, SEP recruits were significantly older, and performed poorer in every fitness test except in right-hand and combined grip strength (Table 1).

- Males who separated were older and scored significantly lower in all fitness tests except right-hand and combined grip strength, and the VJ (Table 1). Females who separated scored significantly lower in the arm ergometer and estimated VO_{2Max} (Table 1).

Table 1: Descriptive data (mean ± SD) for GRAD and SEP recruits considering all combined, males, and females.

		All Combined (N = 311)	Males (n = 260)	Female (n = 51)
Age	GRAD	26.78 ± 5.12	26.73 ± 5.14	27.10 ± 5.07
(years)	SEP	32.05 ± 9.15*	32.81 ± 9.90*	29.60 ± 5.95
	p	0.001	0.002	0.182
Height	GRAD	173.30 ± 8.81	175.38 ± 7.63	161.73 ± 5.33
(cm)	SEP	170.29 ± 8.24*	173.10 ± 6.35	161.30 ± 7.26
	p	0.039	0.107	0.832
Body Mass	GRAD	80.26 ± 13.55	83.34 ± 11.95	63.10 ± 7.92
(kg)	SEP	76.47 ± 14.73	80.67 ± 14.24	63.05 ± 5.27
	p	0.097	0.248	0.986
Right Grip	GRAD	41.69 ± 12.48	44.22 ± 11.58	27.64 ± 6.57
(kg)	SEP	38.77 ± 11.33	42.04 ± 10.44	28.30 ± 7.05
	p	0.154	0.314	0.779
Left Grip	GRAD	39.33 ± 11.19	41.82 ± 10.01	25.49 ± 6.26
(kg)	SEP	34.91 ± 9.85*	37.75 ± 9.15*	25.82 ± 5.73
	p	0.016	0.030	0.881
Sum Grip	GRAD	81.03 ± 23.04	86.05 ± 20.83	53.13 ± 12.35
(kg)	SEP	73.88 ± 20.51	79.79 ± 18.80	54.12 ± 11.93
	p	0.052	0.109	0.820

Table 1 (continued).

		All Combined (N = 311)	Males (n = 260)	Female (n = 51)
VJ	GRAD	53.44 ± 12.63	56.08 ± 11.02	38.78 ± 10.90
(cm)	SEP	48.35 ± 12.69*	52.07 ± 11.50	36.45 ± 8.45
	p	0.016	0.057	0.531
75PR	GRAD	16.97 ± 1.30	16.73 ± 1.21	18.31 ± 0.95
(s)	SEP	17.87 ± 1.20*	17.58 ± 1.07*	18.79 ± 1.17
	p	<0.001	<0.001	0.181
MBT	GRAD	5.92 ± 1.21	6.27 ± 0.95	4.03 ± 0.61
(m)	SEP	5.14 ± 1.11*	5.54 ± 0.86*	3.87 ± 0.80
	p	<0.001	<0.001	0.490
PU	GRAD	44.59 ± 15.40	48.15 ± 13.23	24.78 ± 11.05
(no.)	SEP	35.26 ± 13.29*	38.50 ± 12.53*	24.90 ± 10.34
	p	<0.001	<0.001	0.975
SU	GRAD	35.96 ± 9.09	36.82 ± 9.11	31.15 ± 7.34
(no.)	SEP	30.57 ± 8.28*	31.31 ± 8.72*	28.20 ± 6.46
	p	<0.001	0.001	0.251
AE	GRAD	132.39 ± 21.00	136.27 ± 19.49	110.83 ± 15.37
(no.)	SEP	119.48 ± 22.26*	126.53 ± 20.59*	96.90 ± 7.40*
	p	<0.001	0.009	0.008
MSFT	GRAD	58.19 ± 18.80	59.19 ± 19.10	52.61 ± 16.13
(shuttles)	SEP	43.70 ± 14.25*	43.36 ± 15.01*	44.80 ± 12.15
	p	<0.001	<0.001	0.159
VO_{2Max}	GRAD	36.12 ± 5.79	36.36 ± 5.94	34.81 ± 4.72
(ml/kg/min)	SEP	32.18 ± 6.83*	32.56 ± 7.50*	30.94 ± 4.11*
	p	<0.001	0.001	0.021

*Significantly ($p < 0.05$) different from GRAD recruits.

CONCLUSIONS

- Overall, SEP recruits performed poorer in almost all fitness tests, and tended to be older than the GRAD recruits. These results support previous research which has shown that the best predictors of academy graduation of recruits from baseline physical fitness tests are the VJ, PU, 75PR, and aerobic capacity (1,4,5).

- Therefore, future male and female recruits preparing to participate in academy training should focus on improving multiple aspects of fitness, including their muscular endurance, lower-body power, and cardiorespiratory endurance, in order to better their chances of graduating from academy.

- Age was also shown to be a significant factor, with older recruits being the ones who tended to separate. This may be due to several reasons, with some factors including the relative decrease in skeletal muscle mass decreases with age (2). From these results, it would be wise to recommend a program emphasizing muscle hypertrophy for older adults prior to academy training due to higher amounts of muscle mass being important for power and strength.

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