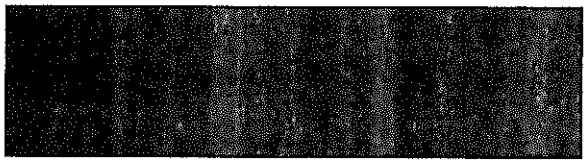

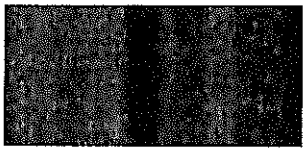

A Review of An Garda Síochána's Pre-Selection Fitness Tests.

A Report Written by [redacted] for An Garda Síochána

11th November 2024

Executive Summary

1. The Review and Revalidation Process

In September 2024, [redacted] was commissioned to review and re-validate the physical components of An Garda Síochána's pre-entry fitness assessments and associated pass standards. The pre-entry fitness test is used in part to assess suitability for employment. Therefore, it is important that the test is able to differentiate between those who possess the minimum physical and physiological attributes needed for the job and those who do not. The current format of the test consists of two parts: Part A uses three traditional fitness tests (a 20m shuttle run, a press ups test and a sit-ups test), while Part B uses a competency based timed circuit consisting of a series of job-related obstacles. However, the test contains elements that may be open to legal challenge under the Employment Equality Acts 1998 – 2015 (ihrec.ie). The task was therefore to:

a) Move away from the traditional age- and gender-related pass thresholds used in the current assessment (primarily part A of the test).
b) Improve the overall face validity of the assessment (removing press up and sit up tests).
c) Establish a pass threshold that is related to the minimum standard required to undertake the role of a Garda in An Garda Síochána.

In order to achieve the stated aims, and to ensure a robust review of the assessment, a Steering Group of Subject Matter Experts (SMEs) was established to agree the parameters of the investigation and to provide evidence-based feedback at all stages of the process. The time-sensitive nature of the review meant that a full task analysis of the job could not be performed. Therefore, after agreement with SMEs, the review was conducted under the assumption that the context and content of the current 'Physical Competency Test' (part B) remained valid, reliable and job-related.

Other assumptions agreed with the Steering Group included:

I. That participants in the trials would be drawn by An Garda Síochána from a broad pool of individuals that was diverse in gender identity, geographical location, age and rank, and

in proportion to the total number of serving officers in each category. The sample of participants was also sourced from the current cohort of Gardaí in core roles (the job for which the assessment was intended).

II. That the trial participants were representative of the physical and physiological standards present within An Garda Síochána among officers who were physically capable of performing full duties.

III. That the intended outcomes resulting from previously examined fitness criteria (press-ups and sit-ups) could be measured via the elements contained within the current physical competency test.

IV. That all trial participants would make a genuine effort to undertake the trials to the best of their ability and without prejudice.

2. Mechanism for review:

- Agree timelines with the Steering Group.
- Agree a revised testing format with SMEs. Pilot the revised test with SMEs and make changes as necessary.
- Source participants and arrange 2 trial days for collection of normative data (up to 50 participants per day). Participants to be drawn from across all four divisions (25 from each) and to include sufficient representation from all relevant age/gender/ experience strata.
- Pre-approve (via PAR-Q forms) participants for testing. Record times to completion and collect post-test surveys from all participants.
- Analyse data and agree new testing format and pass standards with Steering Group.
- Provide recommendations and present draft report for review.

3. Decisions by Steering Group

- The Steering Group felt that the existing elements and obstacles contained within the current Physical Competence Test circuit remained relevant to the role of a Garda. In the absence of a comprehensive task analysis, this consensus by SMEs provided the continued validation for the content of the assessment.

- The push/pull assessment was previously removed from the pre-entry test. However, SMEs felt that a Garda's ability to generate force in a forward and backward direction remained a key component of the job. Therefore, this task needed to be included in the assessment and was replicated in the form of a resisted 'Tank' sled to replace the mannequin drag.

- The Steering Group felt strongly that aerobic fitness remained an important part of the job. Therefore, an assessment of aerobic capacity (i.e. the 20M shuttle run previously used in Part A of the pre-entry test) needed to be included in the revised assessment.

- The Steering Group agreed that participants should complete two laps of the circuit assessment to demonstrate job-related competence.

The proposed aerobic and circuit revisions, positioning of the new obstacle and administration of the circuit assessment were discussed at length, piloted, agreed and then ratified by the Steering Group before the collection of normative data.

4. The Pass Standards Associated with the Physical Competence Test

Due to the changes made to the test and the inclusion of the 20m shuttle run, a revised pass threshold was required. A triangulated approach was used to inform the new standard based upon:

I. **Total Circuit time to completion (not including the beep test) of incumbents.**

It is common in research to use cut-scores represented by statistical dispersion (e.g. the 90th percentile score or the mean score plus standard deviations) to help determine pass thresholds for job-related competence. The median (50th percentile) circuit time achieved by 68 study participants was 2min, 23.5s. The figure represented by the 90th percentile of participants was **2min, 58s**. The figure represented by the mean plus two standard deviations was **3min, 10s**.

