

Assessing the Skill Requirement of an Occupationally Relevant Specialist Police Fitness Test: A Preliminary Investigation

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Abstract

For an occupational test to be a valid measure of physical fitness, it should not be influenced by technical skill proficiency. The Urban Rush (RUSH) is a proposed fitness assessment for specialist police officers, incorporating short explosive sprints, victim drags, and weapon alignment with targets in a kneeling unsupported position; all performed while wearing occupation loads. This preliminary study aimed to compare RUSH performance between specialist police candidates (who passed fitness requirements but had not received specialist training) and qualified tactical officers, to determine whether tactical skills influenced test outcomes. Retrospective data were collected from 34 male specialist police officers (mean age =37.82±6.54 years: mean height =181.62±6.70 cm: mean weight =91.54±10.89 kg) and 18 male specialist police candidates (mean age =32.11±5.04 years: mean height =183.72±5.79 cm: mean weight =89.44±8.57 kg). Qualified officers were significantly older and carried a lighter absolute load than candidates, (18.97±2.23 kg) and (24.02±3.67 kg), respectively. Although qualified officers were generally faster (105.10±14.61 seconds) than candidates (111.73±9.21 seconds) no significant differences in RUSH completion times remained after controlling for age, height, body weight, kit, and Body Mass Index, $F(1, 45)=1.65$, $p=0.21$, partial $\eta^2=0.04$. These findings suggest that the RUSH is not significantly influenced by tactical expertise, supporting its validity as an occupation-specific measure of physical fitness.

Keywords: *specialist police, SWAT, occupation-specific, physical, fitness, assessment, test*

Introduction

High threat, high risk, complex law enforcement tasks, such as active shooter incidents, counter-terrorism response, and the resolution of barricaded non-compliant offenders, are typically the responsibility of specialist police response units (Irving et al., 2019; Marins et al., 2020). Officers within these units possess advanced tactical capability, expertise, specialized training, and access to weapons and equipment that enable rapid and effective resolution of these types of incidents in the interest of public safety. Globally, these units are recognized by such names as Tactical Response

(TR), Special Weapons and Tactics (SWAT), Special Operations Units (SOU) (Marins et al., 2020) and in the Australian context, Police Tactical Groups (PTG) (Irving et al., 2019).

Due to the nature of their occupational role scope, specialist law enforcement officers serving in PTGs are required to develop and maintain specialist skills, such as movement over urban terrain, close quarter battle and various weapons and use of force skills (Irving et al., 2019). These skills are performed whilst wearing personal protective equipment (PPE) weighing between 20-25 kgs (Carlton et al., 2014; Irving et al., 2019) and carrying external loads of up to 40 kg (Keeler et

al., 2022) in the form of primary weapons and mission-specific equipment (e.g. manual method of entry equipment and ballistic shields; Irving et al., 2019; Maupin et al., 2018). The cumulative physical demand imposed by the high tempo operational workplace, ongoing skills and tactics training, strength and conditioning regimes and repeated load carriage tasks necessitates levels of fitness comparable to those exhibited by army Special Forces and elite athletes (Austin & Deuster, 2015; Cooper, 2014; Maupin et al., 2018).

Given these substantial physical demands, specialist police units require fitness assessments that accurately reflect job-task requirements. For such assessments to be valid, performance should be determined by physical capacity rather than technical or tactical skill proficiency. Tests that incorporate weapon handling, movement sequences, or task-specific familiarity may risk being influenced by skill rather than fitness, raising concerns about construct validity (Orr et al., 2021).

In response, numerous law enforcement agencies have adopted specific fitness testing batteries which more accurately reflect job-task demands. These include obstacle-course style assessments featuring more functional tasks (e.g. victim drags, surmounting walls, etc.). In general duties police, examples include the Work Sample Test Battery (WSTB) (Lockie et al., 2018) and the Physical Abilities Requirement Evaluation (PARE) (Seguin, 2015). Although these types of assessments are less common in specialist police, Sax van der Weyden et al. (2021) described a comparable approach using a SWAT obstacle course incorporating operationally relevant tasks such as sprints, window ascents, crawling, serpentine runs, and body drag tasks.

