Physical employment standards for security officers enhances operational effectiveness and reduces sickness absence

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ABSTRACT

This project's objectives were to develop and implement Physical Employment Standards for Security Officers employed on a large private estate. Implementation of Physical Employment Standards should improve the match between the physical capability of staff with the physical requirements of the job, improving operational effectiveness and enhancing health and safety. The Security industry has been slow to adopt Physical Employment Standards. A multi-stage process that followed best practice was adopted. Initially, criterion tasks were defined - key physical tasks that all operational Security Officers must undertake effectively and safely. These criterion tasks represented reasonable worst-case scenarios requiring capability in aerobic fitness, anaerobic endurance, muscular strength and endurance, and mobility. A series of physical task-based tests, simulating the criterion tasks were developed. Several pilot studies followed enabling the collection of normative data and the opinions of staff on the relevance of the tests and potential test standards. The Security Officers endorsed the tests, rating each test as 'fairly' or 'strongly' reflecting the physical demands of key tasks. Three sources of evidence were triangulated to produce the final set of tests and standards - subject matter expert opinion, Security Officer opinion and normative test scores. The tests and standards comprised a Horizontal Walk in 12 minutes, a Stair Ascent in 45 seconds, a Manual Handling task in 9 minutes, and a Stair Descent in 20 minutes 30 seconds. An implementation process is presented. Early evidence suggests positive outcomes from the adoption of Physical Employment Standards in staff capability, reduced sickness absence, and financial benefits to the organisation.

KEYWORDS

Physical Employment Standards, physical fitness, sickness absence, security officers

Introduction

This project was commissioned by a security department within a private company. The company manages over 100 acres of offices, retail, transport links and open space set on a private estate. The offices accommodate many major international companies, making the site of critical importance to the economic infrastructure of the region and country. The retail area is one of largest shopping centres in the country. The estate hosts events which are accessible to the public free of charge, including sporting events, theatre, concerts and exhibitions, attracting large crowds. There is a substantial night time economy with bars and restaurants attracting people to the estate as a visitor destination. The estate is served by 24-hour rail and bus services. An average day sees up to 160,000 people working, visiting and shopping on the estate. The estate is currently undergoing

expansion which will also incorporate residential properties. The security department's role is to protect the estate and the people on it from all potential threats.

The development and implementation of physical employment standards (PES) – or physical competence assessments, physical capability assessments, functional evaluation, or role-related fitness tests, as they are variably known – is a fairly well-established procedure undertaken by subject matter experts for physically demanding occupations such as the defence and security services. PES can be used at the point of selection of personnel and/or for retention of job incumbents; their content, structure and pass standards should meet the requirements of equal opportunity law (Payne and Harvey, 2010). In the United Kingdom, equal opportunities in employment are defined in the Equality Act 2010 (Great Britain Parliament, 2010), which covers nine protected characteristics including age and sex. The legislation requires there is no unlawful direct or indirect discrimination because of a protected characteristic. Direct discrimination occurs if someone is treated less favourably because of a protected characteristic (e.g. a different standard for men and women) and is not defendable by law. Indirect discrimination occurs if a provision, criterion or practice (such as a fitness test) puts someone from a protected group at a disadvantage and is unable to be justified as being a proportionate means of achieving a legitimate aim (e.g. if the test and / or pass standards are not reflective of the job requirements). Similar legal requirements are in place across Europe, the United States of America and Australia.

Constable and Palmer (2000) provide a detailed commentary on the recommended processes to establish legally defensible physical employment standards and two more recent published reviews support their guidance (Payne and Harvey, 2010; Tipton, Milligan and Reilly, 2013).

The fitness of Security Officers (SOs), or more specifically the perceived lack of fitness of SOs (e.g. the stereotype of the overweight and inept SO), is often lamented, despite acceptance that a key factor in increasing the professionalism of the security industry is establishing and enforcing high standards. Implementing fitness standards is an integral part of professionalism, yet the security industry lags other industries in adopting them. The Police Service (Winsor, 2011), UK Fire and Rescue Service (Rayson et al., 2009), and Oil and Gas industries (Milligan et al., 2010) operate entry and retention standards. The Defence (Rayson, Holliman and Belyavin, 2000; Bilzon et al., 2001; Richmond et al., 2008) sector has for many years.

