Motor fitness components of young prospective teachers of physical education: A profile study

Anil Vanaik, Monika Wasuja and Sarita Tyagi

Abstract

Purpose of the study was to prepare profiles of young prospective teachers of physical education with specialization in swimming and gymnastics in respect of motor fitness components. The subjects for the study were 15 students who were admitted to Indira Gandhi Institute of Physical Education and Sports Sciences, Vikas Puri, New Delhi. The age of the subjects ranged from 22 to 35 years. The motor fitness components selected were speed (50m dash), agility (4x10m shuttle run), strength (standing broad jump) and endurance (600m run). In order to make profiles; the performance of each subject in motor fitness components was compared with the norms and marks were assigned. The marks received by each subject in motor fitness components were plotted on the profile graph. The plotted points were joined in order to work out the trait pattern for each subject. It is concluded that the overall status of young prospective teachers of physical education in different motor fitness components is satisfactory. The subjects possess very good endurance (600m Run), and their performance in speed (50m Sprint) agility (4x10m Shuttle Run) is good. The status of the subjects in agility and leg explosive strength (standing broad jump) needs to be improved.

Keywords: Motor fitness components, prospective teachers of physical education, profile

Introduction

The personality of a person has several dimensions and in order to improve performance in sports, the social and psychic capacities of the sports persons also have to be improved in addition to the physical and physiological ones. In other words the total personality of a sportsman has to be improved in order to improve his performance. Sport training, therefore, directly or indirectly aims at improving the personality of the sportsman. No wonder, therefore, sports training is an educational (pedagogical) process (Tandon et al., 2001) (15). The performance of a sportsperson primarily depends on his performance capacity and readiness of performance, which is a complex of the following four factors:

1. Physical Preparation
2. Technical Preparation
3. Tactical Preparation
4. Intellectual Preparation

In order to improve performance in games and sports all the above four factors are to be developed. Of the above four factors, physical preparation which involves development of physical and motor fitness, plays an important role in laying a strong foundation for all other forms of training. The physical and motor fitness of a sportsperson is the sum total of several motor abilities namely strength, speed, endurance, flexibility, agility and co-ordination. These motor abilities and their complex forms (e.g. strength endurance, speed endurance, explosive strength etc.) are the basic pre-requisites for human motor actions. Therefore, the sports performance depends to a great extent on these abilities. Some sports like distance running in athletics require a very high level of endurance but a low level of other motor abilities. On the other hand cricket requires high level of strength and speed endurance in addition to general endurance and speed (Li and Sulaiman, 2002) (10). Investigations undertaken by Shaker (1981) (13), Ellena (1960) (8), Dahl (1973) (7), Atkinson (1977) (3), Lamba (1980) (9), Mishra (1983) (11) and Amusa and Onyewadume (1987) (2) have concluded that physical/motor fitness components play an important role in different games and sports and they have a direct relevance to performance.
Adhikari (2001) in his investigation while working on the national swimmers of Bangladesh observed that they possessed below average shoulder abduction power, back strength and grip strength.

Bhowmick (2001), in his study compared basketball, cricket, hockey, soccer and tennis players in performance related fitness. He observed that the soccer players had the highest fitness level and the fitness level of the hockey group was lowest. No difference was observed in agility among the groups.

Uppal and Chib (2001) in their study while working with volleyball players concluded that explosive strength of the legs and agility were important motor components for predicting performance in the game.

Li and Sulaiman (2002) in their study observed that performance in swimming over different distances is influenced by shoulder flexibility, arm and shoulder girdle strength, leg explosive strength and flexibility.

Bhowmick (2002) conducted study on fitness profile of athletes participating in track and field, gymnastics, swimming and boxing. In total fitness, the gymnastics group had the highest fitness score whereas the swimming group had the lowest. In speed, the track and field, gymnastic and boxing groups were found to be better than the swimming group. Track and field and gymnastic groups were superior to that of the swimming and the boxing groups in leg explosive strength.

Uppal and Sharma (2002) in their study found out that leg power and agility are the two important motor fitness components for predicting badminton performance.

