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Original Research

A Preliminary Comparison of Firefighter Candidates' Biddle Physical Ability Test Performance and Success Based on Training Class Participation

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ABSTRACT

International Journal of Exercise Science 15(4): 1627-1640, 2022. The Biddle Physical Ability Test (BPAT) was developed to identify candidates who possess the physical ability to become structural firefighters. The test must be completed in ≤ 9:34 min:s before a candidate is admitted to an academy. Some community colleges offer semester-long training classes for candidates. This study analyzed whether candidates who completed a training class could perform the BPAT more effectively. Retrospective analysis of 30 males and 2 females who attempted the BPAT was conducted. BPAT tasks were: dry and charged hose drag; halyard raise, roof walk, and attic crawl; roof ventilation and victim removal; ladder removal and carry; stair climb with hose bundle; crawling search and tower exit; stair climb with air bottles; hose hoist; and return to ground floor with air bottles. Independent samples t-tests or Mann-Whitney U tests ($p < 0.05$) and effect sizes calculated BPAT time differences between candidates who completed a training class or not. Twenty-nine candidates passed the BPAT; 6 completed a training class. The 3 candidates (2 males, 1 female) who failed did not complete a class. There were no significant between-group differences in BPAT times ($p = 0.054$-0.829). There were moderate effects for faster roof ventilation and victim removal, ladder removal and carry, and hose hoist times for candidates who attended a class ($d = 0.74$-0.95). While training classes may not be necessary for all candidates, physically demanding BPAT tasks were finished faster by candidates who completed a class. For candidates who find the BPAT physicality difficult, participation in a task-specific fitness and skills class may prove beneficial.

KEY WORDS: Firefighting, hose hoist, ladder removal and carry, occupational testing, tactical, victim drag

INTRODUCTION

Firefighting can be a very physically demanding profession. Some of the challenging job tasks include driving vehicles, carrying equipment, operating hose lines, stair climbing, forcible entries, ladder raises, crawling, and victim drags (15, 17, 23, 46, 53, 60). The environments that firefighters work in and the required load carriage (personal protective equipment, self-contained breathing apparatus) makes job task completion even more stressful (8, 46). Firefighters may have to work in environments where temperatures reach over 500˚C while wearing occupational loads greater than 20 kg (66). As a result of these demands, individuals interested in a career in firefighting will typically perform physical ability testing before they are accepted to a training academy. This approach allows fire department command staff to identify the potential readiness of candidates to complete firefighting-specific job tasks (15).

A common assessment used is the Biddle Physical Ability Test (BPAT) which was developed and validated across 41 fire departments as an assessment of the readiness for entry-level firefighter candidates (58). The goal of this test is to measure whether candidates are capable of meeting the physical demands of being a firefighter (6, 58). The BPAT simulates 11 firefighting job tasks that must be completed when on-duty. The job tasks that are part of the BPAT include: dry and charged hose drag; halyard raise, roof walk, and attic crawl; roof ventilation and victim removal; ladder removal and carry; stair climb with hose bundle; crawling search and tower exit; stair climb with air bottles; hose hoist; and return to ground floor with air bottles (6, 58). These tasks are done in succession without a break, and candidates must complete the BPAT in ≤ 9:34 min:s (≤ 574 s). This time must be achieved before a candidate is accepted to a participating fire department's training academy.

Certain community colleges will offer training classes dedicated towards improving the BPAT for firefighter candidates. These classes typically run for a semester; in the Fall (generally August through to December) and in the Spring (January through to June). The classes are structured to aid in improving physical conditioning, as well as skill acquisition (i.e., how to manipulate the firefighting-specific equipment). For example, classes targeted towards improving BPAT performance feature physical exercise with the required equipment from the BPAT (e.g., ladders, fire hoses, stair climbing) (56). Skill acquisition is essential for firefighters, as the equipment can be challenging to manipulate (e.g., how to carry, adjust, and use different types of ladders) (59), but essential when operators are on the fireground (e.g., firefighters rely on each other to successfully execute their required tasks when fighting a fire) (4).