The problem

This project's objectives were to develop and implement PES for SOs on the estate. Implementation of PES has the potential to improve the match between the physical capability of staff with the physical requirements of the job, resulting in improved operational effectiveness, enhanced health and safety, and increased professionalism and kudos for the SOs themselves, the security department and the organisation as a whole. Few organisations, however, have invested the resources in determining their effectiveness. The organisation at the focus of this paper has attempted to do just that.

Investigation & analysis

A multi-stage approach was adopted following best practice for the development of PES. Phase 1 focussed on agreeing and defining criterion tasks – key physical tasks that all operational SOs must be able to undertake effectively and safely. A PES Working Group (WG), comprising subject matter experts (SMEs) across all Security Department areas and other relevant departments was formed. Lead by the first author in the role of facilitator, the WG:

- a. Listed key physical tasks undertaken by SOs in their various roles / deployments
- b. Provided a detailed description of each task e.g. distances, speeds, loads, clothing
- c. Shortlisted the key tasks to avoid duplication focussing on *reasonable worst-case* tasks involving each key aspect of physical fitness (e.g. cardiovascular fitness, strength, muscular endurance, mobility).
- d. Checked to ensure that procedures complied with best practice, e.g. manual handling
- e. Proposed draft minimum acceptable standards of performance for shortlisted tasks.

Phase 2 involved designing a battery of physical tests that reflected and could assess the aspects of physical fitness required in the criterion tasks and pilot-testing them.

Phase 3 saw the tests administered to a representative cohort of the work force, to obtain normative data and feedback from participants on the face validity of the tests and their opinions on possible test standards.

Phase 4 concentrated on finalising the test protocols and setting the test standards by triangulating expert opinion, participant opinion and considering the normative data.

Phase 5 was directed at implementation and collecting whole work force data on performance results, quantifying the impact on the workforce, and providing follow-up support to those who fell short of the standards. Longer term evaluation on staff performance, sickness absence, morale and financial costs / savings is underway.

Resolution of the problem

The WG produced the list of key tasks shown in Table 1.

Task/Roles	Reasonable Worst-Case Physical Demands					
Lobby Duties	Involves up to 3.5 hours of standing, on marble, scrutinizing people and					
	remaining alert to deal with security breaches in the lobby areas.					
Internal Patrols	Stairwell checks - checking infrastructure and doors (every floor), and					
	telephones (every 5 floors) during descent of floors from Levels 50 to -2.					
	Inspection of landlord (central core) areas, lift assisted, 15 floors inspected					
	for lighting, décor, doors secured.					
Infrastructure	Area patrol – a typical longer distance infrastructure patrol; distance ~2050					
Patrol	metres, descent and ascent of 43 stairs; self-paced; all weathers.					
	Walk across the estate; 1460 m.					
Barrier Duty	A 3.5-hour shift of rotational duties on a road barrier, rotating every ~ 20					
	mins with 3 officers outside checking vehicles.					
Incident Response	Evacuation from an underground car park to surface, in event for example,					
	of fire alarm sounding; 40 stairs plus 100 m ramp to climb.					
	Evacuation from lowest Level P4 to surface in a different underground					
	carpark; 75 stairs to climb.					
	Carry emergency items to incident e.g. defibrillator, cones, first aid bag;					
	distances 20-400 m; individual item weights ranged from 5-15 kg.					

Table 1. Key tasks and physical demands required of a Security Officer

	Walk 1256 metres purposefully, around half the circumference of a cordon					
	of radius 400 m, to far side of cordon.					
	Mass evacuation of estate; 92 minutes of varied hurried activity (mostly					
	level walking and stair ascent/descent) to evacuate all people off estate.					
Building Control	4-hour shift sitting / standing, concentrating, monitoring, responding.					
Room	Move hurriedly to Fire Command Centre (FCC) within ~90 seconds,					
	including 2 flights of stairs, totalling 59 stairs in event of fire.					
Driver	2-3-hour stint on driver duties, incl. removal/transport of items e.g.					
	furniture, large water containers (20 kg), cones (5 kg), signs (2-3 kg).					
	Road closure incident requiring rapid deployment of cones and signage;					
	collection from storage depot, ferry to and load on van.					
First Aid	Administer first aid to casualties, including manoeuvring casualty into the					
	recovery position and delivering CPR.					
Restraint	Engage in self-defence, conflict resolution, restraint, release.					
Courier Room	12-hour shift, receiving, despatching, carrying light parcels, typically 1-3					
	kg, distances of up to 10 metres; some bending and squatting.					
	Self-evacuate from subterranean Courier Room to street level, including 43					
	steep steps.					

