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

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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.

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Adhikari (2001) [1] 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) [4], 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) [17] 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) [10] 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) [5] 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) [18] 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 1: List of variables, tests used and their unit of measurements

S. No.	Variable	Test Used	Unit of Measurement
1	Speed	50m Run	Second
2	Agility	4x10m Shuttle Run	Second
3	Strength	Standing Broad Jump	Centimeter
4	Endurance	600m Run	Minute

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

Rating	Percentage
Excellent	Above 80%
Very Good	70% to 80%
Good	60% to 69%
Average	50% to 59%
Below Average	30% to 49%
Poor	Below 30%

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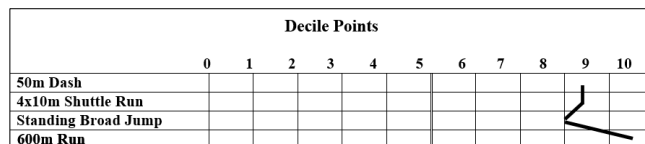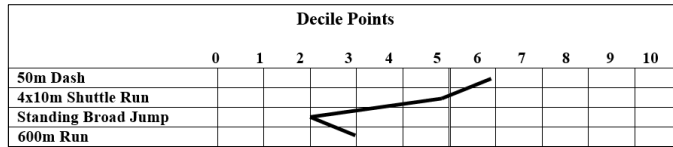

Fig 1: Profile of Motor Fitness Components of Aakash

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)).
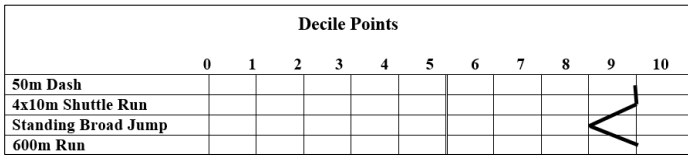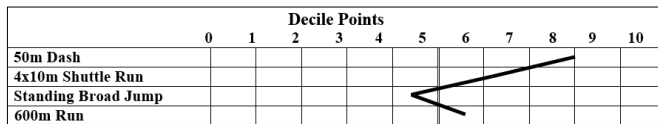
Fig 2: Profile of Motor Fitness Components of Abhishek Anand

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.
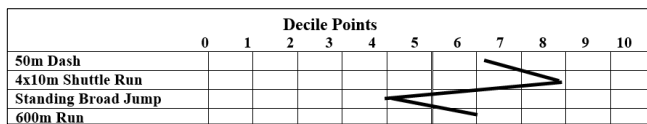

Fig 3: Profile of Motor Fitness Components of Chandan Luthra

The above figure pertaining to 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.
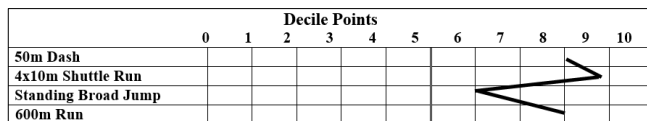

Fig 4: Profile of Motor Fitness Components of Harpreet Singh

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).
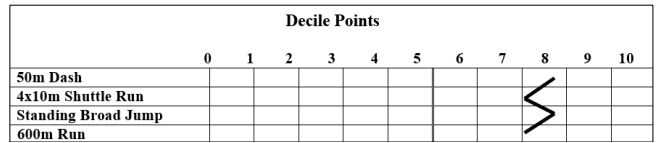

Fig 5: Profile of Motor Fitness Components of Jackey

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).
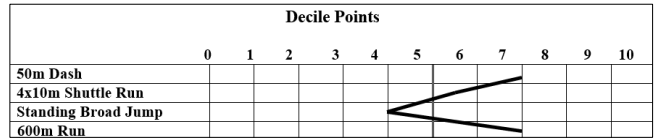

Fig 6: Profile of Motor Fitness Components of Letish Kumar

From the above figure it is observed that Letish Kumar is excellent in speed (50m sprint) and agility (4x10m shuttle run). He is very good in endurance (600m run) and good in legs explosive strength (standing broad jump).
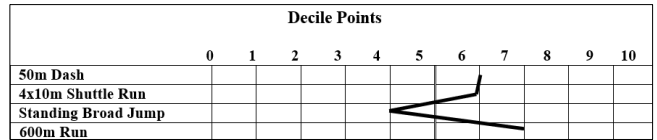