II. **Population norms for aerobic capacity of the demographic in question**

It was agreed by the Steering Group that police officers who serve the community should, at a minimum, possess the physical fitness of the 'average' or typical citizen. The 50th percentile of maximum oxygen uptake for adults aged 20-50yrs is approximately 36.05 $ml.kg^{-1}.min^{-1}$. An individual who can maintain 88% of this oxygen uptake value (31.8 $ml.kg^{-1}.min^{-1}$) should be able to sustain exercise intensity just above 90% of maximum heart rate for the period of the subsequent circuit assessment. This would equate to **Level 5, shuttle 6** on the 20MST (beep test).

III. **The opinions of incumbents who completed the Revised Assessment**

The mean circuit time proposed by participants was **2min, 48s**.

5. Conclusions

The Steering Group met again to discuss the normative data, the exit survey and the proposed pass standards. Using the triangulated approach described above, it was agreed that the aerobic standards possessed by the average member of the population should be reflected in the physical abilities of applicants and officers. However, the Steering Group was split on whether to recommend a circuit time of 2min, 58s (**total assessment time including 20MST of 7min, 52s**) or 3min, 10s (**total assessment time including 20MST of 8min, 04s**) as the cut-point for the circuit element of the assessment.

Therefore, [redacted] recommend a total time to completion of the revised Physical Competence Test of **8 minutes, 04 seconds** (total time for the complete assessment, including shuttle run and circuit). In effect, this would mean that every member of the SG agrees that any applicant who falls below the 8 minutes, 04 second threshold is unsuitable for employment. It would also provide a margin for error for those candidates who can meet the standard but who may record an unforced error on the day of testing. This would signify a robust operational defence of the new standard via a process of scientific enquiry, population norms, the experience of operational Gardaí and the opinions of SMEs.

Based on the available evidence, **8 minutes, 04 seconds** represents a valid and reliable standard for those candidates who possess the minimum level of aerobic ability necessary

to match the population average, combined with the gross motor abilities and expression of force required to complete the job-related circuit test.

Summary Recommendations (further recommendations are listed in Section 6)

The following list is a summary of recommended changes to the Garda Síochána's pre-entry physical fitness test:

1. Remove Part A of the current pre-entry assessment procedure completely and integrate the 20MST into Part B. The 20MST and circuit will then operate as one continuous assessment.
2. Change the aerobic requirement for the 20m shuttle run to the end of Level 5, shuttle 6 (4 minutes, 54 seconds) for all applicants. The shuttle-run assessment should be initiated at the side of the hall closest to the beginning of the circuit, so that it will finish at the starting point for the main circuit.
3. Participants immediately continue with the circuit assessment once the 20m shuttle run is completed. Participants should complete two full laps of the circuit.
4. Replace the mannequin drag with the 'Tank' push and pull. 'Tank' resistance should be set at Level 1. All four wheels of the Tank must remain in contact with the ground as it is pushed and pulled for 6m in each direction for each lap of the circuit.
5. If a participant makes a mistake on an obstacle, they are required to go back to the beginning of the obstacle and complete it correctly (unlimited attempts) as the clock continues to run.
6. The test should be administered and timed as one complete assessment consisting of two main elements (shuttle run and circuit). The total pass time for the assessment should be set at **8 minutes and 4 seconds** (4 min, 54sec for the 20 MST and 3 min 10s for the circuit element).

Acknowledgements

I owe a debt of gratitude to a number of people without whom this project would have been impossible to complete

To Supt. Kieran Ruane and his team for organising and supporting the project throughout.

To the Steering Group of SMEs, who volunteered their time to provide guidance, expert opinion and feedback at all stages of the review:

1. Superintendent Kieran Ruane, Foundation Training, Garda College
2. Inspector Amanda Reynolds, Foundation Training, Garda College
3. Sergeant Michelle Casey, Crime Specialist Operational Skills, Garda College.
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5. Inspector Paul Slattery, Limerick
6. Inspector Alan Frawley, Store Street
7. Sgt Stephen Cushe, Athy Garda Station
8. Sgt Pat Kirwan, Foundation Training, Garda College
9. Gda Orla McDonald, Foundation Training, Garda College
10. Mr Brian Murray, Foundation Training, Garda College

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To the members of An Garda Síochána without whom there would be no data. The officers and management were willing to take time from their busy schedules to help with the data collection for this project and should be thanked for their involvement.

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1. Introduction

Few occupations demand a high level of physical competence as a prerequisite to the job. One of the more notable exceptions is to be found in the Garda Síochána. At times the physical demands placed upon the average Garda may not even exceed that of the average office worker (Wilson & Bracci, 1982). However, the unpredictable nature of the job means that officers can be forced into sustained and near maximal efforts in a very short space of time, often with no prior warm-up or preparation. In the 1980s it was noted that a significant number of people employed to protect the public lacked the general health and physical ability to do so effectively (Gleeson, 1988; McNeill & Prentice, 1984; Lilley & Greenberg, 1984). Research conducted into policing showed that a combination of poor diet, smoking, work-related stress, long working hours, and inactivity had reduced the physical efficiency of police forces and increased the incidence of heart disease (James, 1995). Officers tend to experience increased levels of fatigue from disturbed sleeping patterns resulting from shift work (Violanti et al., 2012), circadian rhythm dysfunction (linked with hormonal dysfunction), sleep disturbance and an increase in cardiovascular and metabolic pathologies (Sfreddo et al., 2010; Jermendy et al., 2012; Guo et al., 2013). In addition, reduced muscular strength and endurance, as a result of low physical activity, have been associated with risk of injury both on and off the job (Lisman et al., 2017). Therefore, the physical competence of officers has increasingly become both a health and a performance concern.

