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A comprehensive study of physical fitness components of artistic and rhythmic female gymnasts of Haryana

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Abstract: In this manuscript, the authors have prepared a comparisonal analysis between the physical fitness components of artistic and rhythmic female gymnasts of Haryana. The improvement and maintenance of physical fitness or condition is perhaps the most important aim of sports training. The different types of games & sports needed different type of training and skills. But the physical fitness and conditioning is almost the same. Some requires more strength, some requires more endurance and some other requires speed but have in Gymnastic required flexibility more.

Keywords: physical fitness, gymnastics, artistic components.

INTRODUCTION

Physical fitness or condition is the sum of total five motor abilities namely strength, speed, endurance, flexibility and co-ordinative abilities. These five motor abilities and their complex forms are the basic prerequisities for human motor actions. Therefore, the sports performance in all depends upon delete these abilities. Each sport requires a different type and level of physical fitness and as a result a different type of fitness training or conditioning is required for different sports. Some sports like distance running require a very high level of endurance but a low level of other motor abilities. Sports like Shooting and Archery do not require a high level physical condition.

Barrow and Goe acknowledged that physical fitness is a complex phenomenon consisting of various factors such as speed, strength, flexibility, agility, cardiovascular and endurance etc. To cooper physical fitness means an enhanced cardio-respiratory status. He incorporates two additional components into his total well-being concept: A Positive Eating Plan (PEP) and emotional equilibrium. The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) was provided the following test items to measure the total physical fitness of the individual with the help of some physical fitness test battery was used for the present study as prescribed for the AAHPERD youth fitness test.

Physical fitness is the capability of the heart blood vessels lungs efficiency. The possession of optimal strength, muscle tone and endurance, not only for emergencies but also for emergencies but also for every day leaving can be the key to dynamic health. The state of total fitness results in positive health that for exceeds the state of simply of simply being free from disease. Jackson remarks “Physical fitness makes you feel mentally sharper physically more comfortable and more in tune with your body and better able to cope with the demands that every day life makes upon you”. Physical Education is a combination of two words i.e. Physical and Education. Physical refers to the physical properties including bone framework and other organs of human being. Education can be defined as transfer of knowledge form one individual to other. It is media that prepares the human being for the better life. Education is totality of human behavior, it makes man different from other species. The ultimate objective of Education is to develop all round personality of an individual.

Physical education and sports are the accepted disciplines of education. They are a part and parcel of Education. At the same time they are inseparable and are interlinked. Trends in physical Education are quite healthy, Organization and Sports institution should be taught right from the primary school level and should continue upto university level.

Sports have become an integral part of education process and developed into a distinct scientific discipline. Sport performances at national and international levels in various games and sports are influenced be many factors such as psychological abilities etc. In modern competitive sports an athlete cannot win medal or position in national and

international competitions without the assistance of sports sciences like sports medicine, exercise physiology, bio-mechanics, psychology of sports etc. Today, sports have developed into distinct scientific discipline in itself and each nation is trying to produce top class athletes to win laurels in international competitions (Matveyev, 1981). Sports have become highly competitive. As the level of competition increases, the role-played by psychology of sports goes on increasing. Psychology of sports plays very significant evidence obtained form different investigations have revealed that apart form somatic, physiological variables, techniques and tactics high level performance of an athlete is dependent upon his psychological makeup. Various psychological abilities play decisive role in attaining peak performance in different games and sports winning in international competitions highly depends upon psychological abilities. According to Schollander (1971), the winner of 4 gold medals in Tokyo Olympics, "in Olympic Competition a race in won in mind. Winning is 20 per cent physical and 80 percent mental." According to Krueger (1984), " the soviets proved that with more psychological training the sport group achieved the best performance.

KINDS OF GYMNASTICS

Basic Gymnastics
Basic Gymnastics consists of those gymnastic exercises, with or without apparatus, which help in developing the basic fitness of an individual.

Sportive Gymnastics
Sportive Gymnastics consists those kind of exercises which are performed as per the competition rules. There are following kinds of competitive gymnastics:

(a) Artistic Gymnastics:
It consists of the compulsory and the optional exercises on the apparatuses.

(b) Rhythmic Sportive Gymnastics:
It consists of exercises with rope, ball, hoop, clubs and ribbon done to music. This sports discipline is only for the fair sex.

(c) Sports Acrobatic:
It is a sport discipline consisting of seven events.

(d) Sports Trampoline:
It is a sport discipline consisting of tumbling on tumbling track and exercise on trampoline and double mini trampoline.