Fig 7: Profile of Motor Fitness Components of Mahender Kumar

The profile of Mahender Kumar indicates that he is very good in all the selected motor components namely speed (50m sprint), agility (4x10m shuttle run), legs explosive strength (standing broad jump) and endurance (600m run).
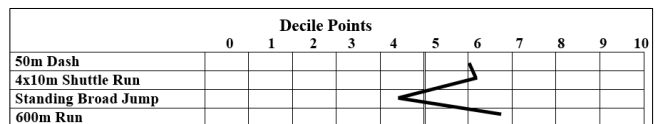

Fig 8: Profile of Motor Fitness Components of Naman Kumar

From figure 8 it is observed that Naman Kumar is very good in speed (50m sprint) and endurance (600m run). He ranks average in shuttle run (4x10m shuttle run) and below average in legs explosive strength (standing broad jump).
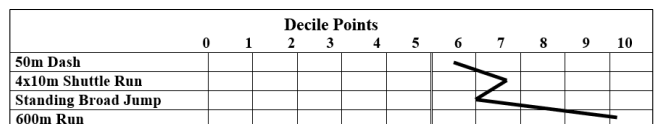

Fig 9: Profile of Motor Fitness Components of Naveen Kumar

Naveen Kumar's profile shows that he is excellent in endurance (600m run), good in speed (50m sprint), average in agility (4x10m shuttle run) and below average in legs explosive strength (standing broad jump).

Fig 10: Profile of Motor Fitness Components of Nilesh Panchotiya

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.

Fig 11: Profile of Motor Fitness Components of Sachin Dalal

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).
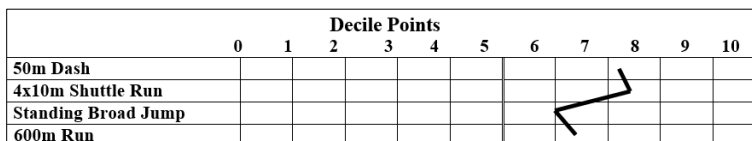
Fig 12: Profile of Motor Fitness Components of Shubham Panchal

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.

Fig 13: Profile of Motor Fitness Components of Sonu Kumar

From the profile of Sonu Kumar it is noticed 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.

Fig 14: Profile of Motor Fitness Components of Vicky

From the above figure pertaining to Vicky it is evident that he is excellent in endurance (600m run). He is very good in speed (50m sprint) and good in agility (4x10m shuttle run) and legs explosive strength (standing broad jump).
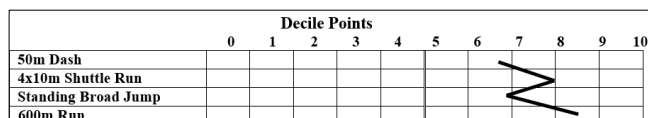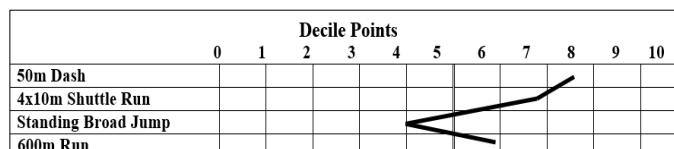

Fig 15: Profile of Motor Fitness Components of Vishal Singh

The profile of Vishal Singh shows that he is very good in speed (50m sprint), good in agility (4x10m shuttle run) average in endurance (600m run) and below average in legs explosive strength (standing broad jump).
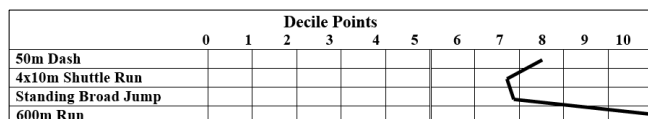
Discussion of Findings

Based on the profiles, a qualitative assessment of each subject was done and data pertaining to this is presented in Tables 2 and 3.

