INTRODUCTION

Heavy-ball throwing in a warm-up has been shown to acutely potentiate regular-ball throwing velocity (1). Stronger athletes can elicit greater potentiation (2). Resistance training could therefore be expected to improve the ability to elicit potentiation and ultimately enhance ballistic movements.

METHODS

PARTICIPANTS

Twelve male community-standard pace bowlers (A and B grade cricket), aged: 23.7 ± 7.5 years, pace bowling experience: 7.1 ± 4.7 seasons, resistance training experience: 1.5 ± 2.9 years, participated in this study.

PROCEDURE

Bowlers completed 8 weeks of training, 2 sessions / week, in either a resistance training group (n = 6), or traditional cricket training group (n = 6). The resistance training group completed 2 sessions / week, in either a resistance training program.

The resistance training group completed general, special, and specific exercises through pull-ups, sprints (resisted and un-resisted), and bowling (heavy ball and regular ball) respectively (Figure 1). The traditional cricket training group served as controls, and completed un-resisted sprint training and regular-ball bowling.

Both groups completed two warm-up conditions (heavy-ball bowling and regular-ball bowling) followed by a pace bowling test, on separate days (4-7 days apart), before the commencement of training, and after completing the training program.

ANALYSIS

A “potentiated” delivery was one that met or exceeded the smallest worthwhile change of mean ball speed in the match-intensity deliveries (2.2 km/h), or peak ball speed in the maximal-effort deliveries (3.2 km/h), when comparing the difference in delivery speed from the two warm-up conditions.

RESULTS

<table>
<thead>
<tr>
<th>Resistance Training Group (n = 6)</th>
<th>Traditional Cricket Training Group (n = 6)</th>
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</thead>
<tbody>
<tr>
<td>Potentiated deliveries (a)</td>
<td></td>
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<tr>
<td>-0.9 ± 1.7</td>
<td>1.5 ± 2.9</td>
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<tr>
<td>Mean delivery speed (km/h)</td>
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<tr>
<td>3.0 ± 3.0</td>
<td>2.0 ± 2.9</td>
</tr>
<tr>
<td>Peak delivery speed (km/h)</td>
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<tr>
<td>-1.7 ± 2.6</td>
<td>1.5 ± 2.0</td>
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</tbody>
</table>

Table 1: Number of potentiated deliveries, along with mean and peak delivery speeds in both testing periods for each training group. Data presented as mean ± SD, along with Cohen’s d effect sizes.

DISCUSSION

This study reiterates the importance of strength training to elicit greater potentiation for ballistic movements. The heavy-ball warm-up was effective in increasing the magnitude and frequency of potentiation in mean and peak delivery speed for the resistance training group.

The improvement of strength through possible hypertrophy of fast twitch fibres and / or improved recruitment, firing rate, and synchronisation of fast twitch motor units may have influenced the potentiation of mean and peak delivery speed for the resistance training group.

PRACTICAL APPLICATIONS

A heavy-ball bowling warm-up may be effective in eliciting greater potentiation for longer periods, providing the pace bowler has developed general and specific strength first. The acute enhancement in mean and peak delivery speed provides a short-term advantage for the pace bowler, providing their control over delivery trajectory is not compromised.

REFERENCES


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