Pre-employment occupational fitness testing was developed mainly in the US, Canada and the UK through the 1980s and 1990s and was largely driven by liability and safety concerns by employers (Orr, 2018), as well as a recognition that emergency services personnel required certain minimum physical demands for successful job completion. More recently, a growing interest by employers to reduce injuries, improve the health of the workforce and ensure operational readiness has driven the continued development of job-related testing standards. The intent of a job-related screening test is:

"to determine whether an applicant possesses the necessary physical attributes to safely and efficiently perform the important, physically demanding and frequently occurring on-the-job tasks encountered in a public safety occupation" (Jamnik et al, 2008).

Job-related physical competence assessments are designed to reflect the bona-fide occupational requirements of the job. Due to the varied and unpredictable nature of police work, the development of valid and reliable job-related assessment tools that reflect operational requirements is a complex task. The Canadian Charter of Rights and Freedoms (2007) states that an employer acting on a bona fide occupational requirement may introduce a job-related assessment that is based upon:

(i) the essential components of the job

(ii) the capabilities required for safe, efficient and reliable performance of the job tasks; and

(iii) the means of assessing whether an employee has the capacity to fulfil these requirements.

Research into the development of job-related testing tools for police officers typically results in a convergence of tasks that are frequently performed, tasks that are critical to the job and tasks that are easily measured. Job-related assessment tools based upon the reproduction of occupational demands have received general acceptance in research, particularly for their face validity and the current trend is to develop tests that closely simulate typical job-related activities in a controlled environment (Orr, 2021). Stevenson (1992), Gledhill & Jamnik (1992), RUC (1997), PSNI (2004, 2007, 2013), Stevenson (2015), McCorry (2013, 2019) have used a broadly similar framework as the basis for development of physical competence assessments. The development framework has also been tested in industrial tribunals (e.g. Jo-Anne Dougan v Chief Constable of the RUC, 03244/97SD & 01734/98SD).

The advent of Equal Opportunities legislation forced employers to closely examine their physical screening procedures, and to develop assessments that were both job-specific and free from gender bias. Consequently, physical competence assessments are now vulnerable to legal challenge on the basis of discrimination typically relating to age, gender or disability Employment Equality Acts 1998 – 2015 (ihrec.ie). Therefore, it is incumbent upon any organisation wishing to administer a Physical Competence Assessment:

'to demonstrate that the assessment procedure is an accurate reflection on genuine operational requirements' and *'a proportionate means of achieving a legitimate aim'* (Kremer, 2013).

There is a fundamental responsibility on employers to ensure that occupational assessments are designed to adequately distinguish, with reasonable confidence, between those who can perform the physical and physiological demands of the job and those who cannot (Peterson et al., 2016). It also stands to reason that the pass standards associated with the job-related assessment should adequately distinguish between those candidates. In the past there has been a strong judicial reaction against setting arbitrary standards that are not validated by careful task analysis (Peterson et al., 2016). In recent years, carefully constructed task-related competence assessments have enjoyed general acceptance internationally and most assessments are now designed along these lines. A cornerstone of job-related physical competence test design is the position that, for any given job, sex-neutrality should be maintained in the development of standards that apply to all applicants for any given role, so long as the job description is identical for both sexes.

However, pass standards for task-based assessments must also be set to ensure that employees who pass the test are capable of successfully meeting the minimum acceptable physical and physiological demands of the job, but no more. This can be achieved in a number of ways:

I. Wilson & Bracci (1982) and Gledhill and Jamnik (1992) recommended setting performance standards based on the performance of experienced personnel. Their reasoning was that those officers who currently performed the job to a satisfactory standard must already possess the minimum standard of physical competence. However, an organisation must be careful in its deliberation of what constitutes the 'minimum standard' and employers can be challenged to prove whether it is rationally connected to the performance of the job (Milligan et al., 2016).

II. Jamnik et al (2008) introduced a hybrid test of job simulation tasks and criterion-referenced fitness components for correctional officers. Pass standards were set at the mean time achieved by females, 'the subgroup of incumbents with lower

physical abilities', and then adjusted by one standard deviation (the score that could be achieved by 68% of the sample tested).

III. Biddle & Shepherd Sill (1999) acknowledged the use of norm-referenced cut-off points for job selection and state that they should be set so '*as to be reasonable and consistent with normal expectations of acceptable proficiency within the workforce.*' Taylor et al. (2016) also recommended incorporating confidence intervals or margins of error into pass standards. There will always be some biological variability around human performance and suitable margins of error could provide a more reasonable determination of readiness for work.

IV. McCorry et al. (2013, 2019) used a triangulated approach to determine a pass standard for the PSNI's 'Physical Competence Assessment'. The minimum physiological standard for incumbents was designed to reflect the standards possessed by the average or 'typical' member of the community. The performance of incumbents on the assessment and the opinion of incumbents about the assessment also contributed towards the pass standard for the circuit assessment.

Biddle & Shepherd Sill (1999) also acknowledge the use of norm-referenced cut-off points for job selection and state that they should be set so '*as to be reasonable and consistent with normal expectations of acceptable proficiency within the workforce.*' Gardaí serve the local community so it is reasonable to expect the minimum fitness standards of incumbents to reflect the standards possessed by the average or typical member of the community.