Table 2: Qualitative Analysis of Profiles of Subjects

S. No.	Name	50m Sprint	4x10m Shuttle Run	Standing Broad Jump	600m Run	Over All Grading
1	Aakash	Excellent	Excellent	V. Good	Excellent	Excellent
2	Abhishekh Anand	Excellent	Excellent	V. Good	Excellent	Excellent
3	Chandan Luthra	Average	Average	Poor	B. Average	B. Average
4	Harpreet Singh	V. Good	Good	B. Average	Average	Average
5	Jackey	Good	Good	B. Average	Good	Average
6	Letish Kumar	Excellent	Excellent	Good	V. Good	V. Good
7	Mahender Kumar	V. Good	Good	V. Good	V. Good	V. Good
8	Naman Kumar	V. Good	Average	B. Average	V. Good	Good
9	Naveen Kumar	Good	Average	B. Average	Excellent	Good
10	Nilesh Panchotia	Good	Good	B. Average	Good	Average
11	Sachin Dalal	Average	Good	Good	Excellent	Good
12	Shubham Panchal	V. Good	V. Good	Good	Good	Good
13	Sonu Kumar	Good	Excellent	Good	Excellent	V. Good
14	Vicky	V. Good	Good	Good	Excellent	V. Good
15	Vishal Singh	V. Good	Good	B. Average	Average	A. Average

Table 3: Summary of qualitative assessment based on the profile pattern

50m Sprint	Shuttle Run	SB Jump	600m Run	Over all grading
Excellent-03	Excellent-04	Excellent-00	Excellent-06	Excellent-02
V. Good-06	V. Good-01	V. Good-03	V. Good-03	V. Good-04
Good-04	Good-07	Good-05	Good-03	Good-04
Average-02	Average-03	Average-00	Average-02	Average-04
Below Ave-00	Below Ave.-00	Below Ave.-06	Below Ave.-01	Below Ave.-01
Poor-00	Poor-00	Poor-01	Poor-00	Poor-00

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 over all 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
1. Adhikari Anup. Physical and physiological evaluation of Bangladesh national swimming squad. Bangladesh Journal of Sports Science 2001;2:66-72.
2. Amusa Lateef O, Onyewadume Ignatius. A profile of the University of Ibadon male swimmers. NIS Scientific Journal 1987;10:35-42.
3. Atkinson James R. Predicting performance in tennis, badminton and handball from certain physical traits. Completed Research in Health, Physical Education and Recreation 1973;8:63.
4. Bhowmick S. Performance related fitness of BKSP boys participating in team games. Bangladesh Journal of Sports Science 2001;2:73-77.
5. Bhowmick S. Fitness profile of athletes participating in track and field gymnastics, swimming and boxing. Bangladesh Journal of Sports Science 2002;1:22-28.
6. Clarke H. Harrison. Application of measurement to health and physical education, Prentice-hall, Inc., Englewood Cliffs, New Jersey 1976.
7. Dahl Donald F. The relationship of jump shooting ability in Basketball to selected measure traits. Completed Research in Health, Physical Education and Recreation 1977;19:24.
8. Ellena Jack Duane. Relationship of physiological factors to football performance. Completed Research in Health, Physical Education and Recreation 1960;2:26.
9. Lamba Manmohan Kaur. Comparative study of selected physical fitness components and physiological parameters of offensive and defensive hockey players of college level. Unpublished Master`s Thesis, Jiwaji University, Gwaliar 1980.
10. Li Xie Lun, Sulaiman Mohammad. Relationship of selected motor ability components and physique characteristics of swimming performance. Bangladesh Journal of Sports Science 2002;1:1-9.
11. Mishra Laljee. Relationship of selected physical and physiological variables to performance in 50-meter front crawl swimming. Unpublished Master`s Thesis, Jiwaji University, Gwaliar 1983.
12. Paish Wilfred. The complete manual of sport science, A and C Black, London 1998.
13. Shaker Mohan Chadra. Comparison of selected physical fitness components of football and basketball players. Unpublished Master`s Thesis, Jiwaji University, Gwaliar 1981.
14. Singh Hardayal. Science of sports training, D.V.S Publication, New Delhi 1991.
15. Tandom DK, Uppal AK, Alegaonkar PM, Singh Kanwaljeet. Scientific basis of physical education and sport, Friends Publication (India), Delhi 2001.
16. Uppal AK. Principles of sports training. Friends Publication (India), Delhi 2001.
17. Uppal AK, Chib SS. Psychomotor variables as predictors of volleyball playing ability. Bangladesh Journal of Sports Science 2001;2:115-120.
18. Uppal AK, Sharma GK. Relationship f selected motor components and physique characteristics to badminton playing ability. Bangladesh Journal of Sports Science 2002;1:46-50.