Chapter 1

INTRODUCTION

Basketball has been called the international sports of 1980s. There is hardly any corner of the earth where people of all ages and both sexes have not been attracted by this game of fast movement, amazing accuracy and thrill, some time extra ordinary finishes. The intricate blend of cooperative and individual skill, flexible enough to accommodate the fireworks of personal duels yet remaining essentially, a team effort is a unique attraction. A highly visible sport with action never obscured, using the largest ball in any team game, the continual thrill of attack and counter attack appeals to players and spectators who can remain warm, dry and comfortable as they support their chosen team.¹

Basketball embodies the value of collaboration, friendship, fair play loyalty to the group and respect for the law etc. Educator's all over the world are trying by various methods to inculcate these values in young people. They have come to realize, however, that mere preaching and lecturing does not achieve much, but rather that arranging opportunities for young people to practice these values in a concrete

manner on the playing fields through various games is one of the best method by which to adopt such standards of conduct and to identify with these values.\(^2\)

The game of basketball as it is seen these days has also undergone a tremendous amount of improvement since its origin in the year 1891 at the YMCA College of Physical Education now known as Springfield College, by Dr. James A. Nai Smith 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.

Several factors such as age, experience height and weight influence the selection of players for a national basketball team. Extensive research studies on the physical build of basketball players have been conducted in different part of the world.\(^3\)

Search and selection of potential athletes in specific areas based on scientific knowledge, is a matter of routine in many developed countries unfortunately in India, this aspect has not been given serious

\[\text{\textsuperscript{2}}\text{Abdel Monein Wahly, The Basketball World, (Munich: Englebert Mayer, (1972), p. 8.}\]

\[\text{\textsuperscript{3}}\text{S. Subramanian, "Selection of Basketball Players: A New Phase of Asian Countries, SNIPES Journal 2:3 (July 1969) : 9.}\]
consideration, consequently athletes are selected from the “available pool” mainly on the basis of their performances in various sports meet. It is often forgotten that such “talents” have already reached their peak performance with little scope for future spectacular improvement. Inspev of intense schedule. Therefore, a fresh look needs to be taken to improve upon the methods of selection of Indian athletes. They need to be identified at very young age.4

Sports and games are competitive in nature and meant for a particular age group. The participation is only enjoyed by the talented and gifted youngsters. So the process of channelization of athletes into various sports and games should be according to their ability and interest, after various investigations made by the sports experts. This is an important phenomenon in the present competitive sports world. The progress of the sports in the country because it has been seen that a large population in India remains aloof from competitive sports.5

General motor ability has been considered as one’s level of ability in a wide range of activities. It has been thought of as an integrated composite of such individual traits as strength, endurance, power, speed,


5 Ibid., p. 28.
agility, balance. Reaction time and coordination, traits underlying performance in many motor complexes. In successful motor performances, these traits function in a coordinated manner and in effective sequence to achieve an accurate and efficient movement, whether it be a single effort or in a series of complex and rapidly changing movement as in the game of basketball.  

Malhotra and Subramanian have claimed that a high level of general fitness with motor abilities like strength, aerobic endurance, speed of movement, jumping ability, agility, flexibility etc. are the essential qualities required to be developed by the basketballer to play this international game.

Cardiovascular endurance is one of the major physical fitness components required for the game of basketball as this game is fast and exciting and it, involves continuous movements and actions with or without the ball. Since basketball requires almost constant movement over a

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longer period of time, one must try to attain muscular and cardio-respiratory endurance.\footnote{Frances Schafsm, \textit{Basketball for Women} (IOWA: W.M.C. Brown Company, 1966), p.1.}

Physical fitness is the ability to carry out daily tasks with vigor and alertness without undue fatigue and ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies. This implies that fitness has necessary qualities will vary in individuals and at the same time they vary time to time in the same person. The continuously changing life process creates different needs and emphases for different individuals, as they grow older. There is an optimum level of fitness for different age groups. The needs and requirements of an ever changing environment interacting with the on going life process of the individuals make changing demands on the individuals. For better understanding of Physical fitness the components of physical fitness must be known. The components of physical fitness as listed by Larson and Yocom are: resistance to disease, muscular strength, muscular power, muscular endurance, cardio-vascular endurance, flexibility, speed, Agility, co-ordination, balance and accuracy.\footnote{Leonard A. Larson and Rachael D. Yocom, "Measurement and Evaluation in Physical Education, Health and Recreation" (St. Louis: The C.V. Mosby Company, 1951), pp.159-161.}
High-level performance in Basketball not only requires certain Physical qualities like speed, endurance, explosive power, agility, flexibility, strength etc., but also physical structure. In addition to the technique and tactics of a player or a team, physical and physiological characteristics help him for his better performance. Along with Physiological characteristics the structural equipment is equally essential for a player who expects to be good rebounder or a shooter in basketball. Strength, height plus reach make the performance of this part of the game much easier.