Methodology

Selection of Subjects

The subjects for the study were 15 prospective teachers of physical education with specialization in swimming and gymnastics, who were admitted to Indira Gandhi Institute of Physical Education and Sports Sciences, Vikas Puri, New Delhi in the Bachelor of Physical Education course in year 2015. The age of the subjects ranged from 22 to 25 years. The training programme of the subjects in terms of stimulus intensity, stimulus density, stimulus duration and stimulus frequency was more or less identical.

Selection of Variables

The following variables were selected for the purpose of the study.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Test Used</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speed</td>
<td>50m Run</td>
<td>Second</td>
</tr>
<tr>
<td>2</td>
<td>Agility</td>
<td>4x10m Shuttle Run</td>
<td>Second</td>
</tr>
<tr>
<td>3</td>
<td>Strength</td>
<td>Standing Broad Jump</td>
<td>Centimeter</td>
</tr>
<tr>
<td>4</td>
<td>Endurance</td>
<td>600m Run</td>
<td>Minute</td>
</tr>
</tbody>
</table>

Criterion Measures

1. In 50m dash the score was the elapsed time to the nearest hundredth of a second between the starting signal and the instant the student crossed the finish line.
2. In 4x10m shuttle run the score was the elapsed time recorded in seconds and hundredths of seconds for the better of 2 trials.
3. The score in standing broad jump was the distance between the take-off line and the nearest point where any part of the subject’s body touched the mat. It was measured in meters to the nearest centimeter. Three attempts were given and best of the three was credited.
4. In 600m the score was the elapsed time in minutes and seconds.

Collection of Data

Before the administration of tests for collection of data, the scholars had a meeting with the subjects in order to make them familiar with the study and explained to them the effort required on their part. The subjects got fully convinced and assured the scholars of their sincere and whole-hearted cooperation. Even though no motivational technique was employed in the study, yet the subjects were urged to put in their maximum effort at the time of collection of data.

The subjects were tested in all the selected physical/motor fitness components following the appropriate testing procedures. The scholars took help of post graduate students and Ph. D. scholars for collection of data and prior to testing all the helpers were made familiar with the correct way of testing.

In order to ensure uniform conditions for all the subjects, the tests were administered only in the morning session. The duration of the tests was adjusted in such a way so that fatigue might not set in. Sufficient time was provided in between the tests to enable the subjects to put in their best efforts. All the subjects performed on each test with a considerable degree of zeal and enthusiasm. The subjects took all the tests in their proper sports kit.

Preparation of Profiles and Findings

The performance of each subject in motor fitness components was compared with the norms available in the Institute and marks were assigned. The marks received by each subject in fitness components were plotted on the profile graph. The plotted points were joined in order to work out the trait pattern in different motor fitness components for each subject.

Table 2: For qualitative analysis of the subjects, the following criteria were adopted

<table>
<thead>
<tr>
<th>Rating</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>Above 80%</td>
</tr>
<tr>
<td>Very Good</td>
<td>70% to 80%</td>
</tr>
<tr>
<td>Good</td>
<td>60% to 69%</td>
</tr>
<tr>
<td>Average</td>
<td>50% to 59%</td>
</tr>
<tr>
<td>Below Average</td>
<td>30% to 49%</td>
</tr>
<tr>
<td>Poor</td>
<td>Below 30%</td>
</tr>
</tbody>
</table>

The profile for each subject selected in the study is presented in Figures 1 to 15.

From the above figure it is seen that Aakash is excellent in speed (50m sprint), agility (4x10m shuttle run) and endurance (600m run) where as he is very good in legs explosive strength (standing broad jump).
Profile of Abhishek Anand shows that he is excellent in 50m sprint (speed) agility (4x10m shuttle run) and endurance (600m run). In respect of legs explosive strength (standing broad jump) his performance is very good.

Profile of Chandan Luthra shows that he is below average in agility (4x10m shuttle run) and endurance (600m run) and average in speed (50m sprint). His performance in explosive leg strength (standing broad jump) is poor.

The profile of Harpreet Singh shows that he is very good in speed (50m sprint) and good in agility (4x10m shuttle run). He is average in 600m run (endurance) and below average in (standing broad jump).

