2024 ORPAT Report

Oregon Physical Abilities Test Evaluation & Recommendations

Prepared by
Annie Rexford-Boren,
Research Coordinator

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Oregon Physical Abilities Test Evaluation & Recommendations

Executive Summary

Using 17 years of ORPAT data, this project explores recruit performance since 2007, with a focus on gender and age differences. Additionally, this project provides an overview of survey responses from Oregon agencies about their use of the ORPAT in pre-employment setting.

The descriptive analysis of ORPAT performance data was consistent with the information provided in the original 2005 evaluation.

- On average, males complete the ORPAT significantly faster than females, with average post-ORPAT times of 4:00 and 4:36, respectively.
- On average, recruits under the age of 40 complete the ORPAT faster than those 40 and over with post-ORPAT times of 4:02 and 4:28, respectively.

The most salient findings for agencies are:

- Only 75.9% of females passed the pre-ORPAT – compared to 97.3% of males - indicating a disparate impact if this was the only opportunity they are given to run it.
- 96.1% of females and 99.5% of males passed the post-ORPAT by the end of academy, indicating that training can result in improved completion times.
- 96.8% of recruits 40 & over and 99.2% of recruits under 40 passed the post-ORPAT.

Key Statistics

76% of females - compared to 97.3% of males, pass the pre-ORPAT.

96% of females and 99.5% of males pass ORPAT by the end of academy.

5:30 The ORPAT cut score new officers are required to meet by the end of academy.

6:20 The recommended ORPAT cut-score for pre-academy hiring process.

Recommendations

1. Conduct a robust exploration of the relationship between the ORPAT & current officers.
2. Increase ORPAT familiarization opportunities for potential applicants
3. Increase agency education about and evaluation of ORPAT use in hiring processes
4. Conduct an updated statewide police job task analysis

Introduction

The Intent of this Evaluation

The Oregon Department of Public Safety Standards and Training (DPSST) is "entrusted to provide quality training as a service to its public safety constituency and the communities they serve" (Oregon Department of Public Safety Standards and Training, 2022, p. 6). As the certifying body for police officers in the state of Oregon, DPSST is responsible for continually evaluating certification requirements and academy content, including the Oregon Physical Abilities Test (ORPAT). The first evaluation of the ORPAT was completed in 2005, with supplemental research on officer injury and retention rates reviewed in 2008. The passage of time and a re-energized focus on police physical fitness tests, particularly their use in hiring processes, prompted a follow-up evaluation in 2023.

The current evaluation will review the same criteria as the 2005 evaluation, using analyses of ORPAT scores since the establishment of a certification standard in July 2007; this evaluation will also include a descriptive analysis of the push-pull portion of the course, which was not included in the 2005 evaluation. This examination of the content and cut scores of the ORPAT - situated within the context of more recent literature on physical ability testing - will evaluate the possibility of disparate impact on gender or age groups, as well as offer recommendations for improving the continued implementation of the ORPAT. At this time, there is no intent to eliminate or change the ORPAT certification standard.

Evaluation Definitions

For the purposes of this paper, the following definitions will be used:

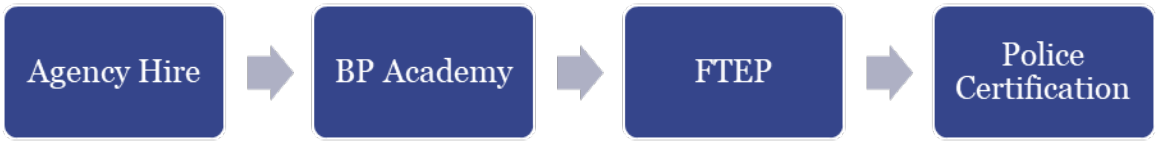
- **Disparate impact**: "facially neutral policies that have an adverse impact on protected classes *without appropriate justification*" (Gardner & Webb, 2006; emphasis added).

- **Adverse impact**: "a substantially different rate of selection in hiring, promotion or other employment decision which works to the disadvantage of members of a race, sex or ethnic group." (Equal Employment Opportunity Commission, 1979)
- **Substantially different rate of selection**: "a selection rate for any race, sex, or ethnic group which is less than four-fifths (4/5ths) or eighty percent (80%) of the selection rate for the group with the highest selection rate" (Equal Employment Opportunity Commission, 1979).

Roles, Regulations, and Requirements

To better understand the evolution of the ORPAT, it is important to clarify the roles DPSST and the Board on Public Safety Standards and Training (BPSST or henceforth referred to as "the board") perform in the certification, hiring, and continued employment of officers. Per Oregon Revised Statute (ORS) 181A.410, "[DPSST] shall recommend, and the board shall establish by rule, reasonable minimum standards of physical, emotional, intellectual and moral fitness for public safety personnel and instructors" (Oregon Revised Statutes, 2021). Using the best available research of best practices, DPSST *recommends* standards to the board, which subsequently establishes requirements. The responsibility then returns to DPSST, which enforces any requirements adopted by the board.

Figure 1: Basic Police certification timeline



Based on a memorandum received from the Oregon Department of Justice in 2006, DPSST and the board can make ORPAT a *certification* standard because of their "statutory authority to train and certify police officers." However, neither entity may *require or prohibit* adoption of the ORPAT as a pre-employment standard by agencies,

as DPSST is a certifier of, but not employer of police officers (Hewitt, 2006)[1]. This nuance is important in understanding why ORPAT certification cut scores – scores set based on the distribution times, not job performance - and hiring cut scores are recommended. In Oregon, officers must be employed by an agency prior to attending the basic academy, resulting in the timeline illustrated above (Figure 1).

[1] OAR259-008-0010(8)(a) provides a description of minimum physical standards and states "all law enforcement officers or applicants must demonstrate the physical abilities to perform the critical and essential tasks of a law enforcement officer" as outlined in the 2015 Job Task Analysis for Police Officers

ORPAT Overview

Course and Related Job Tasks

The ORPAT is a hybrid physical functioning test which assesses both physical fitness and the ability to complete sample work tasks. It consists of a 1235-foot (approximately 376 meters) obstacle course (Figure 2), an 80-pound push-pull machine, and a 165-pound dummy drag. The stations in the obstacle course are designed to simulate several "crucial and essential" tasks (Table 1) identified in the job task analysis (King, 2015) and consist of:

- 15-foot balance beam
- 5-foot jump
- Stair climb simulator
- Crawl obstacle
- Two 18-inch hurdles
- 3-foot vault, immediately followed by landing with two feet and then a controlled fall

