

満4歳を迎える年少児における投動作の指導ポイントの検討 —投能力別の3次元動作分析の比較から—

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キーワード: 幼児, 投能力, 動作分析, 性差

【要旨】

本研究は年少時における投能力別に見た動作の違いを3次元動作分析により明らかにし, 投運動における指導ポイントを検討することを目的とした. 対象は年少男児105名, 女児113名のうち, 投能力の上位群(男女各5名), 下位群(男女各5名)とした. 分析の結果, 以下の結果を得た.

1. 女児上位群と下位群において, ステップや身体重心移動などの並進運動, 腰, 肩および体幹の回転運動に差は認められず, 上肢の水平速度にのみ有意な差が認められた.
2. 男児上位群は投射方向に対して身体を横向きのままステップし, 腰の回転を大きく使った投球フォームであった. 一方, 女児上位群は脚のステップは見られるが投射方向に対して身体を横に向けることができていないため, 腰の回転範囲が男児上位群よりも小さかった.
3. 男児上位群の投射角は他の群に比べて大きかった(31.3deg).
4. 肩の水平内外転および体幹のひねりに投能力による有意な差は見られなかった.

年少時のボール遠投の劣る子に対する指導は, まず上肢の水平速度を高めること, 次に腰の大きな回転を伴ったステップができるようにすること, そして投射角を獲得させることがポイントになると思われる.

スポーツパフォーマンス研究, 5, 163-175, 2013年, 受付日:2012年10月5日, 受理日:2013年6月17日

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Coaching 4-year-old children to throw: Analyzing motion differences between children with high and low throwing ability using three-dimensional analysis

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Key Words: young children, throwing ability, motion analysis, gender differences

[Abstract]

The present study aimed to identify the most appropriate steps to use when coaching 4-year-old children in order to improve their throwing ability. This was done by a 3-dimensional analysis of motion differences between 4-year-old children with high and low throwing abilities. The participants, 105 boys and 113 girls, all 4 years old, were divided into 2 groups: a high throwing ability group and a low throwing ability group. Each group was further subdivided into groups of 5 boys and groups of 5 girls. The analysis revealed the following: (a) The horizontal velocity of the throwing arm was significantly different between the group of girls with high throwing ability (GH group) and the group of girls with low throwing ability (GL group); however, no significant differences were observed in translational motion (step distance and center-of-gravity movement) or rotary motion (lumbar region, shoulder, and trunk) between these 2 groups. (b) The group of boys with high throwing ability (BH group) stepped forward sideways in the direction of throwing, throwing the ball with a large lumbar rotation. The GH group also stepped forward, but they did not turn the body sideways in the direction of their throw, so that the girls' lumbar rotation was smaller than that of the boys. (c) Among all groups, the BH group showed the largest projection angle of the ball (31.3 degrees). (d) No significant differences were found in the horizontal adduction and abduction of the shoulder and the twisting angle of the trunk between the groups with high and low throwing abilities in either boys or girls. On the basis of these results, it was suggested that when coaching 4-year-old children to throw a ball, the coaching should emphasize, first, a high velocity of the throwing arm; then, taking steps with a large lumbar rotation; and, finally, a large projection angle of the ball.