LITERATURE REVIEW

The present chapter deals with certain studies conducted in the field of sports on physical fitness and with various co-relative components in a different manner. In order to achieve the objectives of present study, review of the related literature has been mentioned hereunder. To solve this problem various studies have been conducted. Not only in Indian but in other advanced countries as well the research scholar have literature of physical education sports and education from different parts of India. Some of the most important studies which were found out by the researcher from the libraries, like Kurukshetra University main library and library of the department of Physical Education, M.D. University main library. Indira Gandhi Institute of Physical Education and Sports Sciences Delhi, Lakshmi Bai National Institute of Physical Education of Gwalior etc. along with the help of Personal Collection of various literature, books, research journals, articles and material etc. All these studies directly or indirectly related to the present study. Physical fitness is a very complicated phrase with deep meaning, it is very difficult to define physical fitness with precision and it varies from individual to individual, from profession to profession and from one sports to another. The basic meaning of physical fitness is a capacity for prolonged hardwork and recovers the same state of health in a short duration which amounts to a degree of strength, speed, agility, flexibility, power and co-ordination which one possesses. The following are a few phrases of physical fitness which will give an idea of the physical fitness. According to Thomas (1982) physical fitness has been defined as total functional capacity of an individual to perform to task without any fatigue or exhaustion bearing always energy to meet heavier demand made on the individual during stress and strain. Mass and Rose (1983) described physical fitness as more than the possession of strength and endurance. It means having the best possible health and capacity to do one's daily task engage in recreational pursuits and to meet emergency when it arises. In simple words physical fitness is the capacity to do prolong or hard work and to recover the same state of health, speed duration, which amount to how much degree of strength, speed, agility, flexibility, power and co-ordination one possesses. Narman (1987) administered the AAPHER youth Fitness Test on 100 rural and 100 urban boys. The urban boys were superior to the rural boys and the difference was

significant at .01 level. The samples were weaker on the same component of physical fitness. Berger and Paradise (1989) compared the physical fitness scores of white and black servant grade boys of similar socio-economic levels. It was concluded that black male students have a higher level of physical fitness.

Andrews (1990) compared the physical fitness level of Canadian and South African school boys. The result showed that physical fitness level of South Africa boys is higher than those of Canadian high school boys. Megui (1993) compared physical fitness of Philippines students with Japanese and American students. He found that Philippine students had generally lower performance in pull-ups Soft Ball throw and sit ups. The relationship between anxiety and performance has often been explained by one of two theories. The first of these theories is drive theory (Hull, 1943). Drive theory postulates a linear relationship between arousal and performance. That is as the arousal level of a person increase, the performance level will also increase. This seems to be a viable explanation for movement of a short, explosive, or ballistic nature Singer (1975). However more complex movement requires a different explanation of the relationship between anxiety and performance. The second explanatory theory is the inverted U theory (Duffy, 1962). This theory postulates curvilinear relationship between anxiety level and performance. In other words, there seems to be an optimal level of arousal that will result in performance that is sub-maximal.

Recent evidence, as summarized by Martens (1971), seems indicate this curvilinear relationship holds true for complex motor task (such as those required by participants) in most athletic performance. Dorsey (1976) discovered that relaxation training did not load to change in state anxiety or an improvement in gymnastic performance. A study conducted by Blacksmith (1977) systematically desensitization failed to reduce state anxiety collegiate wrestlers. Nideffer (1976) has concluded that flexibility of attentional style is also vital to athletic achievement. Mental errors occurred, he contended, when an individual lost control over attentional direction and or focus. French (1977) also found that biofeedback training significantly improved gross and fine motor skills. Recently another construct has been receiving considerable attention within the area of athletic performance. Anxiety has a temporal relationship to performance. The level of anxiety evidence prior to performance may be different from arousal during performance. Following a stressful situation, abrupt changes in reportable anxiety are often recorded. In general anxiety level increases prior to dangerous situation until they become relatively high, just before it is encountered. During performance anxiety is often lessened since the individual must concentrate on his own action rather than on his internalized fears.

The STAI has been used in several studies investigating the relationship and anxiety performance. Selvin (1970) used the STAAAI to investigate the effects of anxiety upon the performance and gross motor task. The results showed that overall high trait anxiety subjects had significantly higher state anxiety scores and significantly lower performance Scores than low trait subjects. Burten (1971) investigated anxiety level of students in bowling and riflery and concluded that there was situational factors in both classes which threatened self-esteem. However, there was no relationship between state anxiety and motivational disposition designated as the need to achieve through one's own efforts in the Burton study. The relationship between anxiety and motor performance has been one of the most heavily researched, but least understood areas in sports psychology. Probably, the most initial theory in this area has been drive theory as originally put forth by Hull (1943). The work of Hull has been explained by Spencer and Spencer (1966) to complex motor skills. The basic prediction of drive theory can be stated in the formula:

RESEARCH DESIGN

One of the important pre-requisite in any research study is the appropriate data without which no worthwhile study is possible. In this regard Mouley (1964) remarks, "Scientific problem can be resolved only on the basis of data and a major responsibility of the scientist is to set up a research design capable of providing data necessary to the solution of the problems while the unity of the research makes it impossible to say that one aspect is more crucial than another the collection of data is of paramount importance in the conduct of research since obviously no solution can be more adequate than the data on which it is based." According to objectives of the study, the investigator has planned the procedure adopted for the sources of data, collection of the subjects, tools used, procedure for administrator of test items, description of various tests items and the statistical techniques used for analysing the data have been discussed. In the present investigation an attempt has been made, to compare the physical fitness variables between Artistic Gymnasts and Rhythmic Gymnasts of Haryana. The procedure of the study is systematically presented under the following headings.