Traditional strength and conditioning is also featured in these classes (e.g., coaching on lifting techniques, resistance training, physical conditioning, etc.) (56). The use of strength and conditioning specific to enhance physical fitness could be of great benefit to firefighter candidates. This supposition is supported by previous research which has shown that a variety of fitness capacities are related to firefighter job task performance (46, 53, 60). Providing specific examples, Rhea et al. (53) found that in professional firefighters a five-repetition maximum bench press and hand grip strength correlated (r = -0.39 to -0.85) with time to complete a 65.6-m

hose pull, stair climb with a 22-kg hose pack, 80-kg victim drag over 30 m, and 30.3-m equipment hoist with a 16-kg load. Sheaff et al. (60) found that superior performance in a range of physical fitness tests (e.g., absolute maximal aerobic capacity, one-repetition maximum chest press, Wingate anaerobic test, and isometric finger strength) correlated (r = ±0.485-0.602, $p \leq 0.009$) with faster times in the Candidate Physical Ability Test in volunteer and career firefighters. The Candidate Physical Ability Test features numerous physically demanding firefighting job tasks, including a stair climb, hose drag, equipment carry, ladder raise and extension, forcible entry, body drag, and ceiling breach and pull (25, 60, 67).

As for typical college classes, a community college BPAT training class involves a 16-week schedule. The time frame provided by a college class is intended to allow the candidate to develop appropriate conditioning and firefighting-specific skill performance to complete the BPAT effectively. This time frame is supported in research across various tactical populations. For example, law enforcement recruits who completed a 16-week training academy improved in numerous physical capacities, including agility (as measured by the T-test), upper-body power (30-s arm crank revolutions), lower-body power (Wingate anaerobic test), muscular endurance (60-s sit-ups and push-ups), and aerobic capacity (half-mile shuttle run) (11). Additionally, and specific to this study, Roberts et al. (54) investigated a 16-week training program in firefighter recruits. The program involved a mix of resistance training (i.e., free weights, weight machines, and body weight calisthenics), conditioning (i.e., jogging, stair climbing, cycling, rowing, and climbing), and job-specific activities (i.e., hose carries, obstacle courses, and body drags). Roberts et al. (54) found that there were significant ($p < 0.007$) improvements in flexibility (measured by the sit-and-reach), muscular endurance (maximal number of push-up repetitions), and aerobic capacity (estimated via a submaximal cycle ergometry test). In addition to changes to physical capacity, regular strength and conditioning could lead to changes in skill performance as well. Previous research has shown that appropriate resistance training can lead to changes in the biomechanics of lifting tasks (shown via enhanced biomechanics contributing to increased force and power output) (68) and sprinting (e.g., increased step length during a 10-m sprint) (40). The completion of a BPAT-specific training class is intended to aid in the performance of the job tasks required in the test. However, completion of a training class (or any specific training) is not required prior to attempting the BPAT. As such, it would be of value to investigate whether those candidates who do complete a community college training class can perform the BPAT more effectively than candidates who do not complete a training class.

Therefore, the purpose of this study was to determine whether completing a community college training class led to superior BPAT performance in structural firefighter candidates compared to candidates who did not complete a class. Archival data were used to conduct a preliminary investigation as to the potential influence of training class completion on BPAT performance. Candidates were split into groups depending on whether they self-reported completing a training class on the day they attempted the BPAT. It was hypothesized that candidates who did complete a training class would attain the minimum required time and perform the BPAT faster than those candidates who did not.

METHODS

Participants

De-identified archival data for 30 male (age: 24.53 ± 3.55 years; height: 1.82 ± 0.07 m; body mass: 88.40 ± 12.28 kg) and 2 female (age: 21.50 ± 3.54 years; height: 1.62 ± 0.09 m; body mass: 69.18 ± 1.61 kg) structural firefighter candidates were analyzed. Although the female sample size was small, both sexes were identified as many fire departments in the USA are attempting to recruit more women (65). Thus, it is important to provide details about women attempting to enter the fire service. All candidates attempted the BPAT within one testing session. This was a convenience sample of archival data provided by the community college training staff, and the researchers had no control of the final sample size used in this investigation. For candidate data to be included, full data sets had to be available. Based on the archival nature of this analysis, the institutional ethics committee approved the use of pre-existing data (HSR-20-21-58). Even though this study utilized existing data, the research was still conducted in agreement with the ethical standards of the International Journal of Exercise Science (48). Additionally, the study followed the recommendations of the Declaration of Helsinki (70).