2. The Review and Revalidation Process

In September 2024, [redacted] was commissioned to 'review and re-validate the physical components of the Garda Síochána's pre-entry Physical Competence Test and the associated pass standards. In order to achieve the stated aims, and to ensure a robust review of the current assessment, a Steering Group of subject experts was established to agree the parameters of the investigation and to provide evidence-based feedback at all stages of the process. The process for revalidation was conducted as follows:

1. Agree timelines with the Steering Group.
2. Agree a revised testing format with SMEs. Pilot the revised test with SMEs and make changes as necessary.
3. Source participants and arrange 2 trial days for collection of normative data (up to 50 participants per day). Participants to be drawn from across all four divisions (25 from each) and to include sufficient representation from all relevant age/gender/ experience strata.
4. Distribute an exit survey to participants to determine the appropriateness of the revised assessment and relevance to the role of a Garda and to help inform a new standard for the revised assessment
5. Analyse data and agree new testing format and pass standards with Steering Group.
6. Establish a new performance standard, based on the normative data collected from the study participants, normative data from population studies, the opinions of the expert panel and participant feedback.

3. Methods

A Steering Group was convened in September 2024 with a remit to provide subject specific expertise and to agree and ratify the processes and uphold the standard of the review at all stages. The group consisted of one Superintendent (foundation training), three inspectors (1 x foundation training, 1 x Limerick, 1 x Store St.) three sergeants (1 x crime operational specialist skills, 1 x Athy, 1 x foundation training), 2 Garda officers (1 x Driver Training, 1 x foundation training), 1 civilian instructor (foundation training).

3.1 Content Validation of the Physical Competence Test

The first stage of the review was to examine the content of the PCA in relation to the key tasks performed within the role i.e. how comprehensively it reflected the job-related physical demands of core policing. The Steering Group were presented with the key tasks on a site visit to the training college as a starting point. They were then asked to comment on the relevance of the tasks within the circuit, agree the overall length of the circuit assessment and to agree the placement and standard of the aerobic element of the test (20 MST) and placement of the 'Tank' sled to replace the push/pull machine (which is no longer used in the test).

3.2 Collection of Normative Data

The Physical Competence Test is a hybrid test designed to assess elements of job-related fitness identified by the subject experts to be important to the role of a Garda. It includes an assessment of running ability, turning, carrying, weaving, balancing, stair and gate climbing and dragging. It is also a continuous effort involving regular and predictable changes in pace and direction. In order to ensure the content of the test reflected the requirements of the Garda Síochána, it was necessary to validate the content of the test and establish new pass standards using a sample of serving officers.

Sixty-eight Gardaí (mean age 37.9 yrs, SD 8.7 yrs; mean height 178.2 cm, SD 8.3 cm; mean body mass 83 kg, SD 12.3 kg) volunteered to complete the revised circuit assessment. Efforts were made to encourage participation from male and female Gardaí across a wide range of age and geographical location.

Time to completion was recorded during the circuit assessment. Participants were then given an exit survey and asked to reflect on the completed assessment. The survey consisted of four questions that examined the content of the Physical Competence Test under the following headings:

I. The relationship between the circuit assessment and the range, importance and intensity of physically demanding tasks performed as part of the job.
II. The overall relationship between the revised test and the ability of a Garda to perform the duties required of an officer.

Responses were presented on a Likert scale of 1 – 5 where 1= strongly disagree, 2= disagree, 3= neither agree or disagree, 4= agree, 5= strongly agree.

Finally, participants were asked to recommend a pass time for the modified circuit assessment.

Before taking part in the investigation, subjects were habituated to all of the testing procedures to be used and were given time to familiarise themselves with the revised circuit. All subjects were screened using a PAR-Q (Physical Activity Readiness Questionnaire). Participation was voluntary and withdrawal was permitted.

4. Results

The results are presented in summary figures and tables with short explanations of the salient findings from each element. This is followed in the discussion section by a more comprehensive review of the findings and recommendations for a new standard.

4.1 Demographics

A total of sixty-eight serving members of An Garda Síochána participated in the trials, including one inspector, thirteen sergeants and fifty-four Gardaí. Participants were sourced from a range of geographical location, age, sex and rank to represent as accurately as possible the composition of core policing in Ireland. Nineteen females (28% of the total) and forty-nine males (72% of the total) participated. The age of participants ranged between twenty-three and fifty-eight years. Participant demographics (including self-reported height and body mass) are reported in ***Table 1*** below.

Table 1 Participant characteristics presented as mean (SD)

	Female (n=19)	Male (n=49)	All (n=68)
Age (yrs)	32.4 (6.8)	40.1 (8.5)	37.91 (8.7)
Height (m)	168.5 (7.5)	182 (4.7)	178.2 (8.3)
Body mass (kg)	71.0 (11)	87.6 (9.2)	83 (12.3)

4.2 Completion Times for the Revised Circuit

The proposed revised assessment is essentially a combination of two tests: an aerobic fitness test and a job-related test. Participants were required to complete five levels and six shuttles of the 20MST (beep test) before immediately performing two laps of the circuit-based, job-related test in the lowest possible time. The 20MST element for all applicants took four minutes, fifty-four seconds to complete. Therefore, the only time that could vary between participants in the overall assessment was to be found in the job-related circuit.

