COMPARATIVE RELATIONSHIP OF SELECTED PHYSICAL FITNESS VARIABLES TO PLAYING ABILITY IN BASKETBALL AT DIFFERENT LEVELS OF PERFORMANCE

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ABSTRACT

One hundred and eighty boys of Bombay District Basketball Teams of mini, youth, and junior levels acted as the subjects for this study. The age group varied from 9 to 12 years for mini level, 13 to 17 years for youth level and 17 to 19 years for junior level and sixty subjects were tested in each level i.e. mini youth and junior. The subject’s performance was measured for their physical fitness variables which included Sargent Jump for leg power, 30 meters dash for speed, Semo agility run for agility and Cooper’s 12 minutes run/walk test for endurance. Subjects’ playing ability score were measured in passing accuracy, under basket shooting, jump shot shooting and playing ability (which was judged by a panel of three expert coaches). Statistical analysis of data comprised of Product Moment Correlation to assess the relationship between playing ability variable and physical fitness variables. The obtained coefficients for the three groups were compared by the ‘t’ test at .05 level of significance. The conclusions were that there was a positive relationship between thirty meters dash and under basket shooting for the junior group. The mini group had a significantly higher relationship between playing ability and thirty meters dash than the youth group. The youth group had a significantly higher relationship between playing ability and endurance than the mini group. There were no differences among the three groups i.e. mini, youth and junior as far as the relationship between physical fitness variables were concerned.

Keywords: Fitness, Playing Ability and Performance.

INTRODUCTION:

The game of basketball as it is seen these days has also undergone a tremendous amount of improvement since its origin in the year 1981 at the school for Christian workers (The International YMCA Training School), now known as Springfield College by Dr. James Naismith with the sole idea of engaging the college students in their free hours to provide some sort of recreation, competition as well as fitness activity.
In the arena of International competitions one can hardly differentiate the top notch contenders from one another in terms of their level of fitness. However, the deciding factor sometimes remains with fitness. The world’s top most sporting national are very much conscious of these facts and concentrate on the development of the basic physical fitness components and the related aspects. They start training a child, concentrating on those fitness factors which are supposed to play a significant role in future performance of sports and games such as flexibility, agility, reaction time, balance, coordination, strength, power and endurance etc. (General motor ability qualities) which are appropriate for specific age groups.

Power seems to be a vital factor in basketball since a player is required to make several times up and down movements, repeated jumps during shooting, rebounding etc. Power is also necessary for performing certain techniques in basketball which demand jumping ability such as jump shot, rebounding fast breaks etc. For a basketballer to give good performance he must possess acceleration, speed, sprinting speed, strength, cardio-vascular endurance, agility, even though these six components of physical fitness effect the performance of a player, yet the contribution made by reaction time to enhance performance is still not very certain. There is no doubt regarding the contribution of all these components which bring about better performance on the part of the basketball players. Therefore, to attain optimum performance in activities where speed is the main factor, above mentioned components should be woven together.

The effectiveness of many physical performances is related to various basic traits found in boys and girls including their maturation, body size, and physique type. Many of these traits are related to heredity; others, such as body weight have hereditary implications, may also be affected environmental influences, including the nature and amount of exercises, nutritional practices and health habits.

Competitive Basketball makes a tremendous demand on the physical condition, vitally endurance and mental power of the participant. Only athlete or sportsmen in the finest condition may withstand the wear and tear of a competitive season. Only the fittest are able to play to the best of their ability. In this modern age of scientific knowledge, scientific methods of training enabled the coaches and physical educationists to develop the best type of conditioning programme suitable for all. In the recent past greater stress has been laid on the quality rather
than the quantity of the training. Physical educationists and coaches want to develop maximum physical fitness for their trainees with planned training procedure without causing too much strain on them. This is possible only if both coaches and trainees apply the most beneficial means of training in the most economical manner for improving their physical fitness. Even though certain physical fitness variables have been discussed and reviewed for their relationship to performance in basketball at different levels in general but still it remains to be established scientifically. Therefore, the present study was undertaken with a view to make generalization in regard to the relationship of selected physical fitness variables to performance in basketball playing ability at different levels.