Protocol

Data were collected by staff working for one community college fire training program and was released with consent from that organization. Candidates had to register for the BPAT session. Before testing, age, height, and body mass of candidates were recorded. Candidates self-reported whether they completed a training class at the college at any point prior to the testing session. The training classes completed by these candidates would typically feature physical exercise using fire hose, ladders, stairs, suspension trainers, kettlebells and other equipment (56). Candidates also learnt about proper body mechanics, lifting techniques, and physical conditioning principles (56). Time between completion of the training class and the BPAT were not captured for this sample. Candidates completed the BPAT at an outdoor fire station training facility, with weather conditions typical of the southern California climate (2). They reported to the facility for a 7:30am start, and the session lasted for approximately 4 hours (57). Training staff typically instructed to subjectively record the weather conditions during their testing sessions ('Hot', 'Warm', 'Cool', 'Wet', 'Windy'). The de-identified data sheets provided to the researchers that did have recorded weather conditions indicated that the conditions were 'Cool' to 'Warm'. They wore athletic clothes and shoes, and the BPAT was performed in the following gear: turnout coat; helmet; gloves; and breathing apparatus worn on the back (no mask). Candidates could use their own firefighting gear as listed above if it was approved by staff. Otherwise, the gear was provided.

Candidates completed the BPAT in alphabetical order according to their last name. This was standard practice for staff at this community college, and the researchers had no impact on these procedures. It is possible those candidates completing the BPAT earlier in the session did not have the benefit of observing others complete the required tasks. Additionally, those who complete the BPAT later in the session could have experienced mental fatigue or anxiety. Nevertheless, as stated this was standard practice for staff at all BPAT testing sessions. All

candidates received instructions on how to complete the BPAT and were told to complete the test as fast as possible, with the required tasks shown in Table 1. These tasks were completed in succession, with an expected completion time of ≤ 9:34 min:s. A staff member recorded the time to complete each of the tasks in Table 1 via a stopwatch, and these times were summed to provide the total time. The use of stopwatches to measure test times is very common in the tactical field and first responder research (1, 9, 19, 27, 30, 44), and individuals who are trained in the procedures for stopwatch timing can record reliable data (20, 26, 45). Candidates could be disqualified if they failed to correctly complete a task (e.g., rope slippage during the halyard raise, dropping or losing control of the ladder) (55). If candidates were disqualified, or their time exceeded 9:34 min:s, they did not receive a total time as they were deemed to have failed the BPAT. While it would have been beneficial to see a total time for these candidates (i.e., candidates would complete the BPAT even if they were disqualified for a certain event), this was not standard practice amongst the fire training program (e.g., candidates were not allowed to complete all events as they were disqualified during an event or they ran out of time). Candidates were only allowed one attempt at the BPAT during the session.

Table 1. The 11 tasks or events completed within the Biddle Physical Ability Test (BPAT) (6).

Task	Description
1. Dry hose deployment	Candidate advanced 150-feet (45.72-m) of 1.75-inch (4.45-cm) dry hose with nozzle around two obstacles.
2. Charged hose deployment	Candidate advanced a charged 1.75-inch (4.45-cm) hose with nozzle 70 feet (21.34 m); 32 feet (9.75 m) of hose deployment involved stooping or crawling while advancing hose into a narrowing hallway.
3. Halyard raise	Candidate raised and lowered fly section of a 35-foot (10.67-m) aluminum extension ladder one time.
4. Roof walk	Candidate ascended and descended a 14-foot (4.25-m) ladder attached to a simulated-pitched roof with a chain saw in hand.
5. Attic crawl	Candidate crawled 20 feet (6.10 m) across a simulated attic-joist floor, while carrying a simulated flashlight in hand.
6. Roof ventilation	Candidate stood on a simulated-pitched roof and struck a padded area 30 times with an 8-pound (3.63-kg) sledgehammer.
7. Victim removal	Candidate carried or dragged a 154-pound (69.85-kg) dummy around two obstacles 13 feet (3.96 m) apart.
8. Ladder removal and carry	Candidate removed a 24-foot (7.32-m) aluminum extension ladder from mounting bracket, carried ladder around a diamond shaped course 54 feet (16.46 m) long and replaced ladder back on mounting brackets.
9. Stair climb with hose pack	Candidate ascended to fourth floor of tower using stairs while carrying a 49-pound (22.23-kg) hose pack. Candidate dropped hose pack and begun task 10. Candidate descended tower using stairs to first floor carrying hose pack.
10. Attic crawl	Candidate crawled on hands and knees on fourth floor of the tower for 60 feet (18.29 m). This was done when candidate was performing task 9.
11. Hose hoist	Candidate ascended to third floor of tower using stairs, carrying 2 air bottles weighing 29 pounds (13.15 kg) (connected with a 2-foot [0.61-m] strap). After dropping off air bottles, candidate then hoisted up a 100-foot (30.48-m) section of extended 1.75-inch (4.45-cm) hose line with nozzle, up and through window, picking up air bottles and descended tower to finish line.