Figure 2: ORPAT Course

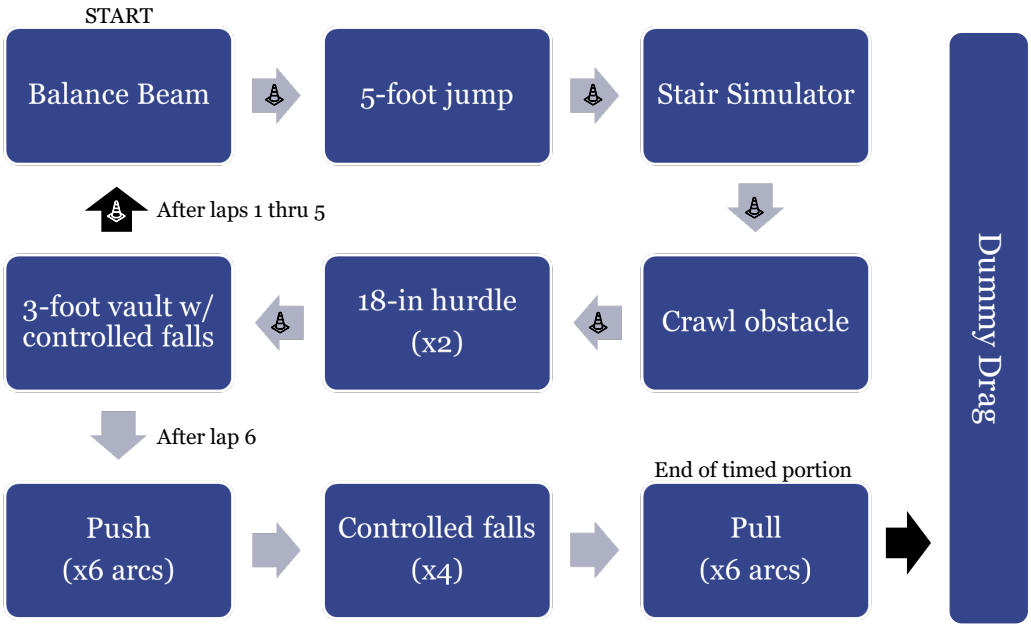


Table 1: ORPAT tasks and associated job tasks and abilities (King, 2015)

ORPAT Task	Job Task	Physical Abilities
Balance Beam	• Pursuing person on foot over uneven terrain • Walking-running while balancing on narrow, elevated surfaces	• Balance • Depth perception • Agility • Lower body strength
Five-foot jump obstacle	• Pursuing someone on foot • Jumping across obstacles	• Depth perception • Running speed • Agility • Lower body strength • Core strength • Ability to jump
Stair-climb simulator	• Pursuing someone on foot • Walking/running up/downstairs	• Depth perception • Visual acuity • Agility • Coordination • Lower body strength • Core strength
Crawl obstacle	• Pursuing someone on foot • Crawl through small opening	• Agility • Flexibility • Coordination • Core body strength • Core power • Lower body strength
18-inch barrier jump	• Pursuing someone on foot • Jumping over common obstacles	• Depth perception • Agility • Coordination • Balance • Lower body strength • Core strength • Ability to jump

ORPAT Task	Job Task	Physical Abilities
Three-foot vault	• Pursuing someone on foot • Jump/climb over obstacles • Regain feet after falling/being knocked down • Jump down from elevated surface	• Depth perception • Agility • Coordination • Balance • Core power • Upper/lower body strength
Fall to back/front	• Physically control person • Pursue/struggle with suspect • Regain feet after falling/being knocked down	• Balance • Core strength • Upper/lower body strength
Push-Pull machine (Push)	• Physically control person • Pull/drag person • Struggle/fight with person	• Balance • Agility • Core strength • Upper/lower body strength
Dummy drag	• Physically control person • Pull/drag person • Lift and carry person	• Balance • Upper/lower body strength • Ability to recover (after obstacle course)
Additional exertion elements not listed above	• Six laps under a set time	• • Cardiovascular endurance • Muscular endurance • Speed • Flexibility

The ORPAT requires six laps – each approximately 206 feet (63 meters) in length, including eight obstacles - before moving on to the push-pull complex (push-pull machine and controlled falls).

To maintain a consistent distance, the recruit must run around cones between every obstacle type (Figure 2). The obstacle course and push-pull portion must be completed in five minutes and 30 seconds (5:30), adding an additional speed component to assess cardiovascular function.

After an approximately 60-second rest, the 25-foot, 165-pound dummy drag follows the push-pull machine. The drag is completion only and not included in the timed portion of the test (Gardner & Webb, 2006). Recruits must keep the torso portion of the dummy off the ground and move at a speed that allows them to move the dummy in a controlled manner. For further descriptions and in-depth background information on the development of the course and each obstacle, see Anderson and Plecas (2008) and Gardner and Webb (2006).

Course Penalties

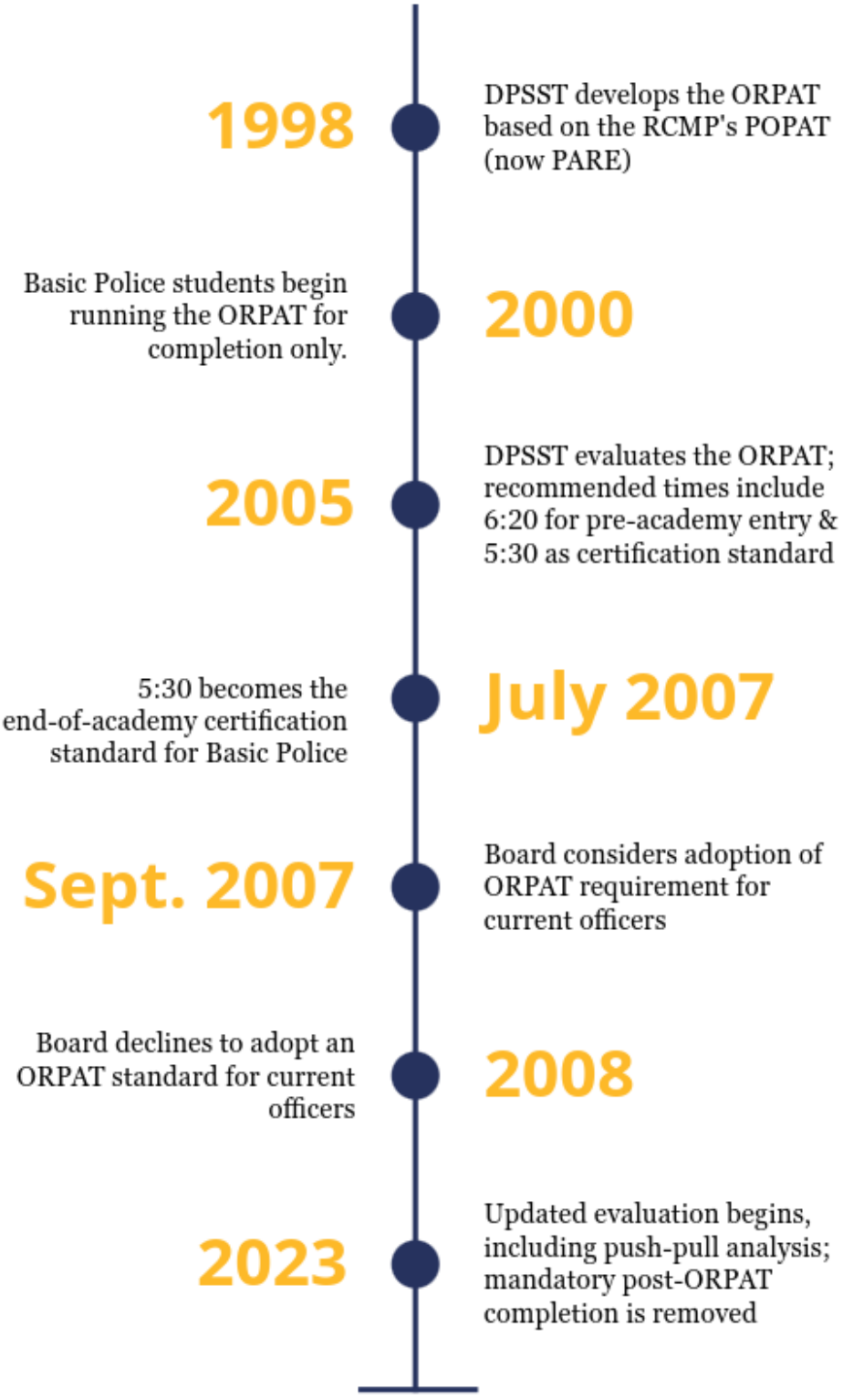
Predetermined, specific time penalties may be applied at four points along the obstacle course – the 5-foot jump, the crawl obstacle, and each of the two 18-inch hurdles. Participants must launch and land outside the 5-foot box; the first failure to do so results in a warning and subsequent failures result in a five second penalty. According to summaries of the history of the Royal Canadian Mounted Police's (RCMP) Physical Abilities Requirement Evaluation (PARE), the five-second penalty represents the amount of time that would be required to get out of the ditch that the jump obstacle is meant to represent (Shephard & Bonneau, 2002, p. 282).