The weight of clothing worn, or items carried by the SOs is shown in Table 2.

Table 2. Weight of SO clothing and equipment

Kit	Weight (kg)
Internal uniform	3.6
Infrastructure/outdoor uniform	6.4
Stab Vest	3.5
Traffic cone	5.0
Water bottles	20.0
Defibrillator	2.8
Metropolitan Mass Casualty Bag	11.5
London Ambulance Mass Casualty Bag	15.8

The WG reconsidered the list of key tasks in Table 1 with the purpose of shortlisting them to avoid duplication, focussing on reasonable worst-case tasks involving each key aspect of physical fitness (e.g. aerobic endurance, anaerobic endurance, strength, muscular endurance, mobility) and type of activity (e.g. walking, ascending / descending stairs, running, manual handling).

Having produced a shortlist of four key tasks, members of the WG scrutinised these tasks to ensure best practice was adopted and to firm up the detailed specification of the tasks, so that the tasks could be undertaken by individuals in a repeatable way. Members of the WG and four on-duty SOs undertook the tasks at various paces. The four SOs spanned the full age range of currently serving SOs and both sexes. Performance times were collected and individual views of WG members and the four participating SOs were sought.

In brief, four criterion tasks were retained, comprising:

- 1. Stairwell Check descent of 51 floors of stairs in 20 minutes 43 seconds
- 2. Car Park Evacuation ascent of 75 stairs in 60 seconds

- 3. Cordon Perimeter Walk level walk of 1250 metres in 13 minutes
- 4. Load Van lift, carry and load 40 cones over 20 metres in 12 minutes 30 seconds.

Several iterations of draft test protocols were produced, circulated and critiqued by stakeholders. The required equipment items were sourced. A two-day pilot trial was conducted on the estate by eight SOs, the participants comprising six men and two women. The age of participants ranged from 27 to 55 years, averaging 45 years. The pilot trial results are not presented here, but in summary, all participants (100%) passed all four draft test standards; useful and reinforcing feedback was also provided by participants.

It was agreed by the WG that recruiting staff from a complete shift would provide a sufficiently large and representative sample of the 235 total staff complement for Phase 3. Forty-nine SOs were allocated appointments for medical screening with the company's occupational health provider. Forty-two were passed as medically fit to undertake the trials, 41 of which participated in the trials. Six SOs missed their medical screening appointments and two were classified as medically unfit to participate.

The PES tests were administered to the 41 SOs in groups of 6-10, in five groups, over three days. Two participants were stopped (due to muscle soreness from running a marathon the day before). One result for the Horizontal Walk was excluded from the dataset as it was felt that the SO did not give due effort to the test and the result was therefore invalid. Thus, the final dataset comprised 38 or 39 results in each of the four tests. The total sample of 41 SOs comprised two women and 39 men. Age spanned from 23 to 58 years, averaging 39 years, close to the reported average of 42 years of SO staff.

A questionnaire was given to the SOs to complete immediately after they had completed the four tests. The questionnaire sought to ascertain the extent to which SOs thought that each test reflected the physical demands associated with the listed tasks, on which the tests were based, using a five-point scale, ranging from 0 (not at all) to 4 (strongly). The questionnaire also provided the SO with their own test scores and asked them what they thought the *minimum acceptable Physical Employment Standards for all Security Officers* should be? 41 SOs completed the questionnaire. Apart from the occasional missing entry, response rates to all questions were high; between 39 and 41 responses were provided to each question.

A summary of the results for the four tests is shown in Table 3.

	Participants					Draft	Number	%
	(n)	Mean	SD	Min	Max	Standard	pass	pass
Horizontal Walk (min:s)	38	10:49	00:47	09:22	12:37	13:00	38	100
Stair Ascent (s)	39	32	7	21	60	60	39	100
Manual Handling (min:s)	39	07:00	01:02	05:21	09:42	12:30	39	100
Stair Descent (min:s)	39	20:11	00:14	19:51	20:30	20:43	39	100

Table 3. PES Pilot Study results – summary statistics

As can be seen in the table above, all SOs (100%) passed the draft standards on all of the tests.

The mean, median and modal responses to all questions asking how well SOs felt the PES tests related to the underpinning SO tasks were either 3 ('fairly' reflects the physical demands) or more

frequently 4 ('strongly' reflects the physical demands), providing support for the relevance of the tests.

