RELATION OF WING POSITION IN RELATION WITH BIOMOTOR VARIABLES IN THE GAME OF HAND BALL

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Abstract:

The aim of this study was to associate biomotor variables with skill efficiency and also to develop the regression equation for the prediction of skill efficiency. The research was conducted on college Level 25 male handball players. 5 biomotor measurements were taken as independent variables and one skill efficiency test as dependent variables was evaluated of each subject. SPSS (11.6) computer software was used to analyze the data and it revealed that the speed, agility, grip strength, explosive power measurements, The multiple correlation of one variables taken together with skill efficiency has been found highly significant and hence the developed equation can be used in the prediction of skill efficiency.

Key word: Goal keeping Positional play, biomotor Abilities.

Introduction

Maintaining a specific body weight and body composition are important requirements for optimal athletic performance. In order to achieve a body composition that promotes maximum physical ability, competitive athletes must train at a high level of intensity with great frequency. This level of intensity can vary by sport, and the timing of intense training can vary by age of the athlete. In certain sports, highly-focused training can begin as early as adolescence, whereas in other sports, this level of training does not occur until early adulthood. Elite athletes who are training their bodies to
achieve athletic greatness typically aim to develop a highly-muscular, minimally-fat body composition as compared to the average person.

**METHODOLOGY**

Twenty five male Handball players from college under Anna University Zone-19 constituted the subjects of the study. The data of the subjects were collected by using the Biomotor. The dependent variable i.e., ball controlling and passing skill efficiency was measured by Dominant hand speed pass of I.L.Zinn Team Handball Skill Battery (1981). In it the Subject stands behind the restraining line. Upon the signal “begin” the subject using the dominant hand to bounce a ball against the wall as rapidly as possible, catch the return bounce, and repeats until 50 bounces have hit the wall. All bounces must come from behind the restraining line and the subject must catch all passes with both hands, a stop watch is started as soon as the ball first contacts the wall and is stopped when the ball hit the wall on the 50th bounce. Two trials are given. Time for the better of two-timed trials is the final score. Time is recorded to the nearest 1/10 of a second. for statistical analysis (Mean, S.D., Person Product movement method for correlation, multiple correlation, regression equation).

**RESULTS & DISCUSSION**

The mean and S.d values on selected Biomotor measurements, physical fitness Components and Positional play performance (wing) variables have been shown in table-1.
Table 1

Mean and Standard Deviation on Selected Biomotor, Physical fitness Components and Skill Performance on Positional Play of Handball Players

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>46.60</td>
<td>2.78</td>
<td>25</td>
</tr>
<tr>
<td>Gripstrenth</td>
<td>50.84</td>
<td>1.32</td>
<td>25</td>
</tr>
<tr>
<td>Speed</td>
<td>10.64</td>
<td>.44</td>
<td>25</td>
</tr>
<tr>
<td>Explosive power</td>
<td>49.26</td>
<td>1.66</td>
<td>25</td>
</tr>
<tr>
<td>Agility</td>
<td>10.28</td>
<td>.56</td>
<td>25</td>
</tr>
</tbody>
</table>

Estimate

To fix the relationship between dependent variable and independent variables Pearson product moment correlation was used. The computation of multiple regression was also used. In multiple regression, we were predicting a criterion variable from a set of predictors. Forward selection method of multiple regression was used in this study to find out the predictor variable that has the highest correlation with the criterion variables is entered into the equation first. The rest of the variables were entered into the equation depending on the contribution of each predictor. The data on selected Biomotor measurements, physical fitness components and skill performance variables were statistically analyzed by using Pearson product moment correlation and the results is presented in table-2.
It is evident from table-2 that there was significant positive relationship between Positional playing ability with agility with 0.424 \(P < 0.05\) of Hand ball players separately

Multiple regression equation was computed because, the multiple correlation is sufficiently high to warrant prediction from it. Then, the correlation identifies the independent variables to be included and their order in the regression equation. Multiple correlation was computed by forward selection method on data obtained from the college hand ball players and the results is presented in table-3.

### Table 2

**Relationship between Biomotor and Physical fitness components with Wing Position Hand ball Players**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.424a</td>
<td>.180</td>
<td>.144</td>
<td>2.57581</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), explosive

X1- Grip strength, X2-Speed, X3-Explosive power X4-Agility.
From the table-3, it was found that the multiple correlation coefficient for predictors such as explosive power is 0.180 of multiple correlation with Hand ball wings positional playing ability. R square values showed that the percentage of contribution of predictors to the playing ability (dependent variable) in the following order.

About 0.14 of the variation in the playing ability was explained by the regression model with one analyst explosive power.

**Table 4**

**Regression Coefficients for the Predicted Variables with Playing Positional Ability of Hand ball Players**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>.749</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>11.669</td>
<td>15.577</td>
<td>.424</td>
</tr>
<tr>
<td>1</td>
<td>explosive</td>
<td>.709</td>
<td>.316</td>
<td>.424</td>
</tr>
</tbody>
</table>

a. Dependent Variable: performance
From the table-4, the following regression equations were derived for college Hand ball players with dependent variables.

1. Regression Equation in obtained scores form = \( X_C \)

\[
X_C = (0.70) A + 0.749
\]

Where, \( X_c \) = Position of play wing, \( A \) = height, \( B \) = Calf girth,

2. Regression Equation in standard scores form = \( Z_C \)

\[
Z_C = 0.42 Z_1 + (0.327)
\]
Where, $Z_c =$ Position of play Wing, $Z_1 =$ Height, $Z_2 =$ Calf girth,

The regression equation for the prediction of Hand ball Wing positional playing ability includes explosive power. As the multiple correlation on Hand ball Wing positional playing ability with the combined effect of these independent variables is highly significant, it is apparent that the obtained regression equation has a high predictive validity. Therefore this equation may be successfully utilized in selecting Hand ball Wings.

**Discussion**

The performance of goalkeeper has been regularly influenced to a great extent by Biomotor variables and skill performance variables. In the modern body type plays a vital role of game have been over emphasized to gain control in offense and defense at any level of competition. Similar findings were reported by Rodriguez-Vicente, G. et al. (2004) on handball players, and The current evidence is very well supported by the studies of Gopinathan and Helina (2009) on Handball players., Hooda, B.S.(2008) on Indian Junior MaleBasketball Players and Singh, K. & Chauhan (2010) on Basketball players. Shondell (1972) on Volleyball players. This puts a great deal of demand in terms of potential physical efforts on the part of each player on the playing field. Thus, the investigation clearly points out that the hand ball playing ability is mostly based on the Biomotor components of the players and it depends upon the skill performance variables.

**Conclusion**

Biomotor variable that is explosive plays vital role in the positional play of goal keeping. And It is apparent that the obtained regression equation has a
high predictive validity. Therefore this equation may be successfully utilized in selecting Hand ball Wings.

References


Diez, L.K., & Lawman, P.M.(1978). Relationship Among Selected Biomotor Variables Relative Body Fat on Inter Collegiate Level Women. Illinois University, USA.