The crawl obstacle must be completed without touching any part of the obstacle itself. The first failure to meet this requirement results in a warning. Subsequent failures are each a 2-second penalty, representing a time delay that might be associated with catching equipment or oneself on a real-life obstacle.

Each 18-inch hurdle is comprised of a 1x1 piece of wood held up on either side by a cone. The recruit must clear the hurdle – either by jumping or stepping over – without knocking the wood off the cones. Each hurdle counts as a separate obstacle and, like the jump and crawl obstacles, the first obstacle failure results in a warning. Subsequent failures are each a 2-second penalty, representing the time that it would take to recover from a fall, had the hurdle been immovable (p. 282). For the rest of the obstacles and course cones, there is no set time penalty, but the recruit may have to repeat the obstacles if not completed correctly or double back to ensure they go around every cone.

Evolution of the ORPAT

Figure 3: ORPAT Timeline



Development and evaluation

A far cry from the minimum height and weight requirements of just a few decades ago, hybrid physical functioning tests like the ORPAT are one step in the continuing evolution of physical testing in the policing profession. True to the name, "hybrid tests" are a blend of physical fitness testing and sample work tasks. There are numerous variations on this type of testing, including those used at academies in Montana and Massachusetts. In contrast, many agencies rely on more well-known testing that is solely based on fitness metrics, often tested in the form of push-ups, sit-ups, and 1.5- to 2-mile runs.

In 1998, DPSST developed the ORPAT using the 1996 Oregon Job Task Analysis (JTA) for Police and Corrections. The ORPAT was an adaptation of the RCMP's physical test at the time, the Police Officer's Physical Abilities Test (POPAT; now updated to the PARE). Beginning in January 2000, Basic Police recruits completed the ORPAT as part of the Basic Academy, but meeting a minimum certification standard was not required until July 2007 (Winegar, 2008).

> *In 2006, based on [the original] evaluation, the board adopted 5:30 as the minimum certification standard to be completed by the end of the 16-week academy.*

The adopted 5:30 certification standard stemmed from the 2005 evaluation of recruit ORPAT times aimed at establishing an *end-of-academy* standard with no disparate impact on specific groups of recruits (Oregon Department of Public Safety Standards and Training, 2005). Since the evaluation was creating a new standard for certification, it also set out to illustrate that the ORPAT is a valid test based on Equal Employment Opportunity Commission (EEOC) standards. Based on this evaluation, the board in 2006 adopted 5:30 – one standard deviation from the ORPAT performance mean – as the minimum certification standard (i.e. recruits must complete the course in 5:30 or faster) to be achieved *by the end of the 16-week academy*. DPSST began enforcing this standard for recruits attending classes beginning on or after July 1, 2007.

Prior to the adoption of the standard, the Oregon Department of Justice did note that while the certification standard of 5:30 showed no disparate impact when used *at the end of the academy*, if it was used as a pre-employment or pre-academy entry standard, there was a risk that "approximately 15% of candidates would fail… [and smaller departments] might very well experience up to a 100% failure rate… [and/or] situations where all of their male applicants pass and none of their female applicants pass" (Hewitt, 2006, p. 3). To that end, DPSST suggested a slower standard of 6:20 - about two standard deviations from the overall ORPAT performance mean - for a pre-academy entry and/or a pre-employment standard (Oregon Department of Public Safety Standards and Training, 2005, p. 29). Subsequently, the board recommended – but did not require – 6:20 as a pre-employment standard (p. 38).

The board recommended – but did not require – 6:20 as a pre-employment standard.

Attempts to expand requirements

In September 2007, following the adoption of the Basic Police certification standard, the Oregon Mayor's Association and the attendees of the League of Oregon Cities Conference resolved to urge the board to adopt an ORPAT maintenance standard for current officers (Winegar, 2008). Ultimately in 2008, the board declined to adopt a maintenance standard based on a research memo from DPSST staff, citing the lack of evidence supporting the requirement.

ORPAT at the academy

Since its inception, the ORPAT certification requirements remain unchanged. The sole change in the ORPAT process occurred in February 2023 (starting with BP class 425), reducing the number of times recruits are required to run the ORPAT at the academy. Prior to February 2023, recruits were required to participate in at least two attempts to reach the minimum certification standard – the pre-ORPAT on the first day of academy

and the post-ORPAT during the last week of academy, with an optional mid-term ORPAT halfway through.

Based on academy scheduling needs, beginning with BP 425 only the pre-ORPAT is required. If a recruit does not meet the certification standard at the pre-ORPAT, they have the option to take the mid-term ORPAT. If the recruit does not take the mid-term ORPAT or does not meet the certification requirement, only then are they required to take the post-OPRAT. Just as before, failure to meet the certification time by the end of the academy does not automatically result in disqualification from certification. However, it does require the recruit to periodically return to the academy to run the ORPAT until the certification time is met; this must be done within 18 months of the recruit's hire date.

Use of the ORPAT by Oregon agencies

Beyond the confines of the basic academy, some Oregon agencies chose to adopt the ORPAT as a part of their hiring (pre-employment) process. Since the pre-employment standard was pushed out as a recommendation, the decision to use the ORPAT and the cut score used (if any) is at the agency's discretion. This means the ORPAT pre-employment standards are inconsistent across the state; varying from no ORPAT required to meeting the certification time of 5:30 to time limits of over seven minutes (Oregon Department of Public Safety Standards and Training, 2023).

> *61.8% [of survey respondents] use a time standard that is equal to or faster than the certification standard of 5:30.*

Results of a survey conducted in late 2023 shed light on agency use and potential impact areas. One hundred sixty-eight survey invitations were emailed to police agencies around the state, resulting in 89 usable survey responses for a response rate of 52.9%.

Table 2: Agency ORPAT Survey Results for ORPAT in the Hiring Process

	Tier 1 (100+)	Tier 2 (25-99)	Tier 3 (1-24)	Total
n (% of total)	5 (5.6%)	29 (32.6%)	55 (61.8%)	**89 (100%)**
Uses ORPAT (% within tier)	4 (80.0%)	25 (86.2%)	35 (63.6%)	**64 (71.9%)**
Time limit 5:30 or faster (% within tier)	3 (60.0%)	18 (62.1%)	34 (61.8%)	**55 (61.8%)**
Automatic disqualification (% within tier)	4 (80.0%)	24 (82.8%)	31 (56.4%)	**59 (66.3%)**
ORPAT administered prior to interview (% within tier)	20 (69.0%)	20 (69.0%)	30 (54.6%)	**52 (58.5%)**

Of the agencies that responded (Table 2), 71.9% use the ORPAT in their hiring process, 61.8% use a time standard that is equal to or faster than the certification standard of 5:30, and 66.3% use failure to meet the time standard set forth by the agency as an automatic disqualifier from the hiring process. This is an indication that a number of Oregon agencies may not be using the recommended 6:20 as a hiring time standard but instead using the certification standard of 5:30.

