A COMPARISON ON SELECTED MOTOR FITNESS COMPONENTS AND PSYCHOLOGICAL PARAMETER BETWEENT NON ADULT SPRINTERS AND JUMPERS

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ABSTRACT

Sport is an important part of today's society and plays a large role in many people's lives.But athletic is one of the most popular sports. Because of its tradition, its universality and prestige, as well as the wide range of skills and qualities that encompasses, it is the basic sports "par excellence". It goes without saying that sport should be constantly present in our life. The purpose of the present study was to compare the selected motor fitness parameter, physiological characteristics between state level male sprinters and jumpers in West Bengal. To achieve this objective total 40 athletes, (20 sprinters and 20 jumpers) were selected randomly from different athletics academy and coaching clubs areas in West Bengal. Their age ranged from 16 to 17 years (bellow 18) as per their matriculation records. For the present study, selected motor fitness component and physiological characteristics were selected as the measuring criteria. Mean and SD were used as descriptive statistics. Statistical t-test showed significant difference of Agility (2.57215>2.021) between sprinters and jumpers as the absolute value of the calculated t exceeds the critical value. Lastly, the psychological parameter showed jumpers are harder.
Keywords: Motor fitness, Psychology, Sprinters and Jumpers.

INTRODUCTION

Sport is an important part of today's society and plays a large role in many people's lives. Now more than ever, sport events dominate headlines and athletes have become national heroes. It goes without saying that sport should be constantly present in our life.

As far as education is concerned, sport is an important part of every child's schooling, as it plays a big role in both their physical and mental development. It teaches children how to work as a part of a team and cooperate with others, while at the same time improving physical condition. The only drawback to this is that children who are less able to perform well in sport are likely to feel inadequate in comparison to their more gifted classmates, which may affect their self-confidence.

The importance of sports and games in school encompasses more than just the benefit of physical activity. Increases in self-esteem and mental alertness make school sports and games necessary for every school age child. Although the benefits of school sports abound, with a diminishing economy, many schools are cutting out sports and physical education programs to the detriment of students nationwide.

According to Theodore Hesburgh, author of "The Importance of School Sports and Education," it is imperative for school age children to have access to sports and games. Not only does it empower youth and promote higher self-esteem, it also motivates students, enables them to earn better grades, especially in schools where obtaining certain grades is a pre-requisite to staying on the team. Numerous physical benefits include maintaining a healthy weight, preventing chronic diseases and learning the skills necessary to maintain a healthy lifestyle after graduating.

Athletics is a collection of sporting events that involve competitive running, jumping, throwing, and walking. The most common types of athletics competitions are track and field, road running, cross country running, and race walking. Today's many sports are played by the peoples in the world, but athletic is one of the most popular sports. Because of its tradition, its universality and prestige, as well as the wide range of skills and qualities that encompasses, it is the basic sports "par excellence". In addition, athletic constitute the most important element of the modern Olympic games.

Motor fitness is a term that describes an athlete's ability to perform effectively during sports or other physical activity. An athlete's motor fitness is a combination of five different components, each of which is essential for high levels of performance. Improving fitness involves a training regimen in all five.

There are many different manifestations of fitness. Some examples include strength, stamina, speed, and flexibility. Certain types of fitness, such as an athlete's cardiac fitness level, are more important than others. An athlete needs to be aware of the various types of fitness to develop an effective training program that focuses on weak or important areas.

Motor fitness, or motor physical fitness, refers to how an athlete can perform at his or her sport, and involves a mixture of agility, coordination, balance, power, and reaction time. Improving this form of fitness is an indirect result of training in any of these attributes. All five components of fitness are essential for competing at high levels, which is why the concept is seen as an essential part of any athlete's training regime.

Sport psychology is an interdisciplinary science that draws on knowledge from many related fields including biomechanics, physiology, kinesiology and psychology. It involves the study of how psychological factors affect performance and how participation in sport and exercise affect psychological and physical factors. In addition to instruction and training of psychological skills for performance improvement, applied sport psychology may include work with athletes, coaches, and parents regarding injury, rehabilitation, communication, team building, and career transitions.