In response to the questions asking where SOs would set minimum acceptable standards of performance on each test, Table 4 shows the outcome. The last column in the table shows the draft standards on the criterion tasks proposed by the WG during Stage 1 of the project, for comparison purposes.

	Darticipants						Draft
	rancipants						WG
	(11)	Mean	Median	SD	Min	Max	Standard
Horizontal Walk (min:s)	41	13:16	13:00	02:52	08:00	25:00	13:00
Stair Ascent (s)	40	53	50	21	27	120	60
Manual Handling (min:s)	41	09:25	10:00	02:23	06:00	15:00	12:30
Stair Descent (min:s)	40	21:17	20:07	05:29	10:00	35:00	20:43

Table 4. Minimum standards proposed by Security Officers

There was little evidence of adverse impact of gender or age in this data set. It could be said that there was no adverse impact as none of the SOs failed to meet the draft standards on any of the four tests. But the inclusion of only two female SOs in this sample prevents the detailed investigation of the effect of gender on the results. However, having the same tests and standards for both genders eliminates the possibility of direct discrimination. Indirect discrimination against female officers remains possible, as women tend to perform worse on most physical tests than men; but indirect discrimination may be justified if the tests and standards are a bona fide job requirement and are deemed to be a proportionate means of achieving a legitimate aim.

There was a relationship between age and the test results, where the test results tended to be worse with increasing age. Correlation coefficients between age and the three tests were 0.35 (Horizontal Walk), 0.39 (Manual Handling), and 0.61 (Stair Ascent). It is not valid to calculate the relationship between age and Stair Descent as the test was externally paced and performed as groups, i.e. there was no opportunity for SOs to go faster than the required standard, and none went slower. As with gender, this relationship is predictable, as physical performance tends to decline with increasing age.

If we investigate the associations between the test scores to look for the strength of the relationships and redundancy between the test elements, we see the strongest relationship between performance on Horizontal Walk and Manual Handling (a correlation of 0.82), followed by the Stair Ascent and the Manual Handling (0.71), and lastly Horizontal Walk and Stair Ascent (0.61). However, even in the pair of tests with the strongest association, a scatterplot indicates the variability in the relationship with 68% of the variation between the tests shared (shown in Figure 1).



Figure 1. Relationship between Horizontal Walk vs Manual Handling scores

Impact & implications

On the basis of the empirical evidence collected the first author recommended that the organisation proceed with implementing the test battery comprising all four trialled tests: the Horizontal Walk, Stair Ascent, Manual Handling and Stair Descent tests. The test battery had proved to be viable and practical to administer and had the support of the majority of SO staff. Having all operational SO staff undertake and pass the tests would ensure their physical performance is commensurate with reasonable worst case demands of the SO role, as defined by subject matter experts and endorsed by SO staff themselves. Two options of standards were proposed, a set of modest standards that the overwhelming majority of staff would have been able to pass, and a slightly more robust set of standards that could have resulted in an initial failure rate of up to 10% of staff. There was a dual rationale for opting for the higher standards, which the organisation favoured. During emergency incidents, which the first three tests/tasks represent, faster is better, potentially saving lives. Further, spare capacity to perform additional tasks after a first task is essential as these tasks are in reality unlikely to be performed in isolation.

Following recommendations by the authors to the stakeholders based on the empirical evidence summarised in this paper, the security department implemented a Physical Employment Standards programme with effect from October 2015. The programme applied to both existing staff and new starters. In summary, the requirements were to complete:

- a walk on a flat level surface of a distance of 1250 metres in 12 minutes or less.
- a stair ascent comprising 75 steps in total in 45 seconds or less.
- a manual handling task involving moving forty 5 kg weights a distance of 20 metres and return in 9 minutes or less (carrying 2 weights at a time).
- a stair descent of 51 floors to ground level within 20 minutes 30 seconds.

The tests are administered by selected staff attached to each shift; these staff members are trained and accredited to perform this function. The results for each individual are recorded and submitted to the Personnel unit.

Staff are required to take the capability testing on an annual basis. Prior to undertaking the testing process staff receive medical screening. The testing is conducted within normal times of duty and the tests are conducted with staff wearing normal uniform; they do not prevent the person from returning to work following the tests.