Table 3: Agency ORPAT Survey Results for ORPAT Use with Current Officers

	Tier 1 (100+)	Tier 2 (25-99)	Tier 3 (1-24)	Total
n (% of total)	5 (5.6%)	29 (32.6%)	55 (61.8%)	**89 (100%)**
Uses ORPAT for current officers (% within tier)	-	15 (51.7%)	9 (16.4%)	**24 (27.0%)**
Time limit 5:30 or faster (% within tier)	-	11 (37.9%)	7 (12.7%)	**18 (20.2%)**

The use of the ORPAT with current officers also bears examination (Table 3). Despite the high use of the ORPAT in the hiring process, responding agencies report a low rate – just over a quarter - of ORPAT use as a standard for current officers.

Only 27% of responding agencies use the ORPAT for current officers.

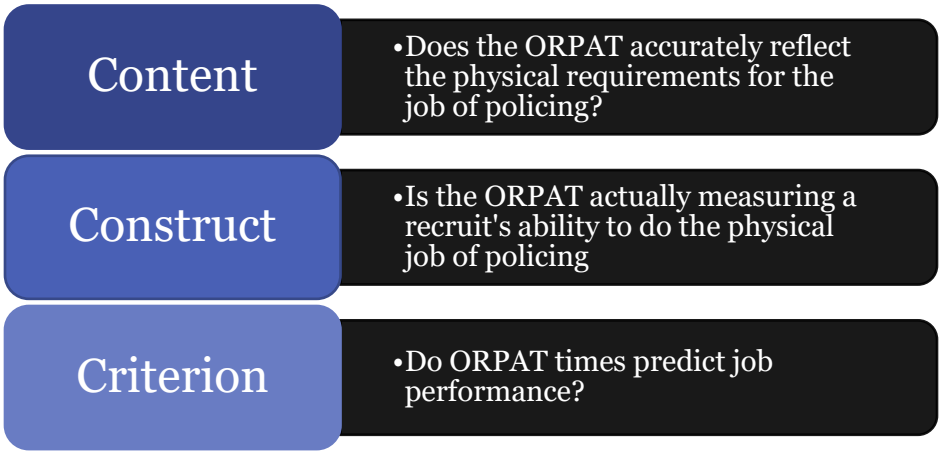
Only 27% of responding agencies use the ORPAT for current officers and only 20% have the 5:30 certification standard time limit associated with ORPAT use – regardless of participation being a requirement or optional. Based on a 1998 survey conducted by the International Association of Chiefs of Police (IACP), this is actually higher than the 16% of agencies nationwide that require fitness testing of current officers (Shephard & Bonneau, 2002, p. 270).

2005 Evaluation Summary

Program evaluation criteria

In addition to setting the standards mentioned in the previous section, the original evaluation of the ORPAT in 2005 centered on efforts to demonstrate that the ORPAT is a valid test by meeting "all current and reasonably anticipated state and federal non-discrimination requirements, including the [Americans with Disabilities Act]" (Gardner & Webb, 2006, p. 9). This was addressed through an in-depth examination of the three components of the employment test validation (Figure 4): content, criterion, and construct validities (United States, 1978). The original evaluation is only briefly summarized here, and any critiques or limitations are addressed in the discussion section.

Figure 4: Three types of validity



Content validity

This is defined as "whether or not the content of the test can be demonstrated to reasonable reflect the content of the job" (Oregon Department of Public Safety Standards and Training, 2005). In other words, does the ORPAT accurately reflect the physical requirements for the job of policing? Prior evaluators identified content validity of the work sample portion of the test by the fact that the tasks within the ORPAT are modeled to test physical tasks listed in the 1996 Job Task Analysis (JTA) as "crucial and

essential". This remains true when the ORPAT is examined alongside the most recent JTA available (King, 2015). The other half of the hybrid test model – physical fitness – was identified as valid based on the research associated with the PARE, after which the ORPAT was modeled (2005).

The 2005 evaluation also met content validity by surveying current officers and "[establishing] a 95% rate of agreement among the officers who responded, that the ORPAT corresponds to the actual, critical physical demands of [policing]" (Gardner & Webb, 2006, p. 15). The group of officers provided the opportunity to respond to the survey were comprised of 90 male officers and 10 female officers. It is unclear which officers or how many responded to the survey.

Construct validity

The element of construct validity addresses a link between the "work-related physical abilities and police officer performance" (Gardner & Webb, 2006, p. 17). Is the ORPAT actually measuring a recruit's ability to do the physical job of policing? Put another way, is the ORPAT testing the "underlying physiological demands" of job functions, such as power, strength, balance, and speed (Shephard & Bonneau, 2002, p. 268)? Both construct and content validity are addressed by the fact that the ORPAT is a hybrid test – it is testing both the performance of skills, set by the JTA, and the ability to perform within a specified amount of time.

Additionally, directly related to the current evaluation of the ORPAT is the idea that the test must show "no disparate impact and there is a demonstrable relationship to essential job functions" (p. 17). Setting the end-of-academy certification standard at 5:30 and recommending the pre-academy standard of 6:20 in 2005 removed disparate impact on both women and those 40 years of age and older.

Criterion validity

Criterion Validity "predicts a relationship between a testing variable and actual job performance levels" (Gardner & Webb, 2006, p. 16). Do ORPAT times predict job performance? Studies of the PARE undertaken prior to the 2005 evaluation established the relationship between the discrete components of the ORPAT (similar to those in the

PARE) and police job task performance, so DPSST's 2005 evaluation did not attempt to re-validate these relationships.

Additional work that was undertaken to demonstrate the criterion validity of the ORPAT included testing a control group of 100 current officers. The authors of the 2005 evaluation concluded that when compared with recruit times, the officers' ORPAT times supported the hypothesis that ORPAT performance and job performance were correlated. In other words, the authors posited that ORPAT performance would improve with the increased "knowledge and skill" resulting from incumbents' experience (Oregon Department of Public Safety Standards and Training, 2005).

Current Evaluation

Post-certification recruit sample, 2007-2024

The recruit sample used in this evaluation is from classes occurring after the establishment of the 5:30 certification standard in July 2007 and includes pre-ORPAT data from 5522 recruits from classes BP297 – BP437 (Table 4; excluding BP299). Post-ORPAT data from 4667 recruits in the same group of classes are also examined. With all classes, not every recruit who runs the pre-ORPAT will run it again at the academy for a myriad of reasons. These could include, but are not limited to, leaving the academy prior to any subsequent attempts for reasons unrelated to ORPAT performance, recruit illness or injury, or academy decisions not to require the post-ORPAT (such as during COVID and post-BP424).

New with this evaluation and beginning with BP425, the ORPAT score sheet was updated to collect two additional pieces of self-reported data – experience in public safety (i.e. corrections, military police, etc.; Table 4) and experience with the ORPAT or CORPAT.[2]

Examining the entire post-standard recruit sample, only age showed any significant difference, with female recruits' average age being just under a year younger than the average age of male recruits. However, in combination with a small effect size, and the lack of significant difference between male and female experience in law enforcement and experience with either the ORPAT or CORPAT (Table 4), this is not expected to have a meaningful impact on differences in recruit performance.