In light of the growing emphasis on occupationally relevant physical assessment and their alignment with job specific demands (Orr, Lockie, et al., 2022), the most physically demanding tasks performed by PTG officers have been identified as urban operations, such as warrant executions and active armed offender incidents (Irving et al., 2019). These scenarios necessitate repeated short-duration, high-intensity efforts as officers tactically maneuver between positions of cover (Irving et al., 2019). This physical requirement is noted by Robinson et al. (2023) who reported that PTG officers sustained 90–100% of their age-predicted maximum heart rate for over half of a multistorey active armed-offender scenario conducted in full operational PPE. In response to these operational demands a new occupationally relevant assessment, the Urban Rush (RUSH), was proposed (Irving et al., 2025; Strader et al., 2020; Thomas et al., 2019). The RUSH is a short-duration, high-intensity test, designed to replicate tactical movement patterns such as sprinting, rapid change of direction, transitions between kneeling and prone shooting positions, casualty recovery via victim drag, and the maintenance of weapon alignment with identified targets while stationary (Strader et al., 2020; Thomas et al., 2019). The intent of the RUSH is to serve as a measure of officer fitness (Orr et al., 2021). For the RUSH to be a valid measure of fitness, performance outcomes should not be influenced by technical or tactical skills but solely on the individual's physical capacity (Orr et al., 2021). Given that the RUSH is designed to replicate

the physical demands of PTG tasks, it is important to determine whether performance is affected by the technical and tactical skills of a PTG officer. Accordingly, the aim of this preliminary study was to compare RUSH performance between specialist police candidates (who passed fitness requirements but had not received specialist training) and qualified tactical officers. It was hypothesized that there would be no difference in RUSH times between groups.

Materials and methods

Participants and design

Retrospective data were collected from 34 male PTG officers (mean age = 37.82 ± 6.54 years: mean height = 181.62 ± 6.70 cm: mean weight = 91.54 ± 10.89 kg) who were assessed completing the RUSH protocol as part of their general strength and conditioning training requirements. Additionally, RUSH data were collected from all 18 male PTG candidates (mean age = 32.11 ± 5.04 years: mean height = 183.72 ± 5.79 cm: mean weight = 89.44 ± 8.57 kg) undergoing specialist selection to gain entry to the same unit as the 34 serving officers. The PTG candidates were assessed at the beginning of their five-day selection course as part of their initial fitness assessment. However, their results did not inform their selection outcomes. All members voluntarily completed the RUSH assessment. Bond University Human Research Ethics Committee approved this study (protocol # 15455).

Procedures

The retrospective data included body weight, height, worn equipment weight; body mass index (BMI), a loaded BMI, whereby body weight included worn equipment weight and urban rush times in minutes and seconds. Height data were self-reported, as is common in this population (Dawes, Orr, et al., 2017) and has been found to be reliable (Johnson et al., 2020). All remaining data were collected by the PTG unit's head strength and conditioning specialist. Inclusion criteria were members attending specialist selection or serving in the PTG in an operational role. Exclusion criteria included any candidate or officer on a medical restriction or with a 'yet to report' injury.

The RUSH

Each of the participants was dressed based on role and scope of specialist police officers. Load for each participant was based on the unit's jurisdictional 'high level' load out requirement. Prior to the testing, participants underwent a formal warm up and had their equipment checked as per their role (candidate or operator). The dummy weight for both the candidates and officers was 80.00 kg.