[redacted] participants did not complete the 20MST to the required standard but they were permitted to continue with the circuit assessment so that we could gather a complete data set of circuit times. ***Table 2*** illustrates **times** achieved by participants and **statistical distribution** of scores in the job-related circuit element of the assessment.

Table 2 Participant times achieved during the performance of the job-related circuit (SD)

	Female	Male	All
Mean completion time (s)	155.9 (16)	145.0 (21.7)	148.1 (20.9)
Median completion time (s)	152.0 (16.1)	140 (21.7)	143.5 (20.9)
Range (s)	135-189	112-210	112-210
90th Percentile time (s)	182.2	173	177.6
Mean + 2SD (95% of times)	188.1	188.3	189.8

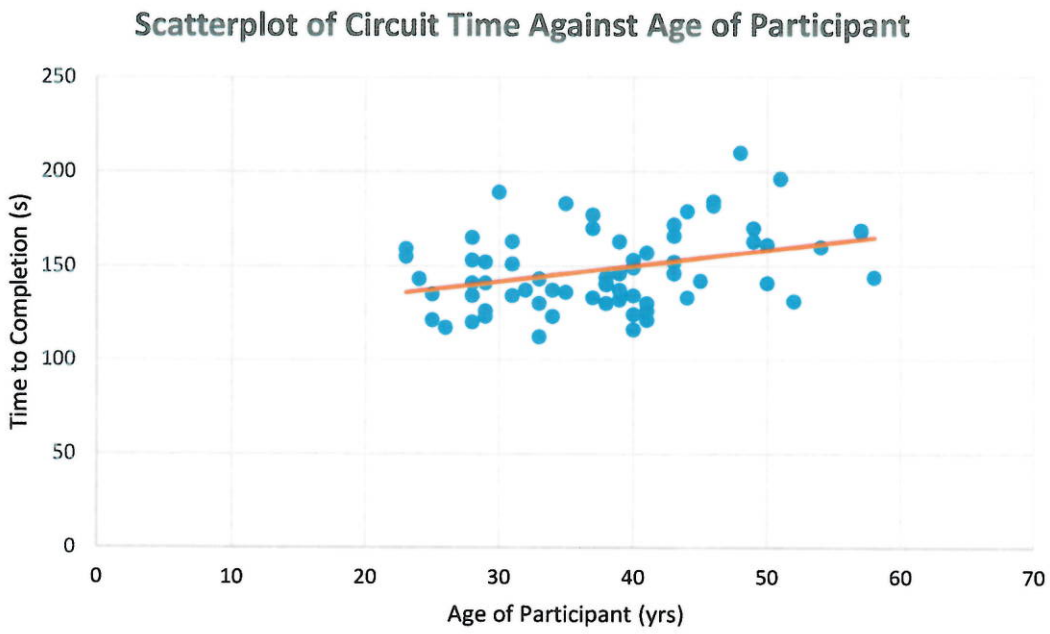
Participants ranged in age from 23 - 58 years and the trials contained officers from each decade within the age range. This is illustrated in ***Table 3*** below.

Table 3 Age range of participants (% of total)

Age range of participants	20-29	30-39	40-49	50-59
N=	16 (24%)	22 (32%)	22 (32%)	8 (12%)

When age is plotted against time to completion in the job-related circuit, an upward trend can be seen, where older participants were slower to completion on average than their younger colleagues. This trend is to be expected and is illustrated in the scatterplot (below).

Figure 1 A Scatterplot showing time to completion of the job-related circuit against age of participants.



4.3 The Exit Survey

Sixty-eight officers completed the questionnaire. After analysis, all elements of the current physical competence test were found to remain valid and examples from training and operational duty were presented for some of them.

As serving and operational members of An Garda Síochána, participants were asked upon completion of the revised assessment, to complete an exit survey that asked questions related to:

a) the range, importance and intensity of the circuit to operational requirements.
b) whether the assessment was a fair representation of an applicant's ability to perform the physical demands of core policing.

Question 1a *The assessment I completed accurately reflects the range of physically demanding tasks performed as part of my job*

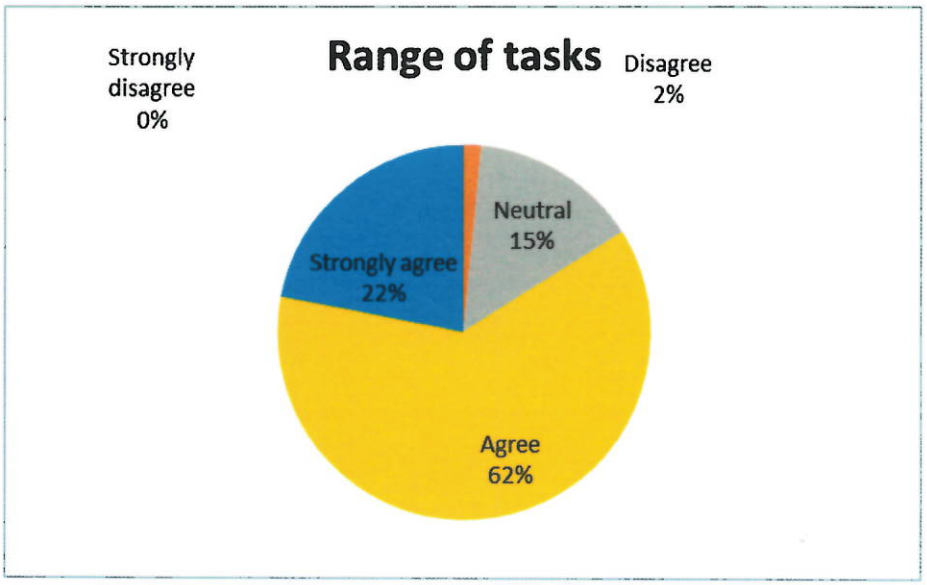


Figure 2 A pie chart showing the level of agreement with the range of physically demanding tasks performed within the assessment.