[2] The Corrections Physical Abilities Test (CORPAT) includes all ORPAT activities with the exception of the 5-foot jump and crawl obstacle. The CORPAT is done only for completion and currently has no related timed certification standard.

Table 4:Pre-ORPAT participant demographics by gender and age (BP297 – BP437)

Gender	n (%)	Prior exp. %^	M	SD	Max†	M	M	SD	Over 40	Max†
			PS Experience				Age			
Overall	5531	88.00%	1.16	2.86	35	1.16	29.11	6.45	440	71
Males	4802 (86.82%)	88.34%	1.19	2.94	35	1.19	29.22	6.45	386	71
Females	729 (13.13%)	85.91%	1.00	2.36	21	1.00	28.40**	6.44	54	56

** difference between male and female age is significant at the p<.001 level, small effect size
† the minimum is set (age = 21, experience = 0) for all BP recruits, so it is not included here
^ this is prior experience with C/ORPAT, and data is only for classes after BP425 including 429 males and 71 females

Defining "post-ORPAT" for current analysis

For this evaluation, post-ORPAT is defined as recruit's fastest ORPAT time subsequent to the pre-ORPAT while at the academy[3]. The reasons for this center on the optional midterm ORPAT. Regardless of reasons, there are instances where a recruit's midterm ORPAT score may be faster than a post-ORPAT score.

> *Post-ORPAT: recruit's fastest ORPAT time subsequent to the pre-ORPAT while at the academy.*

Additionally, beginning with BP425, recruits are no longer required to run the ORPAT more than once during the academy if they pass the pre-ORPAT. In the event a recruit does not pass the pre-ORPAT, they have two opportunities during the academy to pass it – the midterm ORPAT and the post-ORPAT. If it is passed at the

[3] Recruits may return multiple times post-academy to accomplish meet the certification standard. However, these cases are rare, and not included in this evaluation. Anecdotally, the highest number of ORPAT attempts on record is 11.

midterm, then the recruit does not have to complete it again unless they choose to, and most do not.

ORPAT completion times – pre versus post certification standard

When comparing the overall recruit ORPAT times before (*Table 5* and Table 6) and after (Table 7 and Table 8) the establishment of a certification standard in July 2007, there is a significant difference – though a small effect size - in pre-ORPAT times only, with post-certification standard recruits having an average time that is 10 seconds faster than the average time of pre-certification standard recruits. With significantly different pre-ORPAT times, but similar post-ORPAT times, it is not surprising that the difference in average change in time was also significant with a moderate effect size, with pre-certification students showing a larger change.

Table 5: Descriptive analysis of pre-certification standard ORPAT completion times by gender (BP235 - BP296)

	Overall		Males		Females	
	Pre	Post	Pre	Post	Pre	Post
n	1857	1767	1633	1551	224	216
Fastest time	2:56	2:40	2:56	2:40	3:54	3:29
Slowest time	9:30	7:35	8:33	7:35	9:30	7:05
Median	4:25	3:58	4:20	3:53	5:28	4:46
Mean	4:34**	4:05	4:26**	3:59	5:37**	4:47^
SD (secs.)	47.62	39.11	39.18	35.18	56.23	39.95
Mean + 1 SD	5:22	4:44	5:05	4:34	6:33	5:27
Mean + 2 SD	6:09	5:23	5:44	5:09	7:29	6:07
Avg. change in time (secs)	-28.75^		-26.02^		-48.43^	
% passing	89.2%	96.9%	94.3%	98.3%	52.2%*	87.5%

* Indicates adverse impact on female recruits had standard been enforced; based on the 4/5ths rule, this must be above 75.44%
** Significant at the p<.001 level, small effect size
^ Significant at the p<.001 level, moderate effect size

Pre- versus post-certification standard by gender

Examining times by gender, the significant differences in pre-ORPAT times and average change in time remain true for males. Post-certification standard males completed the pre-ORPAT eight seconds faster than pre-certification standard. However, females experience significant differences in pre-ORPAT times (29 seconds), average change in time, *and* post-ORPAT times (11 seconds). Females in the post-certification standard group are faster at both test points with a reduced average change in time.

> *The larger difference between average pre-ORPAT times for females…suggest that the establishment certification standard may have had a larger impact on females.*

The faster pre-ORPAT times in the post-certification standard group suggest that the establishment of the 5:30 certification standard became a factor in potential applicant decisions to apply and/or agencies to use the ORPAT in hiring processes. The larger difference between average pre-ORPAT times for females, coupled with the moderate effect size, suggest that the establishment certification standard may have had a larger impact on females.

Pre- versus post-certification standard by age group

Examining age groups, the significant difference in pre-ORPAT times and average change in time remains true for all recruits. Post-certification recruits completed the pre-ORPAT nine seconds faster for those under 40 and 19 seconds faster for those 40 and over. However, neither age group showed significant differences in post-ORPAT times before and after the certification standard. Just as with gender, both pre-certification standard groups showed a significantly larger improvement in ORPAT times.

Pre- versus post-certification standard – overall performance

Based on the data summarized in the 2005 evaluation, the success rates for all demographic groups have since improved. In 2005, males, females, and those 40 and over were meeting or exceeding the post-ORPAT 5:30 time at respective rates of 91%,

81%, and 74%. Since the certification standard was established, these have increased to 99.5% (males), 95.9% (females), and 96.8% (40 and over) (Table 7, Table 8).

Table 6: Descriptive analysis of pre-certification standard ORPAT completion times by age group (BP235 - BP296)

	Overall		Under 40		40 & Over	
	Pre	Post	Pre	Post	Pre	Post
n	1857	1767	1727	1643	128	122
Fastest time	2:56	2:40	2:56	2:40	3:37	3:24
Slowest time	9:30	7:35	8:30	6:52	9:30	7:35
Median	4:25	3:58	4:23	3:57	4:56	4:29
Mean	4:34**	4:05	4:31**	4:02	5:11†	4:37
SD (secs.)	47.62	39.11	44.92	37.11	65.00	50.11
Mean + 1 SD	5:22	4:44	5:16	4:39	6:16	5:27
Mean + 2 SD	6:09	5:23	6:01	5:16	7:21	6:17
Avg. change in time (secs)	-28.75^		-28.48^		-32.69*	
% passing	89.2%	96.9%	90.5%	97.5%	71.9%*	89.3%

* Indicates adverse impact on recruits 40 and over had standard been enforced; based on the 4/5ths rule, this must be above 72.40%
† Significantly different from post-certification recruits at the p<.05 level, small effect size
** Significantly different from post-certification recruits at the p<.001 level, small effect size
^ Significantly different from post-certification recruits at the p<.001 level, moderate effect size

ORPAT completion times –post certification standard

Post-certification times - gender

As expected, the average completion time for males is significantly faster than for females. Perhaps more notable in the evaluation of pre-employment and certification standards is the significant difference between males and females, as well as the Under 40 and 40 and over, in the change in time.

