COMPARISON OF SPECIAL EXERCISE AND SOCCER ORIENTED EXERCISE IN AMATEURS SOCCER PLAYERS

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Introduction

Strength performance and jumping ability are critical to the soccer player, and high scores for the countermovement jumps (CMJ) to be anticipated in top players [4]. Sprint and vertical jumping abilities are usually improved by jumping exercises [2], and can be classified in general, special and specific. The general exercises are divided into analytical and global, the special in general and oriented, and the specific in pure and analytical [1]. The aim of this work is to evaluate the vertical jumping ability related to special-general exercises and special-soccer oriented exercises in amateurs soccer players. Furthermore, was made the same analyses on three different categories: under 15 (U15), under 18 (U18) and First Team (FT).

Methods

46 amateur soccer players (19.1±4.8 yr; height 176.8±5.8; weight 69.6±7.8) were tested with the Optojump (Microgate, Bolzano, Italy) [3], measuring the vertical jump height in two different jumping exercises. Subjects were divided on basis of their category: under 15 (U15; N=16; 14.6±0.5 yr; height 174.2±4.7; weight 63.9±6.0), under 18 (U18; N=15; 18.0±1.0 yr; height 178.1±6.3; weight 70.3±6.6) and First Team (FT, N=15; 25.0±3.4 yr; height 178.3±5.8; weight 75.0±6.6). Every jumping session was made up of 3 trials, and the average jump height value has been computed for every one. Special-general exercises squat jumps (SJ) and counter movement jumps (CMJ), both with arms swing, have been performed. In the SJ the subjects started to jump from a standard position (sitting on a bench top 50 cm). The special-oriented exercises have been performed in the same way but with one variation: the ball has been throw by the coach from a distance of about 3 m, giving a task to hit the ball as high as possible (SJball - CMJball). Every trial has been executed after a rest of 30 seconds, while the recovery period between every session was one minute.

The data were analyzed using paired T-test using SPSS software v. 17 (SPSS Inc, Chicago, IL). The significant level was set up to p<.05.

Results and Discussion

Results and ICC reliability are reported in table 1. The mean value of SJ, SJball, CMJ and CMJball, were respectively, 40.9±5.7, 36.9±6.2, 41.9±5.9 and 37.5±6.6 cm. There is a significant difference between SJ and SJball (*p<.001; Figure 1-A) and between CMJ and CMJball (#p<.001; Figure 1-B). Results were the same analyzing the tests on three different categories (Figure 1-C).

Table 1. Mean ± sd of vertical jump height; ICC and CV reliability. * p < 0.001 between SJ and SJball; # p < 0.001 between CMJ and CMJball

<table>
<thead>
<tr>
<th>TEST</th>
<th>ALL SUB.</th>
<th>U15</th>
<th>U18</th>
<th>FT</th>
<th>T-TEST</th>
<th>ICC</th>
<th>95% CI</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SJ</td>
<td>40.9±5.7 *</td>
<td>36.5±2.9</td>
<td>42.6±6.8</td>
<td>43.8±4.1 *</td>
<td>&lt; 0.001</td>
<td>0.93</td>
<td>0.89–0.96</td>
<td>1.6</td>
</tr>
<tr>
<td>SJball</td>
<td>36.9±6.2</td>
<td>32.3±3.1</td>
<td>39.0±7.8</td>
<td>39.9±3.8</td>
<td>0.90</td>
<td>0.83–0.94</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>CMJ</td>
<td>41.9±5.9 #</td>
<td>38.0±4.2</td>
<td>42.9±6.9</td>
<td>45.2±4.0 #</td>
<td>&lt; 0.001</td>
<td>0.95</td>
<td>0.91–0.97</td>
<td>1.4</td>
</tr>
<tr>
<td>CMJball</td>
<td>37.5±6.6</td>
<td>33.3±4.3</td>
<td>39.2±7.8</td>
<td>40.3±5.5</td>
<td># 0.93</td>
<td>0.88–0.96</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

The mean jump height reached without ball during a SJ is significantly higher compared with the mean jump height reached when the ball is launched by the coach (SJball). The mean jump height reached without ball during a CMJ is significantly higher compared with the mean jump height reached when the ball is launched by the coach (CMJball).

This data suggest that, during special-soccer oriented exercises, the expression of lower limb muscular strength is less than during special-general exercises. A player must to be trained to perform a specific task in order to be able to execute the specific-exercise expressing his maximum potential.

Based on this evidence, we recommend the use of both exercises to improve the strength of lower limb and the coordinative factors linked to the expression of strength during a technical gesture.

References