Running Speed, Power, and Aerobic Fitness relate to Work Sample Test Battery Performance in Deputy Sheriff Recruits
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Published: 01/10/2018

Document Version: Peer reviewed version

Link to publication in Bond University research repository.

ABSTRACT

Many law enforcement recruits complete a state-specific physical test before graduating from their respective academies. In California, this is known as the Sample Test Battery (WSTB).† The WSTB comprises a battery of tests related to job-related tasks. Certain agencies also conduct additional tests to measure physical fitness; one example is the Validated Physical Abilities Test (VPAT).† The VPAT was developed to measure a recruit’s power as well as running and jumping performance. Retrospective analysis on data from four academy classes (2013-2016) from one law enforcement agency was conducted. The VPAT+ and WSTB were completed in the last weeks of a 22-week academy training program. The VPAT+ comprised five tests completed for timed agility around a 9-yard obstacle course (OBSC), 32-foot body drag (BD) with a 165-lb dummy; climb over a 5-foot chain link fence (CL) and climb over the 8-foot wall (W), and 220-yard run (YR). Partial correlation analysis was used to calculate the relationships between the tests from the VPAT+ and WSTB. A greater r value was found between OBSC and CL, BD and YR (r = 0.23, p < 0.05). Greater RSTB performance was associated with faster BD, YR, and W for r = 0.22, p < 0.05. The results indicated that the greater the higher RSTB performance, the higher the likelihood of being selected for the WSTB. The relationships between the tests from the VPAT+ and WSTB were also significant with r values ranging from 0.22 to 0.38.

INTRODUCTION

• Many law enforcement recruits complete a state-specific physical test before graduating from their respective academies. In California, this is known as the Sample Test Battery (WSTB).† The WSTB is comprised of tests resembling job-related tasks. For instance, the WSTB simulates situations in which an officer must chase a suspect; climb over a barrier; and clear an obstacle with running; and an incapacitation of a suspect to safety.†

• Certain agencies also conduct additional tests to measure physical fitness; one example is the Validated Physical Abilities Test (VPAT).† The VPAT was developed to measure a recruit’s power, high-intensity running ability, and general fitness. Dawes et al.† has linked the physical qualities of power and high-intensity running to increased performance in law enforcement-specific physical abilities tests.

• As the VPAT+ has more power-based and high-intensity running tests than the WSTB, it may be indicative of future job performance, as officers frequently need to move quickly over and around barriers while pursuing fleeing suspects, amongst other anaerobically-based tests.

• The purpose of this study was to document the relationships between VPAT+ and WSTB performance in deputy sheriff recruits.

METHODS

• Retrospective analysis on data from four academy classes (2013 males: age = 26.42 ± 5.13 years, height: 1.77 ± 0.07 m, body mass: 83.12 ± 14.8 kg; females: age = 26.7 ± 4.34 years, height: 1.65 ± 0.07 m, body mass: 70.42 ± 19.35 kg) from one law enforcement agency was conducted. The VPAT+ and WSTB were completed in the last weeks of a 22-week academy training program. The VPAT+ comprised five tests completed for timed agility around a 9-yard obstacle course (OBSC), 32-foot body drag (BD) with a 165-lb dummy; climb over a 5-foot chain link fence (CL) and climb over the 8-foot wall (W), and 220-yard run (YR). Partial correlation analysis was used to calculate the relationships between the tests from the VPAT+ and WSTB. A greater r value was found between OBSC and CL, BD and YR (r = 0.23, p < 0.05). Greater RSTB performance was associated with faster BD, YR, and W for r = 0.22, p < 0.05. The results indicated that the greater the higher RSTB performance, the higher the likelihood of being selected for the WSTB. The relationships between the tests from the VPAT+ and WSTB were also significant with r values ranging from 0.22 to 0.38.

RESULTS

• The VIP and WSTB were completed in the last weeks of a 22-week academy training program. The VPAT+ was comprised of: a vertical jump (VJ) and seated 2 kg medicine ball throw (MBT) to measure lower- and upper-body power, respectively; a 75-yard pursuit run (75PR), which was a simulated foot pursuit involving sprinting and direction changes; and the multi-stage fitness test (MSFT), where the number of shuttles indicates aerobic fitness. The VPAT+ comprised five tests completed for timed agility around a 9-yard obstacle course (OBSC), 32-foot body drag (BD) with a 165-lb dummy; climb over a 5-foot chain link fence (CL) and climb over the 8-foot wall (W), and 220-yard run (YR). Partial correlation analysis was used to calculate the relationships between the tests from the VPAT+ and WSTB. A greater r value was found between OBSC and CL, BD and YR (r = 0.23, p < 0.05). Greater RSTB performance was associated with faster BD, YR, and W for r = 0.22, p < 0.05. The results indicated that the greater the higher RSTB performance, the higher the likelihood of being selected for the WSTB. The relationships between the tests from the VPAT+ and WSTB were also significant with r values ranging from 0.22 to 0.38.

CONCLUSIONS

• The VIP and 75PR related to the running and barrier-clearing WSTB tests, which may display the need for lower-body power and high-intensity anaerobic performance in these tasks. Furthermore, these findings align with Dawes et al.,† who highlighted the need for these attributes in law enforcement officers.

• Superior MSFT performance related to the CS9 and 500TR times, which highlights high-intensity running capacity needs for law enforcement; not only score highly on physical testing, but this could crossover to job-specific tasks such as suspect pursuit.†

• Better MBT scores correlated with the 990C and CL, which provide some indication of the need of upper-body power in occupational tasks, especially when an officer must pull themselves up and over a barrier. Previous research by Locke et al.† has indicated the potential value of upper-body power for law enforcement officers.

• No VPAT+ tests related to the BD. The BD is strength-intensive, which is an attribute not usually tested in recruits. The use of strength testing in recruits should be explored. This quality could relate to job-specific tasks such as jumping/climbing over obstacles, apprehending suspects, and dragging a person to safety.

Table 1. Correlation matrix showing relationships between VPAT+ and WSTB performance.

<table>
<thead>
<tr>
<th>Test</th>
<th>990C</th>
<th>BD</th>
<th>CL</th>
<th>SW</th>
<th>500TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Jump</td>
<td>r</td>
<td>-0.382*</td>
<td>0.062</td>
<td>-0.232*</td>
<td>-0.243*</td>
</tr>
<tr>
<td>Medicine Ball Throw</td>
<td>r</td>
<td>&lt;0.001</td>
<td>0.154</td>
<td>0.142</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>75-Yard Pursuit</td>
<td>r</td>
<td>0.498*</td>
<td>0.095</td>
<td>0.476*</td>
<td>0.254*</td>
</tr>
<tr>
<td>Multi-Stage Fitness Test</td>
<td>r</td>
<td>0.001</td>
<td>0.146</td>
<td>0.001</td>
<td>0.001</td>
</tr>
</tbody>
</table>

| p        | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

* Significant (p < 0.05) relationships between the two variables.