The RUSH has been described previously in the literature (Strader et al., 2020; Thomas et al., 2019) but is briefly summarized here. The RUSH was conducted on a dry, non-slip surface with 10-meter and 20-meter distances marked using cones and a tape measure. Participants began behind the start line, before sprinting to the 10-meter line, dropping into a prone position, and crawling to the 20-meter line. There, they

slung their weapon, lifted an 80-kg mannequin, and dragged it to the 10-meter line. After lowering the mannequin, they adopted a kneeling unsupported firing position and aimed their rifle (typically an M4) at a target 30 meters away. Weapon alignment was confirmed when an assessor acknowledged the weapon's laser designator aligned with the target. The participant then repeated the drag to the start line, sighted the target again, sprinted to the 10-meter line, and sighted once more. This continued to the 20-meter line, where they pivoted and sighted a second target. After sprinting back to the 10-meter line and sighting again, they returned to the start,

dragged the mannequin to the 20-meter line, and completed a final target sighting before sprinting to the finish, see Figure 1.

If the participants stopped voluntarily, fell over, or the instructor ceased the activity due to concerns over the participants' health or safety, the test was ceased and restarted after a short rest (minimum of 3 minutes). In this instance, the final fully completed attempt was used as the recorded time. The time taken to complete the activity was measured in minutes and seconds and recorded on paper recording sheets. The participants were all familiar with the test and therefore performed the RUSH once as fast as possible.

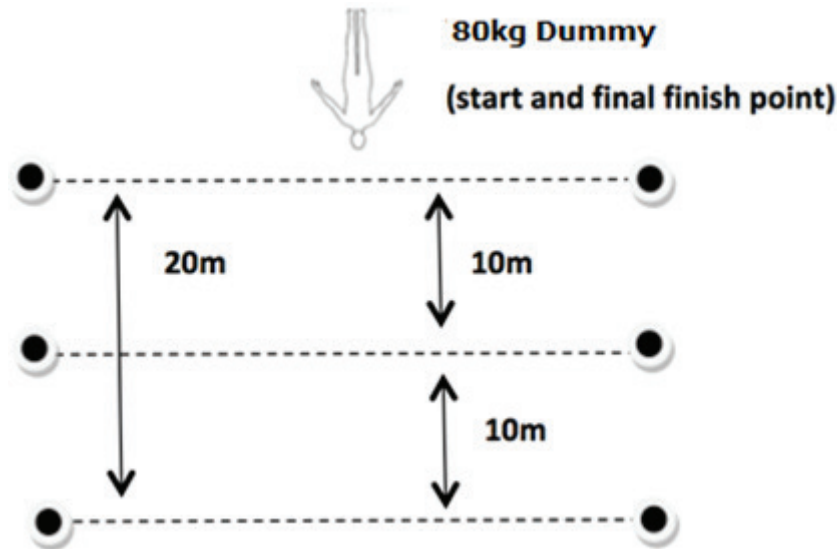


Figure 1. RUSH assessment design

Variables

Preceding to the RUSH applicants provided their age as well as their height measurements. Body weight was measured on a Tanita BC-582 FitPlus Scale. The participant's measurements were recorded in kilograms to the nearest 100 grams. The BMI of the participants was calculated using the self-reported height and collected body weight measurements and using the standardized procedure ($BMI = \text{weight (kg)} / [\text{height (m)}]^2$). As for the loaded body mass index (LBMI), which is a new measure (Strader et al., 2020), it was calculated using the adjusted weight of the candidates that included their load carried. The calculation was the same as the standardized BMI formula as above ($LBMI = \text{body weight and load carriage (kg)} / [\text{height (m)}]^2$).