The Sports Authority of India (SAI) has a scheme of search and appointment of experienced and dedicated coaches, and may sports science research projects have been undertaken by it. Height hunt project is one of the interesting schemes to identify tall children and take advantage of their height for excelling in specific sports and disciplines, where height plays a vital role. Several state sports bodies have also taken up similar schemes. The similar schemes have also been taken up by several state bodies.10

Morehouse and Miller when defining anatomical fitness, went to the extent of saying, “In order to be fit, the individual must possess all of the

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body parts essential to the performance of the task and must posses the approximate body size and shape for the task slight individual difference in point of attachment of tendons to the bones and difference in length of the bones results in different mechanical leverage advantages or disadvantages for various events. Thus one person is fit for weightlifting and another sprint running and yet another go for jumping. If a person enters a competition for which he is anatomically unfit, he does so, with a distinct disadvantage compared to his opponent possessing anatomical features more fit to the event. " They further stated that physiological fitness was specific to the activity. Since different activities make different demands up to the organism with respect to neurological, respiratory circulatory, metabolic and temperature regulating functions, the Physiological system of the body must be fit to function well enough to support the activity that the individual was performing.

In basketball, strength for jumping and shooting and endurance to carryout on a game at top performance are of vital importance. As a result a, increasing the strength of the leg muscles by weight training, as much as eight inches has been added to a players jump.¹²


Florene Phipps considers a quick, alert, well-coordinated athlete with stamina fit player to master the various complex skills and playing conditions of Volleyball players\textsuperscript{13}.

The processes from needs assessment to feedback are cyclical and prevent the program of Physical Education from becoming absolute. A well-integrated program of Physical Education will maintain its contributory Potential for mental, Physical, emotional and social developments, objective which are common to all Physical Education Program\textsuperscript{14}.

Measurement of playing ability has two alternative procedures \textsuperscript{13}namely skill testing through stimulated test items, and rating of ability by judges in actual game situation. Though ideally the rating of playing ability provides a more comprehensive and accurate measure. Practical problems of getting qualified judges and lack of uniformity in different situations preclude wide use of this method. Skill testing through stimulated items on the other hand can be standardized in earlier and provides objective measures of playing ability. Need for validating such

\textsuperscript{13}Florene J. Phipps, "Selection of Volleyball Players" (Journal of Physical Education, Recreation and Dance, 1983) : 54.

\textsuperscript{14}Charles A. Bucher, “Foundation of Physical Education and Sports” (St. Louis: The C.V. Mosby Company, 1983), pp. 43 - 44.
skill tests against a sound criterion is usually and quite successfully met by using judges.\textsuperscript{15}

Rating of playing ability or tournament ranking as the criterion. Essential features of a good sports skill test include a minimum acceptable reliability, case of administration, stimulation of game situations, case of accuracy of shooting and provision too diagnostic interpretation of test results\textsuperscript{16}.

We live in a complex world. The acquisition of basic physical fitness is dependent on many factors. But also we also live in an advanced age of science and technology which have in a sense made it easier for us to keep fit with a little efforts and inclination.\textsuperscript{17}

Now in the modern age of science and technology in every field of education, objectives are followed in accordance with the application of principles of scientific research. In field of games and sports all the developed like USA, USSR, GDR, Japan, China etc have progressed rapidly due to the scientific research and their application in the field.

\textsuperscript{15} Ibid. p.45.


\textsuperscript{17} Thariagrajan, "Children : Our Withering Blossomes," \textit{Your Health} 25 (December 1976): 419.
These countries are providing ample facilities and systematic programme for physical education, especially for School children and University youths of the country. India is now becoming concerned about the physical fitness of the children and the youth, realizing that physical fitness is fundamental for happy, healthy and purposeful living besides the contribution to economic growth of the Nation. Physical fitness is perhaps one of the most controversial aspects in the field of measurement in physical education. Fitness implies the ability to function at an optimum level of efficiency in daily life, here fitness means total fitness.  

Moonstair expressed that the game of basketball demands highly skilled players with the maximum physical conditioning. It requires an athlete in the peak of condition to be able to last the full game at all. It is necessary that he performs with maximum efficiency right through the game. To achieve this, today's basketballer puts himself through vigorous and varied training programme. This includes for developing skill, quickness, timing and some physical conditioning as well.