The most common role for any sports psychology is to teach mental skills for enhanced performance. A mental game psychology can help you improve confidence, focus, composure, intensity, and trust in athletic performance but some time it is not successfully work on sports person.

Educational sport psychologists emphasize the use of psychological skills training (e.g., goal setting, imagery, energy management, self-talk) when working with clients by educating and instructing them on how to use these skills effectively during performance situations.

Therefor non-adult athletes or under 18 years age groups is spent in adolescence. There are many characteristics of this period are given below –

Adolescence is a period of tremendously accelerated physical growth. The body begins to swell suddenly and its proportions change considerably. The male and female can be distinguished easily and from a distance.

Bayley (1956) affirms that "between the ages of twelve and fourteen years, difference between the sexes are especially marked, with many more aggressive, more sex-conscious, and more mature behavior".

Combining those referred elements, the researcher wanted to view actual effects of said component upon the track and field athletes namely sprinters and jumpers.

METHODOLOGY

The data were collected from different athletic coaching centers and academy in southern region districts of West Bengal, who have participated in state championship as well as national meet were selected as the subjects of this study. All subjects were participating regular in their respective events. Their age ranged from 16-18 years old and many subjects who are higher secondary students. There 40 athletes were selected randomly for the study, out of 20 were sprinters and 20 were jumpers. The study was confined to the selected motor fitness components namely agility, speed, leg explosive strength and psychological hardiness. The data of selected subject for motor fitness components were recorded by different measures and data were observed by the performing Zig Zag run, 50 yard dash, standing broad jump and for Psychological parameter will be used for assessing level of hardness of the subjects measured by hardiness questionnaire developed by S. O. Kobasa. The obtain data in form of digital score were treated statistically to get results and to draw conclusions. The Mean and SD was used as descriptive statistics. The significance of statistical difference between the groups were measured by applying 't'-test.

RESULTS AND DISCUSSION

In Table: 01 the personal data of the subjects were presented.

TABLE-01
SHOWED THE PERSONAL DATA OF THE SUBJECTS AND 'T' TEST RESULTS

Personal Data Variable		Sprinters		Jumpers	
		Mean	± SD	Mean	± SD
Age (Years)		16.7	0.47	16.75	0.44
Height(cm)		1.66	0.05	1.67	0.04
Weight (kg)		54.93	6.38	53.55	4.81
Blood Pressure	Systolic	121.55	6.42	120.9	5.09
	Diastolic	69.25	7.16	69.9	6.29
Resting Heart Rate		59.9	2.10	60.6	3.23

Table value of 't' at 0.05 level with (38 df) =2.02

From Table-01 it was seen that Mean Age and SD of the sprinters for the present study were 16.7 & ±0.47 respectively. It was also found that Mean and SD of Height of the sprinters were 1.66 & ±0.05 respectively. In the same way it was also observed that Mean and SD of Weight of sprinters were 54.93 & ±6.38.It was seen that Mean systolic B.P. and SD of the sprinters for the present study were 121.55 & ±6.42 and it was also found that Mean Diastolic B.P. of the sprinters was 69.25 & ±7.16 and the Mean of resting heart rate and SD of the sprinters were 59.9 & ±2.10 respectively. And it was seen that the Mean Age and SD of the jumpers for the present study were 16.75& ±0.44 respectively. It was also observed that Mean Height and SD of the jumpers were 1.67& ±0.04 respectively. In the same way it was found that Mean Weight and SD for the same group of subjects were 53.55& ±4.81 respectively. In the same way it was observed that Mean systolic B.P. and SD of jumpers were 120.9 & ±5.09 and Mean Diastolic B.P. of the jumpers was 69.9 & ±6.29andit was also observed that Mean resting heart rate and SD of the jumpers were 60.6& ±3.23 respectively.

From table-01 it was clear that there was jumper's age is more than sprinters. Jumpers are taller than the sprinters and sprinters are heavier than the jumpers. It is evident from different studies that sprinters are strongest contender for the track and field event compare to other athletes. (V. Vucetic et. al.) The present study shows exactly the same as previous works did.