Statistics

The data were provided in a Microsoft Excel (Microsoft Office 365, 2024) spreadsheet. The data were then transferred to the IBM Statistical Package for Social Sciences (SPSS) Statistics (IBM, 2017) software program. After a descriptive analysis, independent samples t-tests were performed to determine if there were any significant differences between candidates and specialist officers in regard to descriptive measures, RUSH time, and ancillary factors (i.e. weight of daily load). An Analysis of Covariance (ANCOVA) was conducted to compare

RUSH times across groups, controlling for age, height, weight, and kit. These covariates were included due to their known associations with load carriage and obstacle-course performance in tactical populations and physical performance in general. To avoid redundancy and potential multicollinearity, BMI was not included given that weight and height were. Box plots were used to graphically represent the RUSH data for both groups. Alpha levels were set at 0.05 a priori.

Results

The results indicated that there were no significant differences between specialist police candidates and officers in RUSH times. While no significant differences in height, body weight, BMI or LBMI were observed, there were significant differences in age ($t(50)=-3.190, p<0.001$), kit weight ($t(23.856)=5.339, p<0.001$, unequal variances), and percentage of body weight that carried loads represented ($t(22.372)=4.537, p<0.001$, unequal variances) (see Table 1). Despite the heavier equipment loads carried by trainees (mean of 5 kg), there were no significant differences in overall weights of participants and loads combined between the groups. While the RUSH time for the officers was generally faster (105.10 ± 14.61 seconds) than those of the trainees (111.73 ± 9.21 seconds; $p=0.087$), the results were more widely spread with a larger standard deviation (Figure 2). The overall ANCOVA model predicting RUSH time (sec-

onds) from group membership and covariates including age, height, weight, and kit, did not reach statistical significance, $F(5, 46)=0.97, p=0.45, R^2=0.10$ (adjusted $R^2=-0.003$). After controlling for the covariates, the effect of group on RUSH time was not statistically significant, $F(1, 46)=1.75, p=0.19,$

partial $\eta^2=0.04$. Determination of the estimated marginal means suggested that Candidates had a higher adjusted RUSH time ($M_{adj}=112.15$ s, $SE=4.04, 95\% CI [104.02, 120.28]$) than Officers ($M_{adj}=104.88$ s, $SE=2.66, 95\% CI [99.55, 110.22]$); however, this adjusted difference was not significant.

Table 1. Trainee and Qualified Specialist anthropometric characteristics

| GROUPS | Trainees; n=18 | | Qualified Specialist; n=34 | |
|---------------------------------|----------------|-------------|----------------------------|--------------|
| | Min - Max | Mean ± SD | Min - Max | Mean ± SD |
| Age (yrs) | 26.00–42.00 | 32.11±4.90* | 25.00–60.00 | 37.82±6.64* |
| Height (cm) | 173.00–193.00 | 183.72±5.63 | 165.00–194.00 | 181.62±6.70 |
| Body Weight (kg) | 71.00–110.00 | 89.44±8.32 | 70.50–115.00 | 91.54±10.89 |
| BMI (kg/m ²) | 23.18–29.53 | 26.45±1.58 | 23.60–34.40 | 27.69±2.36 |
| Kit Weight (kg) | 16.50–31.10 | 24.02±3.67 | 14.60–24.20 | 18.97±2.23* |
| Total Weight (kg) | 99.00 –127.00 | 113.46±8.17 | 89.00–137.00 | 110.51±11.77 |
| Percent Body Weight (%) | 15.00–39.44 | 27.20±5.47 | 15.84–27.63 | 20.92±2.95* |
| Loaded BMI (kg/m ²) | 30.65–35.97 | 33.60±1.61 | 29.10–41.00 | 33.46±2.53 |
| Urban Rush Time (secs) | 96.80–127.50 | 111.73±9.21 | 86.82–149.40 | 105.10±14.61 |

Note. Significantly different between applicants at *p=0.05.