The fundamental skills involved in Basketball a catching and passing the ball, dribbling, shooting and guiding the opponents. Playing

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The fundamental skills involved in Basketball are catching and passing the ball, dribbling, shooting and guiding the opponents. Playing ability in the game comprises effective use of these skills in the form of individual and team tactics. Most of the skill tests in basketball, therefore include items for measuring the skills of passing, dribbling and shooting in stimulated game conditions in all the basketball skill tests for women report fairly high reliability and validity.\textsuperscript{20}

Jagger is of the opinion that running, jumping, stopping and pivoting all impose a considerable amount of strain on legs and feet muscles and therefore suggest that a strength programme is most essential in basketball training. Power seems to be vital factor in basketball since a player is required to make very frequent up and down movements, repeated jumps during shooting, rebounding, fast breaks etc. Power is also required in arms, fingers and wrists, besides legs. Power is also necessary in performing certain techniques in basketball, which demand jumping activity such as jump shot, rebounding, fast break etc\textsuperscript{21}.


extent in sports involving efficient foot work and quick change in body position such as Basketball, Handball, Badminton and Volleyball etc\textsuperscript{22}.

Basketball was the game for the age. Its rapid pace appealed to the youth. "In playing it comes the joy of a quickened pulse and fast working lungs, the health giving exercise to all our muscles, the forgetting of all troubles," wrote an elated Southerner in 1902. There is no game, which requires some will or neither endurance nor which needs greater agility and deftness\textsuperscript{23}.

Because much has been said lately about "Fitness for Purpose" and pupil gaining a "Knowledge and Understanding of Fitness" (QCA), now is an ideal time to think about refocusing on the processes involved in fitness. People usually discus product outcomes when they discus fitness. Teacher - student interaction often focuses on how fast student ran, how many push-ups they performed or how far they could stretch. A common question asked of students is how did you do ? This "process versus product" conflict leads some children to believe that adult value their performance only, when the product of fitness increases – that fitness is an end product rather than an ongoing process. However fitness is an


\textsuperscript{23}Mike Douchant, "College Basketball Detroit" (Visible Ink Press, 1997), p. 5.
performance only, when the product of fitness increases – that fitness is an end product rather than an ongoing process. However fitness is an evolutionary journey, which requires learning to evaluate fitness throughout the ageing process, matching activity to personal needs, and designing age related fitness activities. The following is an assortment of aphorisms, which relate to the importance of focusing on the fitness process.²⁴

Therefore the trainer, coaches, selectors and experts of our country should give due consideration to physical fitness components along with skill and strategies in relation to playing ability with correct implementation of the rules to individual basketball players. The playing ability and physical fitness of basketball players differ at different level of intervarsity competitions.

In order to study the physical fitness components and playing ability of basketball players to compare them with different universities of M. P. State.

Statement of the Problem

The purpose of the present study was to compare the Physical Fitness components and playing ability of basketball players of intervarsity level players of Universities of M.P.

Delimitations

1. The study was delimited to the male basketball players of different universities of M.P. State.

2. The study was further delimited to the following physical fitness variables and basketball playing ability:

   a. Physical Fitness Variables:
      i. Speed
      ii. Strength
      iii. Endurance
      iv. Flexibility
      v. Agility

   b. Basketball Playing Ability.
Limitations

1. Non-availability of sophisticated instrument was considered to be the limitation of this study.

2. Since the subjects selected for this study were form various universities of M.P., certain factors like habits, life style, daily routine, diet and other factors which might have effect on the results of this study could not be controlled.

3. No special motivational techniques were used during the tests. Therefore, differences that might have occurred in performance due to lack of motivation was recognised as the limitation for this study.

Hypothesis

It was hypothesised that there will not be significant differences between physical fitness variables and playing ability of Basketball players of different universities.
Definitions and Explanation of the Terms

Physical Fitness

Physical Fitness is the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to engage in leisure time pursuits and to meet emergency situations.\textsuperscript{25}

Speed

Robert has defined speed is the quickness with which one is able to move his body from one point to another.\textsuperscript{26}

Mathews has defined Speed is the capacity of an individual in the rate of making successive movements of the same kind.\textsuperscript{27}


\textsuperscript{27}Mathews, "Measurement in Physical Education" p. 144.
Barrow and McGee has defined Speed is the ability or capacity of an individual to perform successive movements of the same pattern at the fast rate\textsuperscript{28}.

The definition given by the Barrow is accepted for the purpose of this study.

**Strength**

Mathews has defined Muscular strength as the force that a muscle or muscle group can exert against resistance in one maximal effort\textsuperscript{29}.

Explosive Strength is the capacity of the individual to release the maximum force in the shortest period of time\textsuperscript{30}.

The definition given by the Mathew is accepted for the purpose of this study.

**Endurance**

Endurance is the ability of an individual to sustain a work load for a relatively prolonged period\textsuperscript{31}.