Sample

Thirty female artistic gymnasts and thirty female rhythmic gymnasts who participated in the Haryana School State Championship between the age range under 16 to under 20 years of Haryana Schools State constituted the subjects of the

present study. As it was not possible to collect data from each and every unit of the population. The random sampling technique was adopted to collect the required data. The experimented method was also applied for collection of data.

Tools Used

The investigation has been used the following tools for the purpose of present study.
The AAHPERD youth physical fitness test was used to see the level of physical fitness in relation to their participation or achievement in the field of sports: -

Table: Components of AAHPERD youth physical fitness test

Sr. No.	Test items	Elements Tested
1.	50 yard Dash	**Speed**
2.	Standing Broad jump	Explosive strength
3.	Shuttle run (10 x 6 meters)	Ability and flexibility
4.	Bent Knee sit up	Muscular strength and endurance
5.	Pull-ups	Explosive power
6.	600 yard Run/walk	Endurance and general physical fitness.

Description of Administration of the test items:

Test No. 1
50 yard Dash
Aim: To measure running speed
Procedure: The test is to be administered from standing position

Test No. 2
Standing Broad jump
Aim: To measure explosive legs strength.
Procedure: Standardized method is to be used for conducting the test. A subject is asked to stand behind the jumping line. He then jumps and tries to cover maximum distance. He is given three attempts.

Test No. 3
Shuttle run (10 x 6 mt.)
Aim: To measure agility and flexibility.
Procedure: Two lines are drawn on the ground at a distance of 10mt. from each other. The child is asked to stand behind one line. On the command 'go' he runs to the second line. After touching the second line with hand he turns quickly and runs to touch the first line and after that he again goes for the second line. He is to cover the 10mt.distance 6 times.

Test No. 4
Bent Knee Sit-ups
Aim: To measure abdominal muscles strength.
Procedure: From back lying position on floor, perform back knife action.

Test No. 5
Pull-ups
Aim: To measure arms and shoulders strength.

Procedure: A child assumes hang position on one rail of the parallel bars, which is fixed at a height of 175 cm. He keeps his legs on the second rail of parallel bars which is fixed at a height of 125 cm.

Test No. 6
600 yard run/walk
Aim: To measure endurance
Procedure: The test is to be administered from standing position.

CONCLUSIONS

Within the limitations of the present study, the following conclusions were drawn:

(1) There are significant difference of 't' test in 50 yard dash, bent knee sit ups, shuttle run, standing broad jump of physical fitness variables.

(2) The artistic female gymnasts were having better mean values among all physical fitness than rhythmic female gymnasts of Haryana.

RECOMMENDATIONS FOR FURTHER STUDY

In the light of the conclusions drawn, the following recommendations are made:

1. The studies may be conducted with the help of physical fitness and physiological variables with different physical fitness items.
2. In this study, a small numbers of subject have been taken so in order to get more authentic results, a large numbers of subjects may be involved.
3. A similar study may be conducted on the lower age group.
4. For such type of research, more facilities, training and practice are essential for better results.
5. Such types of studies will help the coaches and physical education teachers to find out the best talent among the participants according to their physique and body composition.
6. More facilities for research in physical education and sports should be provided for smooth conduct and better results.
7. Appreciable incentives to research personal in physical education and sports should be provided for standard research work.

The outcomes of the present study may be helpful for gymnasts, coaches, physical fitness experts, sports planners, supervisors and sports administrators etc. to utilize the physical abilities of players in other area of sports. The study will also help the physical educationist to develop better physical fitness programme for the sports participants even. This comparative study can be made in psychological variables and sociological characteristics also, which may also help to achieve higher in the field of sports.

REFERENCES

[1]. American Alliance for Health, Physical Education, Recreation and Dance. Physical Best, Reston, VA: AAHPERD.
[2]. American Medical Association Committee quoted by Allan Rager J. Fred Academic Press (1974), pp. 29-30.
[3]. Androws Clat, P.R., Rodehl Koari (1992), "Text Book of Work Physiology", Tokyo, McGraw Hills, (1992), pp. 122.
[4]. Barrow, R. Geo (1989), "Encyclopaedia of Sports Sciences and Medicine", P.P. 351-389.
[5]. Cooper, K.H., "The Aerobics Program for Total Well-Being". New York: Evans, 1982.
[6]. Don Tonny, "Sports Illustrated Tumbling" Publisher Harper and Row, New York.
[7]. Dr. Monika Debnath and Dr. S.R. Gangopadhyay, L.N.I.P. Gwalior Publications – Navneet.
[8]. Frank, C. Menke, "The Encyclopaedia of Sports", London, A.S. Barnes and Co., 1969.
[9]. Kalpana Debnath Gymnastics Coach NINIS Patiala ABI – Annual Gymnastics Publication.
[10]. Mass and Rose Stein (1982), "Model Physical Education", SR 13-14.