Question 1b *The circuit element of the assessment I completed accurately reflects the importance of physically demanding tasks performed as part of my job*

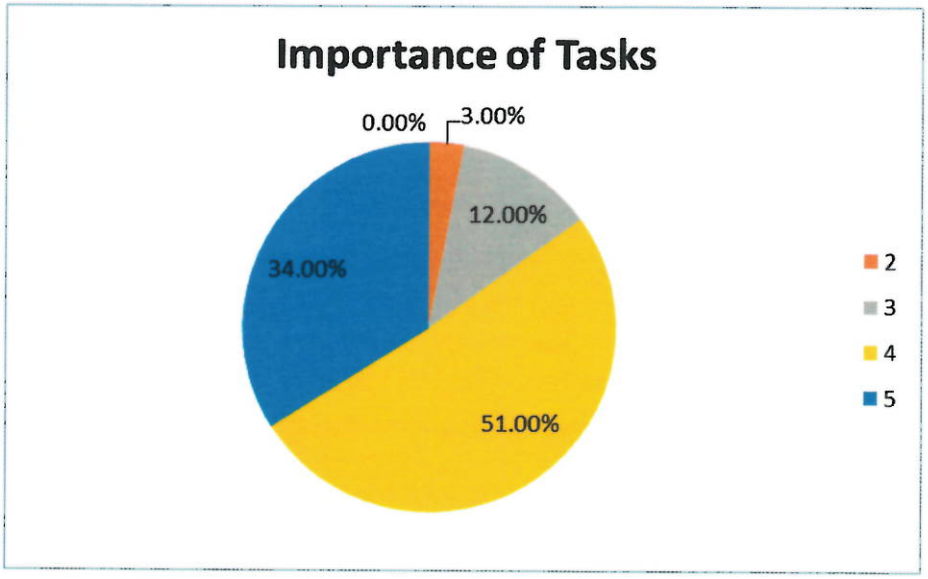


Figure 3 A pie chart showing the level of agreement with the importance of physically demanding tasks performed within the assessment.

Question 1c *The assessment I completed accurately reflects the intensity of physically demanding tasks performed as part of my job*

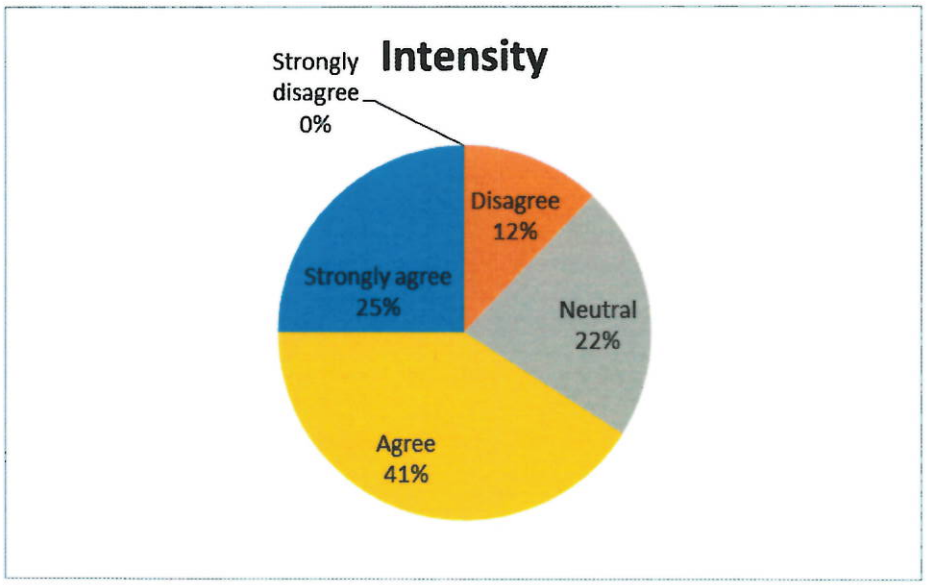


Figure 4 A pie chart showing the level of agreement with the intensity of physically demanding tasks performed within the assessment.