\textsuperscript{28} Harold M. Barrow and Rosemary McGee, "A Practical Approach to Measurement in Physical Education" (Philadelphia: Lea and Febiger, 1979), P. 112

\textsuperscript{29} Donald Mathews and Edward I. Fox, "The Physiological Basis of Physical Education and Athletics" (Philadelphia: W.B. Sounders Company, 1976), p. 554.

\textsuperscript{30} Ibid, p. 144.
Philips and Hornark has defined Cardio-vascular endurance is the ability of the circulatory and respiratory system to adjust to the vigorous exercise and to recover from the effect of that exercise\textsuperscript{32}.

Barrow has defined Cardio-vascular endurance is the ability for carrying on a exercise with sufficient duration and intensity to place stress on the heart, circulatory and respiratory systems for prolonged action\textsuperscript{33}.

Clarke has defined Cardiovascular endurance is the moderate contraction of large muscle group relatively long periods of time, duration for which maximum adjustments of the circulatory and respiratory systems are necessary\textsuperscript{34}.

The definition given by Barrow and McGee is accepted for the purpose of this study.

\textsuperscript{31}A.K. Uppal, "Comparative Effects of Two duration load Methods and Interval Running Method on Cardio-respiratory Endurance and selected Physiological Variables" (Unpublished Doctoral Thesis, Jiwaji University, 1980.)

\textsuperscript{32}Philip D. Allen and Hornark James, "Measurement and evaluation in Physical Education" (New York: John Willey and Sons Inc., 1979), p. 255.


\textsuperscript{34}Clarke and Clarke, "Application of Measurement to Health and Physical Education", p.152.
Flexibility

Barrow has defined Flexibility is the range of movement in a joint\textsuperscript{35}.

Johnson has defined Flexibility is the ability of an individual to move the body and its parts through as wide a range of motion as possible without undue strain to the articulations and muscle attachments\textsuperscript{36}.

Thomas has defined Flexibility is the capacity of the body to move freely through the full range of extension and flexion at the joints without undue restriction\textsuperscript{37}.

The definition given by Johnson and Nelson is accepted for the purpose of this study.


\textsuperscript{37} Thomas Kirk Cureton, "Observation and tests of swimmers in the 1932 Olympic Games" Journal of Physical Education 30.7 (March 1933) : 125 -126.
Agility

Barrow has defined Agility is the ability of the body or parts of the body to change directions rapidly and accurately\(^{38}\).

Johnson has defined Agility as the physical ability which enables an individual to rapidly change body position and direction in a precise manner\(^{39}\).

Agility may be defined as the ability to change rapidly and accurately, the position or direction of body through a large range of movements.

The definition given by Johnson and Nelson, is accepted for the purpose of this study.

\(^{38}\) Barrow Mc Gee, Approach A Practical to measurement in Physical Education, p. 462

Playing Ability

Playing ability of an athlete by an individual, which can be observed the total playing ability during the game situation.

Basketball playing ability served as the criterion and was measured by the ratings of three experienced experts based on selected Basketball skills and strategies.

Judge's Rating of Playing Ability

This term refers to the marks awarded to players on the basis of their demonstrated ability during the actual game of basketball. In the present study the marks given by three judges were averaged to get the final ratings”.

Significance of the Study

The game of basketball is more complex than many other team games due to its stereotyped strategies in offense and defense, skills and governing rules of the game. Though it started as a recreational game, it
has attained a top priority in competition games at Olympics and world levels.

The dynamic movements and their proper execution in playing situations are entirely scientific. Biomechanical principles are fully utilized in this game. A very degree of skill development, physical, physiological and psychological fitness and playing ability are required to be mastered for outstanding performance in this game too.

Based on the research that has been conducted, it is evident that Basketball players are very fast, quick, mobile, agile and active having enough endurance as well as balanced state of personality. Sports scientist in many countries are experimenting to find different ways and means to formulate the easiest and accurate method of training their sportsmen for maximum output.

The quest for selection of sportsperson and training method to attain high level of performance which could be achieved through the knowledge of selected physical fitness components and playing ability towards the contribution of Basketball performance have prompted the scholar to take up this study.
The study makes the following significant contributions:

1. The present study may indicate some of the physical fitness variables and playing ability tests as good predictors for the selection of basketball players.

2. The result of this study may help an understanding to the degree differences in the fitness levels among the players of different level of competitions.

3. The study may also be helpful for the physical teachers and coaches, selectors and experts in identifying the talented sportsmen and to classify them into various categories for preparing the training schedules for the basketball players accordingly.

4. This study might motivate the basketball lovers and scholars to take up similar studies so that game might become in more scientific in india.