Here all personal physiological characteristics showed the same results. As all the athletes involve in their hard training schedule so the selected physiological characteristics were showed similar between two groups and ideal for athletes.

From table-02 shows the motor fitness parameter data such as agility, speed and leg explosive strength of the sprinters and jumpers were presented.

TABLE 02
ANALYSIS OF MEAN, SD AND T-TEST RESULTS OF AGILITY, SPEED AND LEG EXPLOSIVE STRENGTH BETWEEN SPRINTERS AND JUMPERS

Motor fitness Component	Sprinters		Jumpers		t – test
	Mean	± SD	Mean	± SD	
Agility	22.81	1.05	23.70	1.14	2.57215*
Speed	6.55	0.31	6.73	0.27	1.98249
Leg explosive strength	2.35	0.10	2.54	0.42	1.86588

Table value of 't' at 0.05 level with (38 df) =2.02

From Table no 02, it was found that the mean agility and SD of sprinters were 22.81 and. ±1.05. The mean agility and SD of jumpers were 23.70 and ±1.14. As we know that the performance of agility is recorded in shortest possible time and from table-2 it is evident that the table showed significant results and mean performance level of sprinters (22.81) was more agile than the jumpers (23.70).

From Table no 02, it was found that the mean speed and SD of sprinters were 6.55 and. ±0.31. The mean speed and SD of jumpers were 6.73 and ±0.27.As we know that the performance of speed is recorded in shortest possible time and from table no-2 it is evident that the table showed not significant results but the mean performance level of sprinters (6.55) was speedier than the jumpers (6.73).The cause of not significant result show because I think most of all jumpers are good sprinters and her main event is jumping and sprinting.

From Table no 02, it was found that the mean leg explosive strength and SD of sprinters were 2.35 and. ±0.10. The mean leg explosive strength and SD of jumpers were 2.54 and ±0.42. This table is found no significant result but jumpers are more leg strength than sprinters. Jumpers are better leg strength I thinks it was the effect of much plyometric training. For better understanding it was presented graphically in graph-01
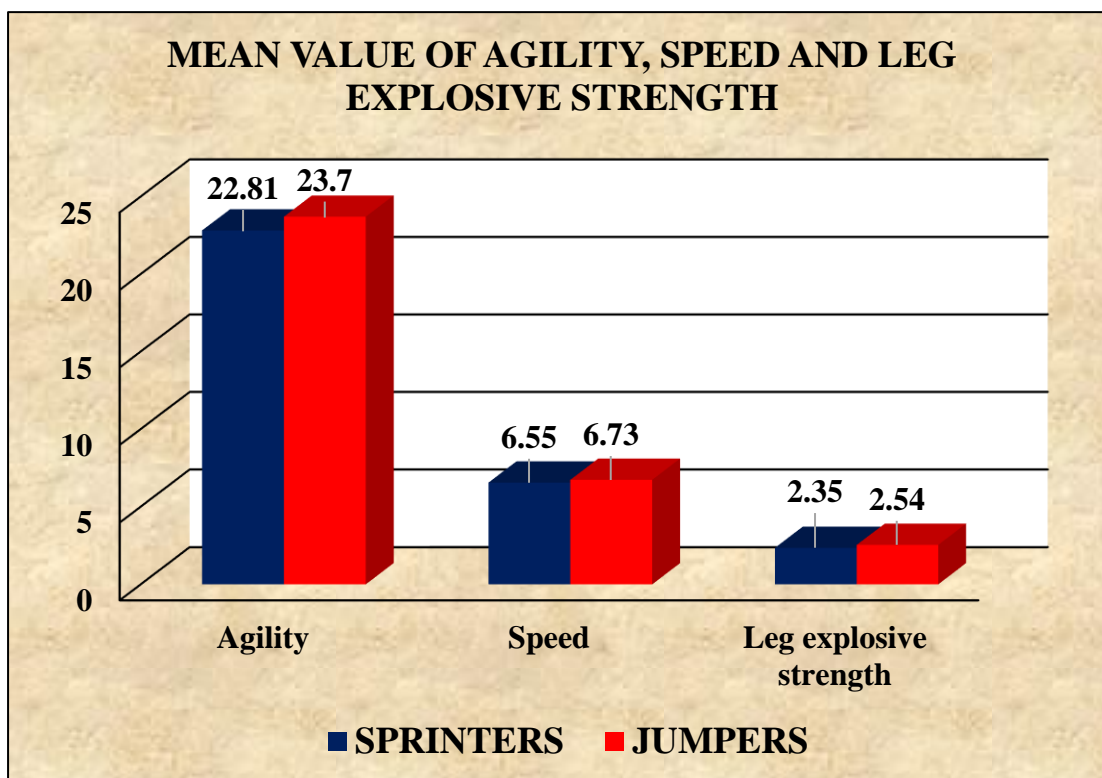
From the graph value, it was clear that the absolute value of the calculated t exceeds the critical value (2.57215>2.0212), consequently the means are significantly different. From the graph value, it was clear that the sprinters absolute mean value of the agility is better than jumpers. So sprinters are more agile than jumpers. I think its inborn quality or some genetic factors of the sprinters group subjects and somewhat the effect of anti-clock bent run practice. Here agility was measured by Zig Zag run test, as the running was key factor for the this test, it automatically gives sprinters a better half since running is a key part of the running event.

