The Implications of Lower-Limb Symmetry within Freestyle Wrestlers during an Offensive reshot

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Centre for Sport Science and Human Performance, Wintec, Hamilton, New Zealand (2018)

Introduction

In the sport of freestyle wrestling, it is advantageous to be able to initiate attacks from both sides of the body. Limb symmetries are perceived to positively effect an individual’s ability to perform adequately using either side of the body (Jordan & Herzog, 2015). There is currently limited research relative to limb symmetries and wrestling, thus the purpose of this study was to determine lower-limb asymmetries within freestyle wrestlers and its impact on their wrestling performance in order to further knowledge within this area.

Methods

Participants
Ten competitive male and female wrestlers (Mean ± SD; age: 22.3 ± 3.9 y, body mass: 75.7 ± 9.4 kg, height: 172.2 ± 8.6 cm) volunteered to participate.

Data collection
The participants were required to complete a unilateral bound test, a crossover hop test and a double-leg re-shot performance test. The participants were familiarised with the tests before completing three trials on each leg for each test with approximately two minutes rest between trials.

Statistical procedures
Descriptive statistics (means and standard deviations) were calculated for the performance measures. Differences between the preferred and non-preferred legs were defined using effect sizes and percentage differences (Nagakawa & Cuthill, 2007)

Table 1: Differences between shoot-reshoot performance and unilateral power metrics (Preferred – Non-preferred), including qualitative inferences about the effects of those differences.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Non-Preferred</th>
<th>Preferred</th>
<th>P value</th>
<th>% Diff, ±90%CL</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral Horizontal bound (cm)</td>
<td>185.7 ± 35.0</td>
<td>207.1 ± 36.8</td>
<td>0.0004*</td>
<td>11.7, ± 3.8</td>
<td>0.54 (S)</td>
</tr>
<tr>
<td>Crossover hop (cm)</td>
<td>440.1 ± 115.2</td>
<td>458.6 ± 93.7</td>
<td>0.195</td>
<td>5.6, ± 7.4</td>
<td>0.18 (T)</td>
</tr>
<tr>
<td>Shoot-Reshoot Shot 1 (s)</td>
<td>1.142 ± 0.165</td>
<td>1.150 ± 0.173</td>
<td>0.919</td>
<td>0.6, ± 12.0</td>
<td>0.04 (T)</td>
</tr>
<tr>
<td>Shoot-Reshoot Transition (s)</td>
<td>0.234 ± 0.189</td>
<td>0.275 ± 0.188</td>
<td>0.640</td>
<td>11.3, ± 50.1</td>
<td>0.11 (T)</td>
</tr>
<tr>
<td>Shoot-Reshoot Shot 2 (s)</td>
<td>1.445 ± 0.361</td>
<td>1.468 ± 0.306</td>
<td>0.730</td>
<td>2.9, ± 16.0</td>
<td>0.09 (T)</td>
</tr>
<tr>
<td>Shoot-Reshoot Total (s)</td>
<td>2.820 ± 0.387</td>
<td>2.847 ± 0.312</td>
<td>0.785</td>
<td>1.3, ± 8.8</td>
<td>0.08 (T)</td>
</tr>
</tbody>
</table>

* Significant difference P < 0.050; Diff. = Difference; CL = Confidence limits; S = small; T = trivial

Findings

The results of the study identified trends that suggested an overall greater performance when the wrestlers used their preferred leg during the tests. The horizontal bound test found asymmetries within the participants which correlated largely with the preferred double leg shot (r = 0.543). This finding indicated that the dominant leg (preferred leg) produced a faster time during the shoot-reeshoot which is in accordance of current literature and wrestling knowledge (Dorge et al, 2002).

Further research is required to further our knowledge into limb symmetry and its implications in freestyle wrestling.

Practical applications

The findings within this study can be used to:

- Develop coaching strategies to achieve optimal performance.
- Identify performance differences between the two sides of the body.

References