Table 7: Descriptive analysis of post-certification standard ORPAT completion times by gender, (BP297 – BP437)

	Overall		Males		Females	
	Pre	Post	Pre	Post	Pre	Post
n	5522	4667	4795	4054	727	613
Fastest time	2:57	2:29	2:57	2:29	3:29	3:13
Slowest time	11:17	8:21	9:28	6:46	11:17	8:21
Median	4:20	4:01	4:14	3:57	4:59	4:34
Mean	4:25	4:05	4:18*	4:00*	5:08	4:36
SD (secs.)	41.39	34.10	35.39	31.20	50.93	35.46
Mean + 1 SD	5:06	4:39	4:53	4:31	5:59	5:11
Mean + 2 SD	5:48	5:13	5:29	5:02	6:50	5:47
Avg. change in time (secs)	-18.79		-16.83*		-31.79	
% passing	94.5%	99.0%	97.3%	99.5%	75.9%**	96.1%

* difference between male and female pre-ORPAT times, post-ORPAT times, and change in time is significant at the p<.001 level
** indicates adverse impact on female recruits; based on the 4/5ths rule, this must be above 77.84%

The improvement across both genders, especially among females, is consistent with prior studies and is most likely a combination of training (Courtright, McCormick, Postlethwaite, Reeves, & Mount, 2013; Shephard & Bonneau, 2002) and test familiarization (Peterson, et al., 2016). In the 2005 ORPAT evaluation, female improvement by the end of the 16-week academy doubled male improvement (Gardner & Webb, 2006, p. 38).

Success rates for both males and females respectively increased from 97% to 99% and 75% to 96% (Table 7). The increases in success rates from the pre-ORPAT to the post-ORPAT reflect evaluations of the PARE where success rates also increased with subsequent attempts. The rise in the female PARE success rate was the most dramatic, going from 39% in the first attempt to 80% by the third attempt (Shephard & Bonneau, 2002).

> *As it stands, the female passage rate of the pre-ORPAT does not meet the 4/5ths rule, indicating disparate impact at the beginning of academy.*

This observed increase between pre- and post-ORPAT is consistent with the 2005 evaluation and could be a sign of caution for agencies using 5:30 as a pre-employment benchmark. It is compelling evidence that a slower time – such as the originally recommended 6:20 – will still result in new hires who are capable of passing the ORPAT within the required timeframe. As it stands, the female passage rate of the pre-ORPAT does not meet the 4/5ths rule, indicating disparate impact at the beginning of academy.

Post-certification times – age group

Table 8: Descriptive analysis of ORPAT post-certification standard completion times by age group, (BP297 – BP437)

	Overall		Under 40		40 & Over	
	Pre	Post	Pre	Post	Pre	Post
n	5522	4667	5080	4293	440	372
Fastest time	2:57	2:29	2:57	2:29	3:20	3:04
Slowest time	11:17	8:21	9:28	8:21	11:17	8:00
Median	4:20	4:01	4:18	3:59	4:45	4:25
Mean	4:25	4:05	4:22**	4:02**	4:53	4:28
SD (secs.)	41.39	34.10	39.35	32.80	52.64	39.34
Mean + 1 SD	5:06	4:39	5:01	4:35	5:46	5:07
Mean + 2 SD	5:48	5:13	5:41	5:08	6:38	5:47
Avg. change in time (secs)	-18.79		-18.48*		-22.36	
% passing	94.5%	99.0%	95.3%	99.2%	85.0%	96.8%

* significant difference at the p<.05 level with a small effect size
** significant difference at the p<.001 level with a moderate effect size

The ORPAT appears to have no disparate effect on those ages 40 and older, although significant differences in performance are present between groups. For both the pre-ORPAT and the post-ORPAT, those under the age of 40 complete the entire course

faster than those 40 and over, but more specifically they are completing the obstacle portion of the course significantly faster. This is discussed further in the evaluation of the push-pull complex.

Passing the ORPAT after a failure

Table 9: Average Pre-ORPAT times of recruits who failed pre-ORPAT (BP297 – BP437)

		Overall (N=5522)	Male (N=4795)	Female (N=727)
Failed pre-ORPAT	n (% of N)	305 (5.52%)	130 (2.71%)	175 (24.07%)
Post-ORPAT results (% of n)	Passed at academy	231 (75.73%)	96 (73.85%)	135 (77.14%)
	Did not pass at academy	32 (10.49%)	13 (10.00%)	19 (10.86%)
	No post	42 (13.77%)	21 (16.15%)	21 (12.00%)
Passed at academy	Maximum*	9:28	9:28	9:03
	SD	36.82	36.66	36.97
	Pre-ORPAT	6:04^	6:02	6:06
	Penalties	4.17^	5.17	3.47
	Obstacles only	4:26**	4:26	4:25
	Push-Pull Complex	1:26	1:23	1:28
Did not pass at academy	Maximum*	11:17	8:37	11:17
	SD (Pre)	65.21	46.54	74.87
	Pre-ORPAT	6:38	6:20	6:54
	Penalties	9.41	7.43	10.89
	Obstacles only	4:49	4:39	4:54
	Push-Pull Complex	1:36	1:21	1:50

* the minimum pre-ORPAT score for failure is set at 5:31
** Significant at the p<.05 level, moderate effect size
^ Significant at the p<.001 level, moderate effect size

Considering that the ORPAT may be used as a decision factor in hiring processes, it is important to further investigate failing pre-ORPAT times and the differences between those who eventually pass at the academy and those who do not. There are significant differences between the two groups when it comes to overall pre-ORPAT times and the total amount of set-time penalties (the pre-set two- and five-second penalties). Those who do not pass at academy have a slower pre-ORPAT time and significantly more penalty time added (9.41 seconds versus 4.17 seconds). However, the data available does not allow a deeper understanding of which penalties are incurred most often and does not account for penalties that are in the form of repeating a task.

Unfortunately, because the push-pull complex was only measured for classes after January 2023 (BP424 and later), analyzing the ORPAT's two main components (the obstacle course and push-pull complex) separately leaves too small a sample to make conclusive statements. The preliminary findings, however, are worth discussing. While the *total* pre-ORPAT time showed significant differences, when that time is broken up into the two main components, only the obstacle course shows significant differences between those who pass at the academy and those who do not. Not shown in the table is that while the entire push-pull complex does not significantly differ, the completion time of the series of falls between the push and the pull does.

Combined with the significant difference in total penalties in both the pre- and post-ORPATs - which may often be the result of fatigue – the significant difference in obstacle course and fall times suggest that the differences between those who pass at academy and those who do not may depend on the level of cardiovascular fitness the recruit begins with.

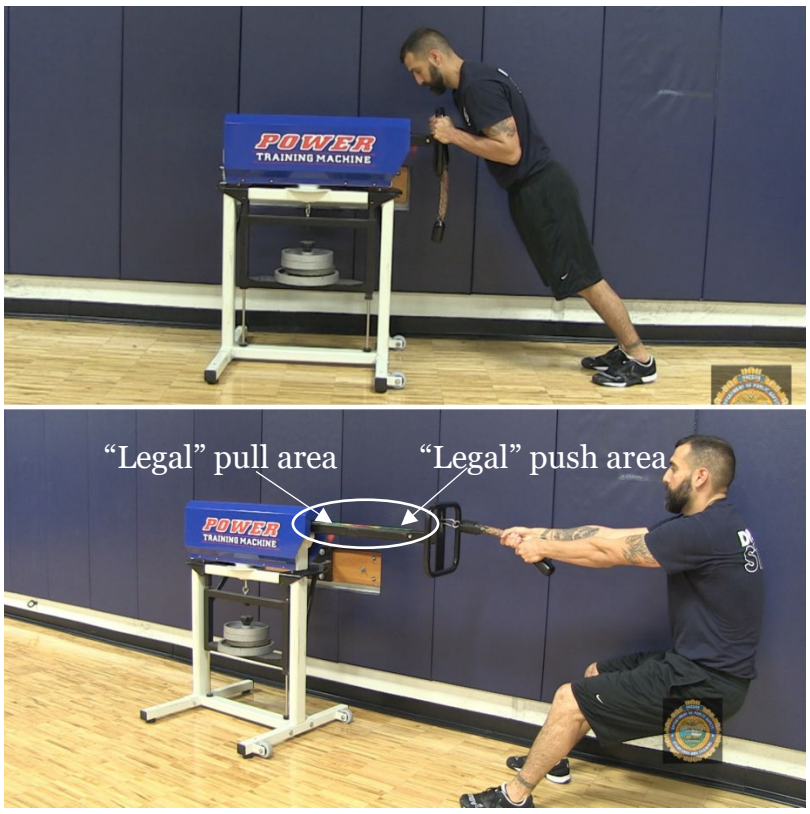
Push-pull machine

Anecdotally, the push-pull complex (push-fall-pull) has become an infamous part of the ORPAT for both its uniqueness and perceived difficulty. Even so, performance on the push-pull complex (referred to as the "push-pull") has never been examined separately from overall ORPAT times until this evaluation. Notably, at the same time the decision was made to collect push-pull times, the requirement to participate in the ORPAT twice