From the graph value, it was clear that the sprinters absolute mean value of the speed is better than jumpers. So jumpers are more speed than sprinters. Running speed is more essential in running events. As the sprinting ability of sprinters is better than jumpers so the reflection of the results states exactly the same as the other researches did previously (Rakshit S and Dr. Bag S).

From the graph value, it was clear that the jumper's absolute mean value of the leg explosive strength is better than sprinters. Basically jumping performance directly related with leg explosive strength but sprinting performance also depends upon lower extremity and better running style so in that case jumpers are having more advantage than the sprinters in terms of leg explosive strength. One of the researches the research made by (J. L. Markstrom & C. J. Olsson and S. C. Hollings & G. J. Robson) shows the same outcomes like as present one.

In Table: 03 the psychological parameter of the subjects were presented.

TABLE-03
SHOWED THE PSYCHOLOGICAL PARAMETER OF THE SUBJECTS AND 'T' TEST RESULTS

Psychological Parameter	Sprinters		Jumpers		t – test
	Mean	± SD	Mean	± SD	
Hardiness	3.75	2.02	3.85	2.03	0.15592

Table value of 't' at 0.05 level with (38 df) =2.02
The table-03clearly revealed no significant difference in hardiness among the groups of sprinters and jumpers. Mean & SD of hardiness of the sprinters and jumpers were 3.75±2.02 and 3.85 ±2.03 respectively. It can be depicted that the mean performance of hardiness level of jumpers is high than the sprinters.

DISCUSSION OF FINDINGS
According to S. O. Kobasa hardiness calculator in the present study was the results founded that there were no significance difference in respects of hardiness of sprinters and jumpers. The age, mental steadiness, mental toughness, situation, adaptive, capability was the main factor for hardiness and jumpers group was stronger mental steadiness, mental toughness, situation, adaptive, capability than sprinters group and hardiness depends on this variables. So I might be finding the result of mental steadiness, mental toughness, situation, adaptive, capability was the most important and hardiness depends on it. Similar kind of study form that there was no significance difference was found in hardiness (Mehraparvar A et. al, 2015).

CONCLUSION
Within the limitations of the present study and on the basis of findings the following conclusions are drawn:
- The collected data divulge that mean age, height, weight, systolic blood pressure, diastolic blood pressure and resting heart rate of the sprinters and jumpers were almost identical.
- Motor fitness parameter:
- The findings of the study revealed that there was significant difference in agility of sprinters and jumpers and sprinters are more agile than jumpers.
- The results of the study revealed that there was no significant difference in speed between sprinters and jumpers and sprinters are speedy than jumpers.
- The findings of the study revealed that there was no significant difference in leg explosive strength between sprinters and jumpers and jumpers are better leg explosive strength than sprinters.
- There was no significant mean difference of psychological hardiness among sprinters and jumpers but jumpers are hardier than sprinters. From the study it was found that the both groups hardiness are moderate hardiness.

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