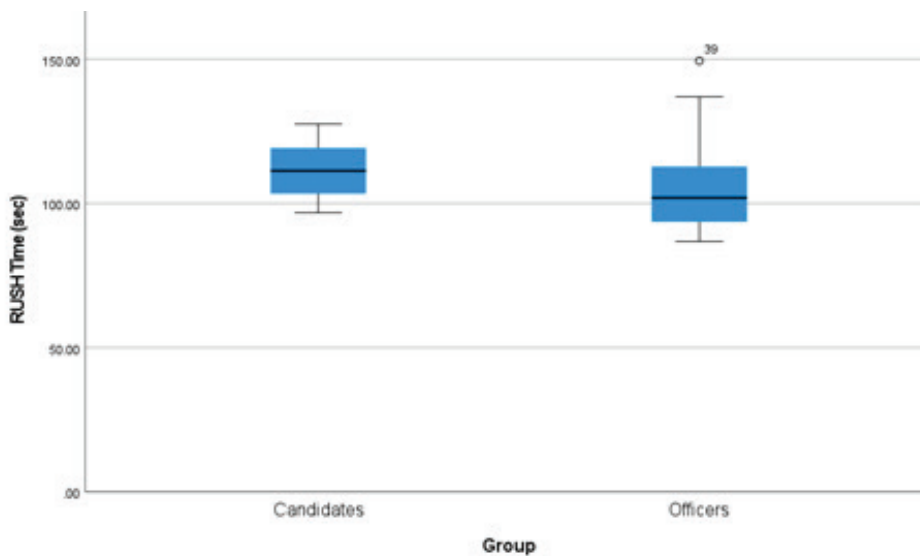


Figure 2. Boxplot of RUSH times comparing candidates versus officers

Discussion

The aim of this preliminary study was to compare RUSH performance between specialist police candidates (who passed fitness requirements but had not received specialist training) and qualified tactical officers. It was hypothesized that there would be no difference in RUSH times between groups. The hypothesis was partially supported. After adjusting for age, anthropometrics, and load-related covariates, no significant difference in RUSH completion times was detected between candidates and qualified officers. This finding indicates that

no performance difference attributable to tactical-skill proficiency was detected after adjustment, which is supportive, but not definitive, of skill-independence in this assessment. However, qualified PTG officers did trend towards faster mean completion times, which may reflect subtle differences in operational familiarity, movement efficiency or strategies when moving under PTG load rather than tactical skills.

A potential reason for the observed trend toward faster completion times among qualified PTG officers could be the significantly lighter loads they carried. These load differences are important to consider, as lighter absolute loads may re-

duce task difficulty and could either obscure or mimic potential skill-related effects when comparing groups. Carbone et al. (2014), examined specialist police officers performing a 10m sprint and 10m dummy drag (70 kg) while wearing occupational loads (22.8 ± 1.8 kg). Their findings indicated that officers whose loads exceeded 25% of their body weight were slower overall than officers carrying less than 25%. This difference in weights (body weight, kit weight and percentage of body weight) may provide some explanation as to why officers were generally faster than candidates. Furthermore, research suggests that both load weight (Carlton et al., 2014) and fitness relative to body weight (Orr et al., 2025) are associated with task performance when carrying tactical loads. As such, these minor albeit significant differences in load weights between the cohorts could explain the differences in RUSH times. Ultimately, the results of this preliminary study suggest that the RUSH may be a valid measure of fitness not influenced by tactical skill proficiency. This supposition is further supported by the work of Thomas et al. (2019), who found no significant difference in RUSH performance between candidates who were selected ($n=11$, RUSH = 112 ± 10 sec) and those who were not ($n=7$, 111 ± 10 sec) at the conclusion of a specialist selection course.