Statistical Analysis

Statistical analyses were conducted using the Statistics Package for Social Sciences (Version 27.0; IBM Corporation, New York, USA). Normality of the data was evaluated by visual analysis of Q-Q plots (7, 22, 31, 49, 50) and the Kolmogorov-Smirnov test (16, 41). As the sample size for this study was small, and the data represented actual firefighter trainee candidates, all available data was included in the analysis. Descriptive statistics (mean ± standard deviation [SD]) were derived for all dependent variables. The dependent variables included age, height, and body mass; the 11 tasks within the BPAT; and BPAT total time. Candidates were grouped into those who completed a training class and those that did not. If data was normally distributed, independent samples t-tests calculated BPAT differences (individual tasks and total time) between the two groups. The Mann-Whitney U test was used to analyze data that was not normally distributed. Significance was set *a priori* as $p < 0.05$ in both cases. Due to the small sample size in the training class group and how this affected the power within this preliminary study, effect sizes (d) were also calculated for the between-group comparisons, where the difference between the means was divided by the pooled SD (10). This has occurred in previous research (19, 28, 29, 31, 43), as effect size calculations can ascertain how much difference existed between the groups irrespective of the p value (5, 14). This type of data analysis also provides additional useful and practical information for strength and conditioning coaches and fire department command staff (5, 69). In this study, a d less than 0.2 was considered a trivial effect; 0.2 to 0.6 a small effect; 0.6 to 1.2 a moderate effect; 1.2 to 2.0 a large effect; 2.0 to 4.0 a very large effect; and 4.0 and above an extremely large effect (21). Candidates who failed (via a task or time disqualification) were noted.

RESULTS

Twenty-nine candidates successfully passed the BPAT, of which 6 (all males) completed a training class. Thus, 100% of all candidates who completed a training class passed the BPAT (6 out of 6 candidates). Approximately 89% of candidates who did not complete a training class also passed (23 out of 26 candidates). The 3 candidates (2 males, 1 female) who failed the BPAT did not complete a training class. Out of the 3 candidates who failed, the 2 males did not complete the BPAT within the time limit and were disqualified. The female candidate who failed grounded the ladder three times during the ladder removal and carry task and was disqualified. The data for the 3 candidates who failed were not included in the No Training Class group, which included 22 males and 1 female. The age, height, body mass, and BPAT times for successful candidates within the two groups are shown in Table 2. According to the Kolmogorov-Smirnov, nine of 10 variables were non-significant and deemed to have normal distribution ($p = 0.064$-0.200). The ladder removal and carry time was significant and deemed to have non-normal distribution ($p = 0.031$). The variables that were normally distributed were analyzed via independent samples t-tests. The ladder removal and carry time was analyzed via the Mann-Whitney U test.

There were no significant differences in age, height, or body mass between the groups, with trivial-to-small effects. Additionally, there were no significant differences in BPAT times

between those that completed a training class and those that did not. The power derived for an independent samples nondirectional (two-sided) t-test analysis with the BPAT tasks and total time ranged from 0.05-0.73. The study power was affected by the sample size in each group and re-emphasized the need for the effect size analysis. There were moderate effects for the between-group differences in roof ventilation and victim removal, ladder removal and carry, and the hose hoist. On average, and according to percentage differences and the effect size analysis, the candidates who completed the training class were faster in those tasks, by 7%, 19%, and 13%, respectively. There was a small effect for the difference in total time between the two groups, with the candidates who completed a training class being 5% faster.

Table 2. Descriptive (mean ± SD) data for age, height, body mass, and the Biddle Physical Ability Test (BPAT) tasks for candidates who completed a training class or did not complete a training class. All BPAT variables were measured in seconds (s).

