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Published: 01/10/2018

Document Version:
Peer reviewed version

Link to publication in Bond University research repository.

Recommended citation (APA):

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Running Speed, Power, and Aerobic Fitness relate to Work Sample Test Battery Performance in Deputy Sheriff Recruits

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ABSTRACT

Many law enforcement recruit candidates complete a state-specific physical test before graduating from their respective academies. In California, this is known as the Work Sample Test Battery (WSTB). 1 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; apprehend an occupant of a residence; and arrest an incapacitated person. 2

INTRODUCTION

• Many law enforcement recruits complete a state-specific physical test prior to graduating from their respective academies. In California, this is known as the Work Sample Test Battery (WSTB). 1 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; apprehend an occupant of a residence; and arrest an incapacitated person. 2

• Certain agencies also conduct studies to measure physical fitness; one example is the Validated Physical Abilities Tests (VPAT). The VPAT+ was developed to measure a recruit’s power as well as running speed. The VPAT+ is a composite of tests related to four academy classes (2013–2016); four low law enforcement agencies were 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 senior physical abilities assessments in the state of California. 5

• The VPAT+ 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 accurately measure lower- and upper-body power, respectively; a 75-yard pursuit (7SP), which was a simulated foot pursuit involving sprinting and direction changes; and the multi-stage fitness test (MSFT), which is the number of shuttle repeats indicated aerobic fitness. The WSTB comprised five tests completed for senior physical abilities assessments in the state of California. 5

• The VPAT+ 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 accurately measure lower- and upper-body power, respectively; a 75-yard pursuit (7SP), which was a simulated foot pursuit involving sprinting and direction changes; and the multi-stage fitness test (MSFT), which is the number of shuttle repeats indicated aerobic fitness. The WSTB comprised five tests completed for senior physical abilities assessments in the state of California. 5

• The VPAT+ comprised five tests completed for time: agility run around a 99-yard obstacle course (99OC; Figure 3); 32-foot body drag (BD) with a 165-lb dummy; climb over a six-foot chain link fence (CL) and six-foot solid wall (SW); and 500-yard run (500R). 6

• Partial correlations (p < 0.05) controlling for sex calculated relationships between the tests from the VPAT+ and WSTB.

• Table 1 displays the correlation data. A greater VI related to faster 99OC, CL, SW, and 500R scores. Greater MBT distance correlated to quicker 99OC and CL performance. Faster 7SPR performance was associated with a faster 99OC, CL, SW, and 500R. A higher number of MSFT shuttles correlated to faster 99OC and 500R. 7

• No VPAT+ tests related to the BD.

METHODS

RESULTS

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

<table>
<thead>
<tr>
<th></th>
<th>99OC</th>
<th>BD</th>
<th>CL</th>
<th>SW</th>
<th>500R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical Jump</td>
<td>0.382*</td>
<td>0.062</td>
<td>-0.232*</td>
<td>-0.243*</td>
<td>-0.242*</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.001</td>
<td>0.104</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Medicine Ball</td>
<td>0.291</td>
<td>0.068</td>
<td>0.118</td>
<td>0.154</td>
<td>0.142</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.001</td>
<td>0.001</td>
<td>0.002</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>75-yard Pursuit</td>
<td>0.498*</td>
<td>0.019</td>
<td>0.476*</td>
<td>0.254*</td>
<td>0.281*</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.001</td>
<td>0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Multi-Stage Fitness Test</td>
<td>-0.274*</td>
<td>-0.805</td>
<td>-0.075</td>
<td>-0.410*</td>
<td>-0.010</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.001</td>
<td>0.194</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

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

CONCLUSIONS

• The VI and 7SPR 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. 3 who highlighted the need for these attributes in law enforcement officers.

• Superior MSFT performance related to the OC9 and 500R 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. 5

• Better MRT scores correlated with the 99OC 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 Lockie et al. 3 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 considered to enable this quality to relate to job-specific tasks such as jumping/climbing over obstacles, apprehending suspects, and dragging a person to safety.

References


