THE EFFECTS OF COMBINED GENERAL, SPECIAL, AND SPECIFIC RESISTANCE TRAINING ON PACE BOWLING SPEED AND ACCURACY

Simon A. Feros¹, Warren B. Young¹ & Brendan J. O'Brien¹

¹Federation University Australia, Victoria, Australia.

INTRODUCTION

The combination of general, special, and specific resistance exercises in one mesocycle has been shown to significantly improve baseball throwing velocity by 5.6%. Currently it is not understood whether a similar training approach would enhance cricket pace bowling speed and accuracy.

METHODS

Twelve male community-standard pace bowlers completed an eight week training intervention, randomly but evenly assigned to a combined resistance training group or a traditional cricket training group. The former group completed a general, special, and specific training program through pull-up training, sprint training (resisted and unresisted), and bowling training (heavy ball and regular ball) respectively. The latter group served as controls, and completed unresisted sprint training and regular-ball bowling only. Both groups completed a four over pace bowling test before and after the training phase. Bowling speed data was captured via radar gun, and mean radial error, defined as the distance from intended target to actual ball strike, was calculated to represent bowling accuracy.

RESULTS

The combined resistance training group displayed a small improvement in peak and mean bowling speed relative to the traditional cricket training group. However, a large increase in mean radial error was evident in the combined resistance training group, indicative of poorer bowling accuracy (Table 1).

Table 1 - Comparison in pace bowling speed and accuracy measures between the combined resistance training group and the traditional cricket training group. Data are presented as mean ± standard deviation. Note, the effect size compares the difference in change scores (post-pre) between groups.

<table>
<thead>
<tr>
<th></th>
<th>Combined Resistance Training (n = 6)</th>
<th>Traditional Training (n = 6)</th>
<th>Cricket</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Peak BS (m s⁻¹)</td>
<td>29.1 ± 1.8</td>
<td>30.0 ± 2.1</td>
<td>28.8 ± 2.4</td>
</tr>
<tr>
<td>Mean BS (m s⁻¹)</td>
<td>28.4 ± 2.2</td>
<td>29.3 ± 2.1</td>
<td>28.1 ± 2.3</td>
</tr>
<tr>
<td>Mean RE (cm)</td>
<td>41.9 ± 5.2</td>
<td>50.8 ± 7.3</td>
<td>46.6 ± 9.1</td>
</tr>
</tbody>
</table>

ES, effect size; BS, bowling speed; RE, radial error.

DISCUSSION

Heavy ball bowling and pull-up training possibly improved peak and mean bowling speed through improved fast twitch motor unit size and/or functionality (i.e., synchronisation, firing rate, recruitment). However, heavy-ball bowling may have altered the segmental sequencing pattern of the bowling motion, leading to inconsistent delivery release points and thus poorer bowling accuracy.

PRACTICAL APPLICATIONS

Strength and conditioning coaches in cricket are advised to prescribe more general and special exercises such as bench presses, pull-overs, pull-ups, medicine ball throws, and 20-m sprints to develop strength and power levels to improve bowling speed without harming bowling accuracy. This is based on the assumption that specific exercises such as heavy-ball bowling negatively transfers to bowling accuracy.