while at the academy was eliminated. This resulted in the collection of only pre-ORPAT push-pull times with a limited sample size, so the results discussed here should be considered a starting point for future study.

The push-pull machine (Figure 5; "the machine") is meant to simulate a physical confrontation while fatigued from preceding events, represented by the obstacle course. Prior evaluations of the PARE state the push-pull portion should take 65 seconds, including 25 seconds for the push and 20 seconds for the pull (Anderson & Plecas, 2008; Oregon Department of Public Safety Standards and Training, 2005).

Figure 5: ORPAT push-pull machine (white circle around indicator bar)



To begin, recruits must first push the machine's handle to lift the attached 80 pounds and continuously maintain that pressure while rotating the machine in a 180° arc. Six arcs must be completed before moving on to the fall portion of the push-pull complex. For an arc to count for both the push and pull, the recruit must maintain enough pressure/tension that the stem of the handle stays in the corresponding green area of the indicator bar (Figure 5). After the push, recruits then perform two falls to their

back, followed by two falls to their front. Recruits then pull on the machine's rope handle to lift the attached 80 pounds and repeat the six arcs while keeping continuous tension on the rope.

Table 10: Push & pull times by gender (B425 - BP437)

	Push			Pull		
	Overall	Male	Female	Overall	Male	Female
n	476	406	70	477	407	70
Fastest time	15.64	15.64	22.44	15.62	15.62	18.32
Slowest time	1:35	53.22	1:35	1:52	51.32	1:52
Mean	25.87	24.20^^	35.51	25.91	25.02**	29.49
SD (secs.)	7.84	4.81	13.30	6.53	4.92	11.68
Avg. % of total time	9.44%	9.14%^^	11.19%	9.47%	9.52%	9.18%

** Significant difference between genders at the p<.05 level, moderate effect size
^^ Significant difference between genders at the p<.001 level, large effect size

Overall, recruit push times were consistent with the previously estimated time of 25 seconds. Breaking down times by gender reveals that on average, females complete the push task 10 seconds slower than the estimated time and significantly slower than males. Females also spend a significantly larger percentage of their ORPAT total time (push time / total time) on the push task than males.

All average pull times are slower than the previous estimate of 20 seconds. Males complete the pull in an average of approximately 25 seconds, females complete it in approximately 29 seconds. Just as with the push, there is a significant difference in the pull time between genders. However, the difference between the genders' pull times is much smaller than the push times (4.47 seconds versus 11.31 seconds). The smaller difference between males and females is consistent with the fact that the pull task relies more on lower body strength, which differs less between males and females than upper body strength (Shephard & Bonneau, 2002, p. 266). Unlike the push task, there is no significant difference between percentage of ORPAT total time (pull time / total time) spent on the pull tasks between males and females.

When broken down by age group, the only significant difference is in the portion of total ORPAT time spent on each of the individual push and pull tasks; those 40 and over are spending a smaller portion of their total ORPAT time on these tasks. However, this is not because they are doing them faster than those Under 40. Those 40 and over take a significantly longer time on the obstacle course (29.53 seconds longer, p>.001 with a large effect size). This highlights the importance of cardiovascular fitness on ORPAT performance and is consistent with findings that cardiovascular fitness declines with age.

Table 11:Push & pull times by age group (B425 - BP437)

	Push			Pull		
	Overall	Under 40	40 & Over	Overall	Under 40	40 & Over
n	476	430	46	477	431	46
Fastest time	15.64	15.64	17.36	15.62	15.62	16.86
Slowest time	1:35	1:35	44.52	1:52	1:52	38.84
Mean	25.87	25.74	27.01	25.91	25.90	25.97
SD (secs.)	7.84	7.97	6.47	6.53	6.68	4.94
Avg. % of total time	9.44%	9.51%*	8.84%	9.47%	9.57%^	8.51%

* Significant difference between age groups at the p<.05 level, small effect size
^ Significant difference between age groups at the p<.001 level, moderate effect size

The role of experience in ORPAT performance

Prior research on other physical tests suggests that experience may play a role in student performance (Courtright, McCormick, Postlethwaite, Reeves, & Mount, 2013). To explore this, starting with BP425, students were asked whether they had prior experience with the ORPAT or CORPAT.

The results shown here (Table 12) are preliminary. People who completed the C/ORPAT prior to the academy were significantly faster overall, including in both the push and the pull. The why behind this is unclear, but multiple factors come to the surface. The first is that increased familiarity with the test itself could lead to a better performance. Additionally, those who have previously completed the ORPAT may have done so during

a hiring process in which a particular time had to be met, so those with slower times may not be represented here.

Table 12: Pre-ORPAT by experience with C/ORPAT (B425 - BP437)

	Pre-ORPAT		Push		Pull	
	Exp.	No Exp.	Exp.	No Exp.	Exp.	No Exp.
n	439	59	390	55	392	54
Mean	4:32*	4:48	25.29**	29.94	25.68*	28.13
SD (secs.)	40.78	53.35	6.94	12.49	6.52	6.86
Avg. % of total time	-	-	9.31%*	10.28%	9.45%	9.74%

* Significant difference between groups at the p<.05 level, small effect size
** Significant difference between groups at the p<.05 level, moderate effect size

Discussion

Limitations

As with any evaluation, there are limitations to both the 2005 and current evaluations. The two major limitations of the evaluations fall chiefly under Criterion validity: the data – or lack thereof – from current officers and the under-investigated relationship between the ORPAT and job performance.

Current officers & fitness

These limitations do not invalidate the ORPAT or its use in certification, but they do shed light on avenues that need to be explored. This is best illustrated by the fact that, anecdotally, there are many individuals who successfully complete the day-to-day tasks of being a police officer but could not meet the certification time if asked to complete the ORPAT. To this point, Shephard and Bonneau (2002) provide a compelling explanation, positing the adverse effects of aging – and potentially gender – on physical test performance "might be offset at least in part by increased experience" and the continued acquisition of skills, both physical and strategic. The lack of comparison to current officers' on-the-job performance leaves this unexplored.

The research memo provided to the board in 2008 regarding ORPAT use for current officers examined three issues relevant to future evaluations of the ORPAT: the relationship between the 5:30 standard and current officers' physical fitness, the ORPAT standard and continued police employment, and the ORPAT standard and likelihood of sustaining an injury on the job. In short, the report stated that the data available did not support the existence of *significant* relationships between ORPAT times in any of the three areas (Winegar, 2008, pp. 3-5). A point of caution in the memo remains relevant – career-long fitness, career longevity, and officer injuries are multifaceted standards that will continue to require further analysis beyond ORPAT performance.