METHODOLOGY:

One hundred eighty (180) male basketball players in Mini, Youth, and Junior category of Bombay Region were selected as subjects for the purpose of this study. Those players who had at least represented their district team in the Maharashtra State Basketball Championship and were still playing competitive basketball were selected as subjects for the study.

On the basis of discussions with experts, feasibility criteria, availability of instruments and the relevance of the variable to the present study, the following variables were selected:

**Physical Fitness Variables**

1. Vertical Jump (Sargent Jump) for leg power
2. Thirty meters dash for running speed.
3. Semo Agility Run for agility
4. Cooper’s 12 minutes run/walk test for cardio-vascular endurance.

**Playing Ability Variables**

The following playing ability variables were selected, keeping in view whether these important skill variables would contribute to the basketball performance.

1) Over arm pass for accuracy
2) Under basket shot
RESULT:

The score thus obtained were correlated using Pearson’s Product Moment method between the two measures of each variable and the coefficients of correlation are presented in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Tests</th>
<th>Coefficients of Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sergent Jump</td>
<td>.793</td>
</tr>
<tr>
<td>Speed</td>
<td>.769</td>
</tr>
<tr>
<td>Agility</td>
<td>.773</td>
</tr>
<tr>
<td>Cardio-vascular endurance</td>
<td>.783</td>
</tr>
<tr>
<td>Passing Accuracy</td>
<td>.793</td>
</tr>
<tr>
<td>Under Basket Shot</td>
<td>.813</td>
</tr>
<tr>
<td>Jump Shot</td>
<td>.823</td>
</tr>
<tr>
<td>Basketball Playing Ability</td>
<td>.836</td>
</tr>
</tbody>
</table>

N = 10, r .01 (8) = 765.

*Significant at .01 level of confidence.

The relationship of physical fitness variables and playing ability was established by computing Pearson’s Product Moment Correlation method. Comparison of the coefficients of correlation for Mini, Youth and Junior playing ability group was done by using the ‘t’ test. Significance of the correlation as well as significance of the difference between the coefficients of correlation was tested at .05 level.

DISCUSSION:
Passing Accuracy and Physical Fitness Variables

It has been found in the present study that the relationship between passing accuracy and physical fitness variables was not significant. This is not surprising because all the four physical fitness variables are dominated by lower extremities while passing is a skill which involve the arms.

A comparison was found amount the coefficients of correlation between passing accuracy and sergeant jump and it was found that there is no real difference in the relationship for the three groups.

Comparison of the coefficients of correlation between passing accuracy and 30 metre dash for the three groups reveals that there was a significant difference in the magnitude of this relationship for mini and youth groups with mini boys having a significantly higher relationship than youth boys. Other group differences however, have not been found significant. From the above findings it seems that there is some amount of general ability shared by passing accuracy and 30 metre dash. For the mini group in comparison to youth group as already mentioned, passing accuracy is predominated by arm strength. Since the difference in the relationship between passing accuracy and 30 metre dash for mini and youth groups is significant, the null hypothesis in this case is rejected. For the other differences, however, the null hypothesis has not been rejected.

The 30 metres dash had a significant relationship with shooting while the other relationships were not significant. It may be noted here that basket shooting is a time controlled test i.e. that the subject has to score as many basket as he can within 30 seconds. This brings into play a significant amount of strength endurance. The 30 metre dash is a speed event. However, the significant scores in these tests point to two possibilities, either strength endurance or speed for the age group under study depends on the third factor or these two abilities have not yet been differentiated and consequently have a common or general base. The comparison of coefficients of correlation between under basket shooting and physical fitness variables did not yield any significant differences, among the three groups.
Consequent to the findings of no significant difference among the three groups for the relationship between under basket shooting and physical fitness variables, the null hypothesis has not been rejected.

The relationship between jump shot scores and physical fitness variables has not been found to be significant for any other groups. It is obvious that jump shot shooting is a skill success which depends on factors other than those measured by physical fitness items in the present study.

CONCLUSIONS:

Hence it is concluded that for the junior group a positive relationship was found between 30 meters dash and under basket shooting. The mini group had a significantly higher relationship between playing ability and 30 meters dash than the youth group and the youth group had a significantly higher relationship between playing ability and endurance than the mini group.

References


