INTRODUCTION

- Routines help prepare athletes to complete a set of automatic skills despite variations in the sporting context (McConn, 2008; Taylor, 2012; Wrisberg & Pein, 1992).
- Many athletes use pre-performance routines (PPR) during competition to help improve performance (Bell, Cox, & Finch, 2010; Bouchier & Zinsser, 1990; Thomas & Over, 1994).
- PPVs involve an athlete focusing solely on a specific sequence of pre-established and rehearsed cues prior to a sport specific, closed skill (e.g. a punt in football or soccer, batting stance in baseball; Wrisberg & Pein, 1992).

Primary aim was to examine the relationship between the use of a behavioral PPR and serving accuracy among collegiate club volleyball players. It was hypothesized that maintainers of PPVs would exhibit higher serving accuracy than non-maintainers.

Secondary aim was to examine the relationship between PPVs and competitive anxiety (CA) with the hypothesis that maintainers would exhibit lower levels of CA.

Tertiary aim was to examine potential gender differences with the hypothesis that females would be more likely to use PPVs than males.

METHODS

- 40 (21 females and 19 males) intercollegiate club volleyball players.
- Participants completed a demographic form, Competitive State Anxiety Index-2(d) (CSAI-2(d)) and a modified version designed to look at serving. Then video recordings were taken of each participant’s serve.
- PI and research staff then recorded participants’ serving at six different regional collegiate competitions in order to observe each team twice. The current score and the result of the serve (i.e. “make” or “miss”) was also verbally recorded.
- Participants were coded either as maintainers (maintained actions of PPVs 20%; MTR) or non-maintainers (maintained actions of PPVs 0%; NMTR).
- Independent t-tests were used to compare differences between MTRs and NMTRs on serving percentage, scores on the CSAI-2(d) and the modified version, and gender differences in years of experience and serving percentage.

RESULTS

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Serves Made</th>
<th>Number of Serves Attempted</th>
<th>Serving %</th>
<th>Number of Participants</th>
<th>Average Maintenance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Maintenance MTR</td>
<td>195</td>
<td>213</td>
<td>90.53 %</td>
<td>4</td>
<td>97.54%</td>
</tr>
<tr>
<td>Behavioral Maintenance NMTR</td>
<td>129</td>
<td>147</td>
<td>85.74%</td>
<td>5</td>
<td>29.26%</td>
</tr>
<tr>
<td>Remaining</td>
<td>506</td>
<td>580</td>
<td>89.36%</td>
<td>20</td>
<td>55.78%</td>
</tr>
</tbody>
</table>

Sub-Scales | Mean | Minimum-Maximum CSAI-2(d) | Directional | Mean | Minimum-Maximum |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Cognitive Anxiety Women</td>
<td>20.39</td>
<td>9 - 31</td>
<td>-3.9</td>
<td>-12</td>
<td>-27</td>
</tr>
<tr>
<td>Men</td>
<td>21.58</td>
<td>14 - 28</td>
<td>3.33</td>
<td>-11</td>
<td>-19</td>
</tr>
<tr>
<td>Total</td>
<td>20.95</td>
<td>9 - 31</td>
<td>1.925</td>
<td>-12</td>
<td>-27</td>
</tr>
<tr>
<td>Somatic Anxiety Women</td>
<td>17.72</td>
<td>9 - 25</td>
<td>4.62</td>
<td>-9</td>
<td>-27</td>
</tr>
<tr>
<td>Men</td>
<td>19.08</td>
<td>11 - 28</td>
<td>4.42</td>
<td>-7</td>
<td>-19</td>
</tr>
<tr>
<td>Total</td>
<td>18.05</td>
<td>9 - 28</td>
<td>7.739</td>
<td>-9</td>
<td>-27</td>
</tr>
<tr>
<td>Self-Confidence Women</td>
<td>24.79</td>
<td>12 - 36</td>
<td>9.54</td>
<td>-10</td>
<td>-27</td>
</tr>
<tr>
<td>Men</td>
<td>26.78</td>
<td>23-33</td>
<td>14.11</td>
<td>-3</td>
<td>-21</td>
</tr>
<tr>
<td>Total</td>
<td>25.87</td>
<td>12 - 36</td>
<td>9.076</td>
<td>-10</td>
<td>-27</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Primary aim showed no significant differences between the MTR and NMTR groups on serving accuracy.

- This finding did not support the hypothesis, but did confirm similar findings by Czech, Mocay, and Burke (2004).
- In volleyball strict serve PPR maintenance may not be as important for successful performance because players are navigating spectator movement, variations in whistle speed, and changes in space for serving.

Secondary aim exploring CA, found a greater reported amount of cognitive compared to somatic anxiety. May be because participants were all relatively advanced players.

- Subscale of self-confidence warrants the most attention for performance (Craft, Magay, Becker, & Feltz, 2003).
- Feelings of self-confidence may mitigate the anxiety and allow the participants to attribute it more positively.

Tertiary aim found no general or volleyball specific demographic differences between the two genders, although women reported a greater number of years of experience.

- Findings were consistent with the hypothesis that women were significantly higher maintainers than their male counterparts.
- However, this did not correlate to their serving percentage.

Future research should seek to develop study designs that use deception to get a more natural depiction of a PPR, assess cognitive components of PPVs, and more rigorously define accuracy as it suits volleyball in particular.

REFERENCES


Acknowledgements: Special thanks to my committee members: Dr. Diane Wiese-Bjornstal and Dr. Roberta Kraus and research assst. Sarah Bentley.