Question 3. *Overall I feel that this is a fair assessment of an applicant's or officer's ability to perform the physically demanding tasks encountered in core policing*

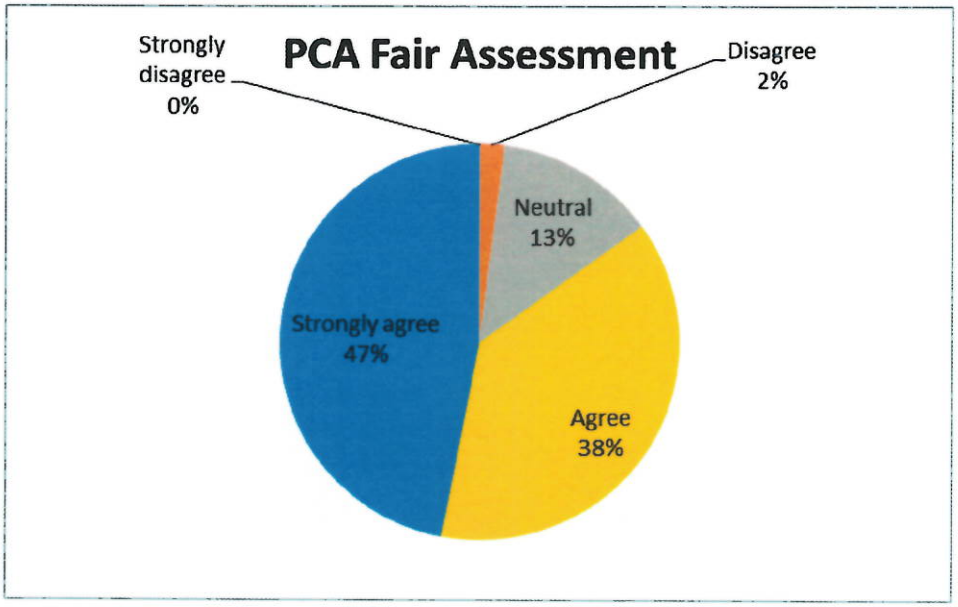


Figure 5 A pie chart showing the level of agreement with the use of this assessment to measure a candidate's job-related competence.

The exit survey demonstrates a very strong endorsement of the revised assessment from experienced incumbents.

5. Discussion

It is important to establish a pass standard for applicants to An Garda Siochána that reflects the minimum standards needed to undertake the job successfully, but no more. The standard needs to reflect a spectrum of physical demands, ranging from tasks which are frequently performed with low intensity, to those which are infrequently performed but with high physical intensity. The validity of a test score decision (i.e pass/fail) also partly depends on the method used to set the required standard. In published research, standards have previously been based on either (i) statistical distribution of test scores or (ii) judgements based on experiential or subject matter expert opinions. Most researchers use a hybrid of both methods to ensure a robust and defensible job-related pass standard.

The table below illustrates the important times to consider when establishing a cut-point time for the circuit element of the test.

	FEMALE	MALE	ALL
TIME PROPOSED BY PARTICIPANTS	2 min, 47s	2 min, 49s	2 min, 48s
90TH PERCENTILE TIME	3 min, 2s	2 min, 53s	2 min, 58s
95% (2 SD)	3 min, 8s	3 min, 8s	3 min, 10s
ERRORS BY PARTICIPANTS	3	12	15

Table 4 Circuit completion times with statistical dispersion

We can use a triangulated approach to recommend a new standard for the assessment, one which is based upon an assumption that the vast majority of serving officers are physically competent to undertake their role successfully. This can take the form of:

I. Aerobic capacity of the demographic in question

It is reasonable to expect that the majority of Gardaí who serve the community should demonstrate at least the aerobic ability possessed by the 'average' untrained citizen. The median aerobic capacity for untrained adults age 20-50yrs is approx. **36.05 ml.kg^{-1}.min^{-1}**. If this was the only measure to be used for applicants then it would be reasonable to set an aerobic standard of **Level 6, shuttle 6** on the 20MST. However, an applicant who could only barely attain this level may then be physically unable to continue with an additional job-related circuit assessment. Research conducted on time to exhaustion at various percentages of maximal aerobic capacity suggests that an individual should be able to maintain around 90% of maximum aerobic output for at least the time required to complete the new proposed job-related circuit assessment (Billat & Koralsztein, 1996). If the 20MST and the job-related circuit are to be integrated, then **Level 5, shuttle 6** (31.8 ml.kg^{-1}.min^{-1}) should be achievable for a candidate who can attain the minimum aerobic standard and then go on to complete the job-related circuit. Gardaí may also carry may carry body-loads beyond that of ordinary civilian clothing and these loads can rise significantly during job-specific duties, depending on the equipment to be transported. Research shows that even an additional load of 10.4kg while marching can demand an additional 10% of aerobic ability (van Dijk, 2009).

II. Statistical distribution of test scores

In order to set a fair and reasonable cut-point time for the circuit assessment, we must make two assumptions:

1. We must assume that the vast majority of officers currently employed in core policing roles within the Gardaí are physically competent to perform their job.
2. We must assume that the Gardaí who took part in the circuit test performed it to the best of their ability.

If these assumptions are correct, then the statistical distribution of participant performances can be used to help formulate a pass time. These can be based around:

a) Circuit time to completion, recorded at the 90th percentile of serving officers

or

b) The mean circuit time plus standard deviation (2 standard deviations from the mean, representing 95% of the trial scores).

In this case the figure represented by the 90th percentile of the cohort was **2 min, 58s**. The figure represented by the mean score plus two standard deviations was **3 min, 10s**.

III. ***The pass threshold should include a margin for error.***

The proposed standard includes times achieved by 30% of participants who made at least one error in their performance.