Independent Variables	Training Class (n = 6)	No Training Class (n = 23)	p	d
Age (years)	25.83 ± 2.86	24.39 ± 3.69	0.383	0.44
Height (m)	1.80 ± 0.05	1.82 ± 0.08	0.502	0.30
Body Mass (kg)	86.56 ± 10.96	88.67 ± 12.57	0.711	0.18
BPAT (s)				
Dry hose and charged hose deployment	35.17 ± 6.85	35.83 ± 6.55	0.829	0.10
Halyard raise, roof walk, and attic crawl	75.00 ± 14.26	76.65 ± 9.09	0.728	0.14
Roof ventilation and victim removal	57.83 ± 3.92	62.48 ± 6.31	0.100	0.89
Ladder removal and carry§	33.50 ± 4.55	41.35 ± 10.74	0.054	0.95
Stair climb with hose pack	53.50 ± 6.78	56.48 ± 8.80	0.449	0.38
Attic crawl and tower descent	67.83 ± 6.62	66.96 ± 9.18	0.829	0.11
Stair climb with air bottles	35.33 ± 9.22	38.26 ± 9.67	0.511	0.31
Hose hoist	47.17 ± 6.11	54.48 ± 12.50	0.180	0.74
Return to ground floor with air bottles	27.67 ± 5.89	25.26 ± 5.20	0.334	0.43
Total Time	433.00 ± 37.46	457.74 ± 56.34	0.321	0.52

* Task times for the candidates who failed the BPAT were not included in the No Training Class group.
§ Mann-Whitney U Test was used to compare the groups for this variable.

DISCUSSION

This preliminary study investigated whether there were differences in BPAT performance between structural firefighter candidates who did or did not complete a community college training class. The training class featured specific skill training with equipment used in the BPAT, in addition to general strength and conditioning (56). The use of a training class could be beneficial to some candidates, as the BPAT is used as an entry level test to fire department training academies in various parts of southern California. The BPAT must be completed in ≤ 9:34 min:s (≤ 574 s) by the candidate, so those candidates with skill or conditioning deficiencies could find the test challenging. The results from this pilot analysis could also have implications relative to other firefighter physical ability tests (e.g., the Candidate Physical Ability Test) (25, 60, 67), as they also feature job task simulations. The data indicated that there were no significant differences in time to complete the BPAT tasks between the successfully selected firefighter

candidates who completed a training class or not prior to selection. This could have been influenced by the sample size and a survivor effect. This pilot study only included 32 candidates from one testing session, of which only 6 completed a training class. In addition, the results from the 3 candidates who failed to complete the BPAT (and had not attended a training class) were excluded. On the surface, this may suggest that training classes are not essential, and indeed they may not need to be completed by a candidate before attempting the BPAT. However, apart from the 3 failures who did not attend the training classes, a deeper analysis of the data potentially showed the value of training and conditioning prior to completing the BPAT.

The more physically demanding BPAT tasks – roof ventilation and victim removal, ladder removal and carry, and the hose hoist – were completed faster (with moderate effects) by candidates who completed a training class. The candidates who completed the training class were 7%, 19%, and 13% quicker in these tasks, respectively, compared to candidates that did not complete a training class. Faster performance of these physically demanding tasks contributed to an overall 5% faster BPAT completion time for candidates who completed a training class. While these differences may not have been significant, there are practical differences here, especially when considering the effect size data (5, 69). Completion time in firefighting tasks can be considered a measure of success, especially considering that any other definition of success related to the destruction of property or potential deaths is difficult to quantify as an acceptable amount (47, 63). It is important for candidates to not just consider what they need to do to attain a minimum standard, but rather how they can attain optimal performance in preparation for the firefighting profession. This is especially pertinent when considering the need for firefighters to work as efficiently as possible in emergency situations to ensure public safety and the safety of their colleagues (47).

Further, training staff have anecdotally noted candidates often find the ladder removal and carry difficult. What was particularly notable was that the female candidate who failed the BPAT could not successfully perform the ladder removal and carry task. In addition to the skill required, upper-body strength is required to lift, carry, and replace a ladder. Stevenson et al. (64) detailed that civilians who could successfully complete a ladder lifting simulation with an approximate 29-kg load could perform a one-repetition maximum (1RM) shoulder press of ~53 kg. Civilians who could not perform this task had a 1RM shoulder press of ~25 kg. Stevenson et al. (64) also found that civilians who successfully performed a ladder lowering simulation with a 42-kg load had a 1RM seated pull of ~79 kg. Civilians who could not perform this task had a 1RM seated pull of ~48 kg. Specific to the BPAT, it is plausible that candidates who completed the training class experienced improvement in skill performance and strength to complete the challenging tasks faster. Although it was only one female candidate who could not perform the ladder and removal in this study, given the numerous first responder studies that have shown males tend to be stronger than females (3, 13, 33, 34, 36, 38), it could be particularly beneficial for female candidates to complete a training class. As noted, 16-week physical training programs can lead to improvements in different aspects of physical fitness in first responder populations (11, 54). Four weeks of power clean training led to changes in lifting biomechanics in trained adult men (68). Six weeks of strength training in recreational field sport athletes can alter sprint

acceleration technique (40). Although further analysis is required, a BPAT-specific community college training class should positively affect fitness and job-specific movement technique in firefighter candidates.