Within the same group of PTG candidates, Strader et al. (2020) compared elements of fitness that were associated with RUSH performance. Their findings revealed a significant correlation between shoulder strength and RUSH completion time ($r=-0.531$, $p=0.023$) and when combined with non-master hand grip strength, these two collectively predicted performance ($r^2=0.602$). Broader research supports the relevance of grip strength for occupational tasks such as the dummy drag (Orr, Robinson et al., 2022) and marksmanship (Orr et al., 2017), both of which are elements of the RUSH. In addition, while strength is associated with load carriage (Orr et al., 2019), upper body strength in particular was found by Orr et al. (2022) to be the strongest strength measure related to load carriage capacity in specialist police officers (relative pull up $r=-0.468$). Similarly, Sax van der Weyden et al. (2021) investigated the relationships between a Special Weapons and Tactics fitness test (SORT) and the SWAT mandated task specific obstacle course assessment, an assessment utilized by the police department as a qualification tool for members. The SORT included weighted squats, push-ups, lunges, a pull-up isometric hold, sled drag and Yo-Yo intermittent recovery test. Their findings demonstrated a strong and significant correlation between SORT performance and SWAT obstacle course outcomes ($r=-0.867$) (Sax van der Weyden et al., 2021).

More broadly, a substantial volume of evidence supports the association between musculoskeletal fitness (i.e., strength power, muscular endurance) and obstacle course performance in general duties police officers (Dawes, Lindsay, et al., 2017; Lockie et al., 2018; Lockie et al., 2023; Marins et al., 2020; Stanish et al., 1999). Strength measures such as pull-ups, grip strength, bench press, and the flexed arm, are routinely included in these fitness assessment batteries (Lockie et al., 2018; Lockie et al., 2023; Marins et al., 2020; Stanish et al., 1999) and associated obstacle course performance. Accordingly, the work of Strader et al. (2020) and the wider literature

support the premise that physical fitness is a key determinant of obstacle course performance in police personnel.

When considered in combination, the evidence suggests that the RUSH can be considered as a valid measure of occupational fitness, independent of PTG specific tactical skill proficiency. This of importance if the RUSH is to be validly employed as a measure of fitness and addresses potential concerns that general tactical skills requirements (such as weapon handling) may significantly influence fitness test results.

Limitations

One notable limitation was the inability to ensure that both cohorts carried equivalent kit loads. Candidates were required to carry key items of equipment as part of their selection, whereas qualified officers carried and wore equipment and loads that they preferred on operations. Likewise, differences in body armour brands and sizes may have influenced load weights (Schram et al., 2018). In addition, the candidates were significantly younger than the qualified officers. While fitness is known to generally decline with age in police officers (Dawes, Lindsay, et al., 2017) previous research reported in suggests that officer age does not significantly influence RUSH times with a potential reason being the consistent physical training of officers mitigating age-related fitness declines (Irving et al., 2025).

Given the retrospective nature of this study, there were limitations to the standardisation of testing conditions, including the surfaces on which assessments were conducted and the prevailing weather at the time of testing. However, the assessments were conducted in the venue and way they would be applied in the unit and therefore are representative or real-world application. The use of self-reported height, while practical, may have reduced the precision of BMI and LBMI calculations. Considering this, research by Johnson et al. (2020) has found self-reported health, weight, and subsequent BMI, measures to be accurate and reliable in law enforcement populations. Finally, the sample size of the study warrants consideration. However, noting the specialized nature of the police officers in these units and relatively small size of the units, this study with a total sample of 52 participants is notably larger than the sizes reported in previous studies which range from $n=6$ to $n=47$ (Carbone et al., 2014; Carlton et al., 2014; Keeler et al., 2022; Strader et al., 2020).

Conclusions

The findings of this preliminary study suggest that RUSH performance does not significantly differ between specialist police candidates and qualified PTG officers, suggesting that tactical skill proficiency may not confound the test's validity. While qualified officers demonstrated a non-significant trend toward faster completion times, this may be attributed to differences in load carriage (both absolute and relative) rather than tactical expertise. Supporting literature reinforces the role of physical fitness in obstacle course performance across law enforcement populations. Collectively, these insights support the RUSH as a valid, occupation-specific measure of physical fitness, independent of tactical training, suitable for inclusion within specialist police fitness assessment batteries.

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Conflicts of Interest

The authors declare no conflict of interest.

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