IV. ***The new circuit time should take into account the opinions of serving officers who have the unique ability to be able to relate the test to actual occupational demands:***

Participants were asked to recommend a pass time for new applicants using the modified circuit. The average time recommended by respondents for the circuit was:

	FEMALE	MALE	ALL
TIME PROPOSED BY OFFICERS	2 min, 47s	2 min, 49s	2 min, 48s

There was a 50/50 split among the Steering Group as to which pass threshold should represent the minimum standard to be attained by an applicant to An Garda Síochána. With no majority decision, then I recommend that the slower (3 min, 10s) figure is used. In effect, this would mean that every member of the SG agrees that any applicant who falls below the 3 min, 10s threshold is unsuitable for employment. It would also provide a margin for error for those candidates who can meet the standard but who record an error on the day of testing and it falls within 12% of the time suggested by study participants.

6. Conclusions and Recommendations

It is important ensure that a job-related competence assessment is designed to test a Garda's ability to undertake their role safely and competently. It is also important to ensure that the recommended standards are reflective of the physical demands of the job, but no more. The Garda Síochána's Physical Competence Test needs to be:

1. Reflective of the physical demands experienced by a Garda.
2. Robust enough to discriminate between individuals who can/cannot meet the physical demands of the job.
3. Valid enough to ensure that all physically competent individuals can achieve the required standard.
4. Scientifically-based to ensure that standards are justifiable and reliable.
5. Inclusive of margins for error to ensure that all individuals are treated fairly and equitably.

The Steering Group felt that the existing elements and obstacles contained within the current Physical Competence Test circuit remained relevant to the role of a Garda. In the absence of a comprehensive task analysis, this consensus provided the validation for the content of the assessment. The push/pull assessment was previously removed from the pre-entry test. However, the SMEs felt that a Garda's ability to generate force in a forward and backward direction remained a key component of the job. Therefore, this task needed to be included in the assessment and was replicated in the form of a resisted 'Tank' sled to replace the mannequin drag. Additionally, the Steering Group felt strongly that aerobic fitness remained an important part of the job. Therefore, an assessment of aerobic capacity (previously used in Part A of the pre-entry test) needed to be included in the revised assessment.

The following are a list of main recommendations, based on the data collected, statistical analysis, feedback from officers and recommendations of the Steering Group:

1. Remove Part A of the current pre-entry assessment procedure completely and integrate the 20MST into Part B. The 20MST and circuit will then operate as one continuous assessment.
2. Change the aerobic requirement for the 20m shuttle run to the end of Level 5, shuttle 6 (4 minutes, 54 seconds) for all applicants. The shuttle-run assessment should be initiated at the side of the hall closest to the beginning of the circuit, so that it will finish at the starting point for the main circuit.
3. Participants immediately continue with the circuit assessment once the 20m shuttle run is completed. Participants should complete two full laps of the circuit.
4. Replace the mannequin drag with the 'Tank' push and pull. 'Tank' resistance should be set at Level 1. All four wheels of the Tank must remain in contact with the ground as it is pushed and pulled for 6m in each direction for each lap of the circuit.
5. If a participant makes a mistake on an obstacle, they are required to go back to the beginning of the obstacle and complete it correctly (unlimited attempts) as the clock continues to run.
6. The test should be administered and timed as one complete assessment consisting of two main elements (shuttle run and circuit). The total pass time for the assessment should be set at **8 minutes and 4 seconds** (4 min, 54sec for the 20 MST and 3 min 10s for the circuit element).

Additional General Recommendations to Consider

- Periodically standardise test administration and instruction among all staff, given the large number of staff involved in testing.
- Provide a period of test familiarisation for all candidates (to include Q&A) in the hall prior to testing.
- Any candidate who, for any reason, presents a H&S risk to themselves or to others on the day (e.g. laces come untied during testing) is withdrawn from the test.
- If any particular cohort of candidates is found to be failing the test in significantly larger numbers, consider holding a positive action day for those candidates, to enable further familiarisation.

- Provide any candidate who fails the assessment with some feedback and training guidance (written or oral) to demonstrate positive action.
- This report represents an investigation of the Garda Síochána's pre-entry physical fitness test and all recommendations are based on the information available at the time of writing. Time constraints meant that a complete task analysis of the job could not be performed. Sampling numbers were also low, based on the small number of days available for testing. These factors meant that certain assumptions had to be made as the investigation took place, which may have affected the accuracy of the results. A more complete analysis of the job is recommended for a more complete picture of the job demands.

Additional Recommendations Specific to the Circuit element of the test

- Align the start/finish cones for the 20MST and the circuit. When candidates finish the circuit, they will do so by turning right through the start cones again. This will help prevent potential H&S problems with candidates accelerating through the finish line towards a wall/ window.
- Inform candidates when they come towards the final two 20MST shuttles, before the beginning of the circuit.
- All turning cones should be similar in colour (e.g. blue). All obstacle cones should be similar in colour (e.g. yellow) to simplify visual differentiation for candidates.
- Directional tape should be placed between all obstacles to provide a visual indication of the direction of travel for candidates.
- All four wheels of the 'Tank' must remain in contact with the ground when the candidate attempts this obstacle.
- Weigh down the upright poles for the stoop obstacle, so that they cannot fall over during administration of the test.
- Place a tall cone at the beam, to ensure that candidates must walk around, rather than over the cone.

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