Staff who pass the tests complete the process and there are no further requirements until the next annual test. Staff who are unsuccessful in one or more elements of the test, unless they are referred for medical advice, have one further opportunity to undertake the test three months later. There is no other management action taken in respect of the first failure. The three months prior to re-testing provides an opportunity for the individual to make any lifestyle changes, seek appropriate advice or recover from a temporary condition. Informal coaching and practice opportunities are provided by shift staff trained to administer the tests. If an individual is unsuccessful on a second occasion, they are referred to establish their precise capabilities. This referral process may involve medical advice, occupational health considerations, Personnel and security management input. Further action is then based on a number of factors relating to individual capability. The diagrammatic guide to the PES process is illustrated in figure 2.

The PES programme is subject to ongoing annual reviews to determine the pass/fail rate, whether the test standards are appropriate and to consider whether delivery of the tests are being achieved in a cost-efficient manner. Early indications on productivity and cost-efficiency are positive.

In terms of headline figures, at the start of the process (figures refer to the 12-month period to May 2014) the Security Department had 235 staff. Of these, 33 staff were on personal risk assessments in relation to medical conditions (i.e. they had been diagnosed with a condition which may restrict everyday duties and for whom the Health and Safety Dept would have conducted a workplace assessment and recommended a range of potential adjustments), and 27 of them were assessed initially as unfit to take the physical employment tests. In 2014 the department lost 2510 shifts due to sickness, equating to 10.7 days per person. Expressed another way, as full-time staff work 208 shifts per year these lost shifts were the equivalent of 12.1 full-time members of staff.



Figure 2. Guide to PES

On the introduction of the physical employment tests the department had 27 staff deemed unfit to take the tests. Of these:

- seven were redeployed into non-operational roles
- six subsequently passed the test after medical/occupational health support
- five retired after the start of the individual assessments

- four were placed on the Company Group Insurance scheme as being incapable of working in the role
- three left the Company
- one was dismissed for other reasons
- one transferred to a contract Company in an amended role.

During the first round of tests 10 staff failed one or more tests elements. On the re-tests two officers failed again and two did not take the re-test for medical reasons. The test elements that were failed were Horizontal walk (8), Stair ascent (4), Manual handling (2), stair descent (1). The organisation's policy was that if there was a failure in one test element by a small margin on the re-test then an individual assessment was conducted, and reasonable adjustments made. If there was a failure in more than one test element, then the process would begin with medical assessments and the incapability route. This process involves identifying where the capability gap lies and, if reasonable adjustments are not practical, to have an initial meeting with the employee. Depending on the individual circumstances the employee may have temporary variations to their role or be considered for redeployment to a more suitable post in terms of duties and/or hours. The focus is very much on occupational health and support but ultimately could lead to dismissal. Several employees have undergone this process, but none has led to dismissal. Of the two staff who failed on the second occasion, one gained employment elsewhere and left the organisation and the other was redeployed to another role. There have been no direct dismissals as a result of implementation of the PES process.

By way of comparator figures in the 12 months to May 2018, four security staff (down from 33 in 2014) were on personal risk assessments. Of these only one was deemed a long-term condition. The department lost 1505 days through sickness (down from 2510), equating to 5.9 days per person per year (average establishment of 254 staff) - a reduction of 4.8 days per person since 2014.

Therefore, in the year to April 2018 the department had 1005 fewer days lost, equivalent to 4.8 full time employees (average of 208 working days per year). Not all of these shifts would have been paid sick; however, the department is averaging 700 fewer paid sick days in 2018 than in 2014. This amounts to a reduction of approximately £110,000 in sick pay (700 shifts x £157 per shift).

In addition, on many occasions the department would have used contract officers to backfill absent staff. The cost of doing so was not a readily quantifiable figure as these deployments are mixed with contract requirements as a whole. Nonetheless, it would be reasonable to assume that a minimum of one third of these shifts would have been backfilled with contract staff; so:

- If we take one third of the lost shifts in 2014; 836 x 12 hrs x $\pm 15.65 = \pm 157,000$.
- If we take one third of the lost shifts in 2017; 501 x 12hrs x $\pounds 16.68 = \pounds 100,280$.
- Thus, an estimated £57,000 less was spent in 2017 than 2014 on contract labour.

In conclusion, the development and implementation of a well-designed PES programme in a private sector security department has enhanced operational effectiveness by ensuring all staff are fit for role and appears to have contributed to reduced sickness absence and associated financial costs.

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