Jackey’s profile shows that he is very good in agility (4x10m shuttle run), good in speed (50m sprint) and endurance (600m run). However, he is below average in explosive leg strength (standing broad jump).

From the profile of Nilesh Panchotiya it is evident that he is good in speed (50m sprint), agility (4x10m shuttle run) and endurance (600m run). His performance in respect of legs explosive strength (standing broad jump) is below average.

The figure pertaining to Sachin Dalal shows that he is excellent in endurance (600m run). He is good in agility (4x10m shuttle run) and legs explosive strength (standing broad jump) where as his performance is average in speed (50m sprint).
The profile of Shubham Panchal reveals that he is very good in agility (4x10m shuttle run) and speed (50m sprint) where as in legs explosive strength (standing broad jump) and endurance (600m run) he ranks good.

From the above figure pertaining to Vicky it is evident that he is excellent in agility (4x10m shuttle run) and endurance (600m run). In respect of Speed (50m sprint) and legs explosive strength (standing broad jump) his performance is good.

Based on the qualitative assessment, the present status of the subjects in different motor fitness components is ranked as follows:

1. Endurance (600m Run)
2. Speed (50m Sprint)

A careful observation of the profiles reveals that the overall status of young prospective teachers of physical education in

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\begin{array}{|c|c|c|c|c|c|c|c|c|c|}
\hline
\text{Decile Points} & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\hline
50m Dash & & & & & & & & & & & \\
4x10m Shuttle Run & & & & & & & & & & & \\
Standing Broad Jump & & & & & & & & & & & \\
600m Run & & & & & & & & & & & \\
\hline
\end{array}
\]

**Fig 12: Profile of Motor Fitness Components of Shubham Panchal**

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\begin{array}{|c|c|c|c|c|c|c|c|c|c|}
\hline
\text{Decile Points} & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\hline
50m Dash & & & & & & & & & & & \\
4x10m Shuttle Run & & & & & & & & & & & \\
Standing Broad Jump & & & & & & & & & & & \\
600m Run & & & & & & & & & & & \\
\hline
\end{array}
\]

**Fig 13: Profile of Motor Fitness Components of Sonu Kumar**

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\begin{array}{|c|c|c|c|c|c|c|c|c|c|}
\hline
\text{Decile Points} & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\hline
50m Dash & & & & & & & & & & & \\
4x10m Shuttle Run & & & & & & & & & & & \\
Standing Broad Jump & & & & & & & & & & & \\
600m Run & & & & & & & & & & & \\
\hline
\end{array}
\]

**Fig 14: Profile of Motor Fitness Components of Vicky**

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\begin{array}{|c|c|c|c|c|c|c|c|c|c|}
\hline
\text{Decile Points} & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\hline
50m Dash & & & & & & & & & & & \\
4x10m Shuttle Run & & & & & & & & & & & \\
Standing Broad Jump & & & & & & & & & & & \\
600m Run & & & & & & & & & & & \\
\hline
\end{array}
\]

**Fig 15: Profile of Motor Fitness Components of Vishal Singh**

Based on the qualitative assessment, the present status of the subjects in different motor fitness components is ranked as follows:

1. Endurance (600m Run)
2. Speed (50m Sprint)
3. Agility (4x10 Shuttle Run)
4. Leg Explosive Strength (Standing Broad Jump)

A careful observation of the profiles reveals that the overall status of young prospective teachers of physical education in
terms of motor fitness components is quite satisfactory. From the profiles it is seen that subjects need to undertake more training loads for the development of agility and legs explosive strength. In the training programme of the subjects a supplementary training plan may be included for the improvement of the motor fitness components in which they are weak. In addition to development of explosive strength of the legs and agility, the other motor fitness components namely endurance and speed are to be maintained or even developed further.

Conclusions
Within the delimitations of the present study, the following conclusions may be drawn.
1. The overall status of young prospective teachers of physical education in different motor fitness components is satisfactory.
2. The subjects possess very good endurance (600m Run), and their performance in speed (50m Sprint) agility (4x10m Shuttle Run) is good.
3. The status of the subjects in agility and leg explosive strength (standing broad jump) needs to be improved

References