While a staff report recommended using 6:20 for current officers (Gardner & Webb, 2006, p. 35), the board opted not to require ORPAT completion for current officers and

instead left it to agency discretion. This is illustrated by the recent survey regarding agencies' ORPAT use. Less than a third of agencies reported using the ORPAT for current officers (Oregon Department of Public Safety Standards and Training, 2023). However, knowing that some current officers may not be able to meet a 5:30 or even 6:20 ORPAT time underscores the importance of developing effective wellness programs that promote the wellbeing and physical fitness of all officers.

Performance standards & cut-scores

Zumbo (2016) and Lonsway (2003) place the unclear relationship between ORPAT and job performance in the context of "performance standards" versus "cut-scores." While the skills tested in the ORPAT are aligned with the 2015 JTA, it is unclear if the certification time itself is an accurate predictor of job performance (a performance standard). The 5:30 certification time was set based on the distribution of recruit ORPAT times and set at a level that removed disparate impact on women and those over 40 (a cut-score). Despite the use of a control group, this time was not set with any considerations toward objective evaluations of current officers' on-the-job performance. Peterson et al (2016) underscore this point by asking the question, "how certain are you that an individual with [5:30] can do the job, while another person with a very similar, but slightly [slower] score, cannot?"

Recommendations for practice & future research

Recommendation One: Conduct a robust exploration of the relationship between the ORPAT and current officers

The largest limitation to establishing criterion validity for the ORPAT is the ambiguous relationship between ORPAT performance and job performance. While this issue was partially addressed in the 2005 evaluation by using a survey of current officers, Winegar (2008) notes that the group was not a representative sample because participants were ORPAT instructor applicants. A recently established partnership between DPSST and the National Institute of Justice (NIJ) will address this issue. NIJ will use DPSST data to

examine this relationship more in depth, looking not only at academy performance but also on-the-job performance, including the numerous areas germane to physical fitness.

This relationship could also be explored further through duplicating and expanding the original survey research conducted by the original evaluators. For example, the sample would be expanded to include current police officers of various demographics and questions would examine how relevant the tested ORPAT tasks are to their day-to-day jobs, including the frequency of completing ORPAT-related tasks in the field.

Recommendation Two: Increase ORPAT familiarization opportunities

Consistent with prior research (Courtright, McCormick, Postlethwaite, Reeves, & Mount, 2013, p. 633), analysis of ORPAT scores suggests that additional training and test-taking opportunities are useful for reducing adverse impact effects on women. For example, at the Miami-Dade Police Department, women who failed the physical test were put on a six-week hold and allowed to retake the test (versus immediate disqualification for that hiring round). Ninety-five percent of women who failed the first time passed their physical test at a later date after additional training (Rabe-Hemp, 2018, p. 33).

Additionally, there is evidence that increased test familiarization (i.e. completing the test or tasks included in the test) may also raise test performance (Peterson, et al., 2016). Success rates with the PARE rose dramatically with repetition of the test. For women specifically, success rates rose from 39% in the first attempt to 80% by the third attempt (Anderson & Plecas, 1999 as cited in Shephard & Bonneau, 2002, p. 282). Anecdotally, this may be especially true for the push-pull portion of the ORPAT, since females' success may be largely centered on use of a specific, learned technique, rather than strength alone.

Recommendations for agencies reflect these important relationships and are already in place by some. Law enforcement agencies who use the ORPAT as a hiring standard should consider offering, possibly in partnership with DPSST's regional ORPAT trailer or other nearby agencies, opportunities for potential applicants to come practice the course in an untimed, coached, and low-pressure environment. This provides the

opportunity for applicants to become familiar with the test and understand areas in which they may need to train.

This recommendation has limited impact on DPSST. During their time in academy, recruits are already provided with numerous physical training sessions, increasing strength and cardiovascular ability. Over 75% of those who failed at the beginning of the academy passed by the end of academy. In context of gender impact, 96.1% of women were able to pass the ORPAT by the end of academy, up from 75.9% at the beginning. While failing the pre-ORPAT does not negatively affect their class standing, it may single women out when it comes to who is required to use valuable time participating in midterm and post-ORPATs. To this end, DPSST should consider reinstating required participation in both the pre- and post-ORPAT tests.

Recommendation Three: Increase education about and evaluation of ORPAT use in hiring processes

DPSST does not oversee agency hiring processes and cannot require any changes in regard to agency use of the ORPAT. Each agency dictates their own system for hiring that aligns with the mission and vision of the agency and the community they serve. However, there is anecdotal evidence that due to the passage of time some agencies may not be aware of the 6:20 hiring time recommendation, and some have the impression that the ORPAT is being changed or even eliminated.

To this end, this report and associated material will begin to satisfy the recommendation to increase education about ORPAT use in hiring practices. In addition to this technical report, *DPSST will provide agencies with an executive summary, as well as a one-page infographic-based overview of the report's findings and recommendations.*

DPSST should also encourage agencies using the ORPAT to examine their time standards and the ORPAT's role in their hiring process. If less than 77% of women pass the ORPAT on the first try at the academy, then it may be reasonable to assume that a similar or lower percentage are passing the ORPAT during the hiring process. While DPSST is not recommending an abolishment of the ORPAT in hiring processes, consideration of using the originally recommended 6:20 cut score may be prudent.

Agencies should also examine all applicant ORPAT data regardless of pass/fail results to ensure that there is no disparate effect on any one group of applicants. The DPSST Research Unit can assist agencies that do not have the resources to do so.

Recommendation Four: Job task analysis update

In the years since the creation of the 2015 Job Task Analysis, there have been significant changes in the ways officers do their jobs and how they are trained at the academy. DPSST should consider conducting an updated job task analysis and including a more representative (e.g. gender, age, experience, agency size) group of subject matter experts than in prior years.

Expanding on this, relevant existing research in this area should also be considered. Shephard and Bonneau point out that prior research suggests that while perceptions of the duties of policing do not differ significant among officers, the prioritization of those duties may (pp. 276, 282). Additionally, *how* those duties may be completed differs among gender and age groups. DPSST should also cultivate research partnerships that purposefully place researchers in the field with officers, allowing them to document first-hand accounts of the individual variations in how police officers successfully fulfill the duties of their jobs.

Conclusion

Continuing research on the relationship between ORPAT performance, job performance, and career longevity will inform future guidance on refining the ORPAT course and/or certification standard. This specific evaluation provides recommendations and insight on how to best use the ORPAT with the information that is currently available. Its primary goal was to verify that after 18 years of use, the ORPAT continues to be a useful tool in the certification process and is not creating unnecessary hurdles to a career in policing.

The descriptive results indicate that the ORPAT has the potential to be an effective screening tool for officer fitness in the context of the job as we currently understand it. However, whether the ORPAT cut scores create an extra challenge for specific groups of recruits appears to be highly dependent on how agencies use the ORPAT in hiring processes.

Policing is a physical job and combined with the ever-growing impact of job stressors on both mental and physical health, we know fitness plays an undeniable role in the quality and longevity of an officer's career. However, how that is accounted for in the hiring and certification process remains a topic of debate. A delicate balance must be struck between ensuring new officers are healthy and capable while also using standards that do not unduly screen out applicants and recruits who may be unsuccessful at a physical ability test, but successful in the day-to-day job of policing.

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