Nonetheless, in the sample from this study most candidates achieved the requisite BPAT time without completing a training class. Even though technical skills can influence firefighter task performance, certain tasks can be successfully performed if an individual has the requisite capacity (e.g., strength, aerobic or anaerobic fitness) (64). For example, Lockie et al. (38) found that prior to a training academy, law enforcement recruits could successfully perform a victim drag over 9.75 m with a 74.84-kg if they recorded a score of at least 100 kg on a leg/back dynamometer. Body size can be a factor in tasks requiring absolute strength (i.e., manipulation of an absolute load such as ladder or victim), as smaller individuals can find these tasks more physiologically demanding (37). Taller individuals may also have an advantage in firefighting tasks such as the ladder removal and manipulation task due to the positioning of the ladder on the mounting bracket (i.e., it could be easier for taller candidates to reach and remove the ladder from the bracket) (62). Furthermore, research with law enforcement and military recruits have detailed that trainees with higher levels of fitness when entering academy training were more likely to succeed than their less fit counterparts (12, 24, 27, 33, 35, 51, 52, 61). This is notable as it can be expected that firefighter training is physically demanding. Accordingly, it may be incumbent on smaller or less fit individuals to ensure they have the requisite capacity to complete the required physical tasks in a test such as the BPAT. This could be achieved via community college training classes, or specific strength and conditioning programs.

There are study limitations that should be noted. This study was a preliminary analysis of the BPAT and whether those candidates who completed a training class would perform this test more efficiently. As a result, the sample size was small (N = 32, with 29 candidates who successfully completed the BPAT). Nonetheless, this was a pilot study to provide a preliminary analysis as to the potential effects of a training class on candidate BPAT performance. While candidates who completed a training class likely experienced improvement in skill and physical conditioning over the semester, this cannot be confirmed by this study. Further research should detail changes in fitness or firefighter skill performance following a training class. The effects of firefighter-specific skills training versus physical training could also be an avenue for future research. The time between completion of the training class and the BPAT attempt by the 6 candidates in this group was not recorded. The time course between the training class and the BPAT could influence the efficacy of any fitness or skill adaptations. Time during the BPAT was recorded via stopwatch, which could introduce user error into the recorded times (18). However, this is standard practice in many first responder studies (1, 9, 19, 27, 30, 44). Furthermore, the times analyzed in this study were still used for record, which is also the case for most first responder work sample tests (32, 39, 42, 43). Those candidates who successfully completed the BPAT without formal training likely possessed the capacity to complete all the tasks successfully, even if they may not have superior technique or fitness (as shown by the tendency for slower times across tasks). However, this cannot be confirmed in this preliminary study. Similar to research investigating the Candidate Physical Ability Test (25, 60, 67), future research should investigate relationships between the BPAT and absolute and relative strength, power,

and anaerobic and aerobic capacity. Lastly, detailing the injury rates of candidates during a firefighter trainee academy who did or did not complete a training class could also be investigated; this could highlight further benefits regarding this type of intervention.

In conclusion, the results showed that although there were no significant differences in BPAT performance between candidates who did or did not complete a training class, those that did complete a class were 5-13% faster in physically demanding tasks (roof ventilation and victim removal, ladder removal and carry, and the hose hoist) and overall BPAT time. Further, the 3 candidates who failed the BPAT either through slow time or failure to complete the ladder removal and carry did not complete a training class. These results indicate the potential benefits of community college physical ability training classes for structural firefighter candidates. This would be especially true for candidates lacking in certain fitness characteristics that would benefit job task performance. For example, it could be expected that greater strength would benefit tasks such as a victim drag and removing and carrying a ladder. It should be noted that certain candidates may be able to complete the BPAT without specific training. However, for candidates who may find the physicality required for the BPAT difficult, they should consider enhancing their task-specific fitness and skills in a community college training class (or with specific strength and conditioning programs).

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