Chapter-I

INTRODUCTION

Sports are enjoyable, challenging and absorbing by their nature, and require a certain amount of skills and physical condition. In the order of human values conquest in field of sports hold a unique plane. It is the combination of success, victory, triumph and domination of mover other team mates and friends. The sublimity of competition is in the loser’s acclaim for the winners, which along with the friends and shake acknowledge both defeat and triumph.

Today, sports have become a part and parcel of our culture. It is being influenced and does influence all our social institutions including education, economics, art, politics, law, mass-communication and even international diplomacy. In fact, its scope is awesome in all above as well as our daily life schedule.

Sports, as a part of human education have always existed in the human society in one from or other. Since time immemorial, even before the down of civilization and culture, physical exercises have been a very important aspect of human existence. In the primitive societies the necessity for survival i.e. protection against hostile environment and wild beasts, motivated man to keep himself physically fit and strong enough in comparison to stronger forces of the nature. The human life was hard in most of his working hours where they devoted for hunting animals for food. In those days there were no machines to help man in their work. That was the reason they depend solely upon their physical powers and physical skills. Human considered his body to his prize possession and its maintenance and protection were his primary concern. Survival of the fittest was the order of the day. Man lived in such a state for thousands of years. There was neither any organization nor system, to protect poor in the society like present. Most acts were learnt by the young generation by virtue of imitation as per their requirements rather than instruction. Experience latter gave rise to individualized instruction as a tradition from father to son and from mother to daughter gradually leading to enforcement of hard discipline and rigorous unstructured training.
In the last few decades sports have gained tremendous popularity all over the globe. The popularity of sports is still increasing at a fast race and this happy trend is likely to continue in the future also. When one book at the history of the modern Olympic games are sees that the number of sports for which competitions are held at Olympic games has increased steadily. In addition to Olympic Sports indigenous sports have also become popular in each country. Several new sports like sky-diving, skating, motor racing have also come into existence and are quite popular with the masses.

Today, in the modern competitive age every sportsman is in a race to excel others and competitions have become a fundamental mode of human expression as it is one of the very important functions by which National and International organization and prestige is gained. From its very simple form, sports have emerged into highly organized activity of human society and it has become a complex social and cultural phenomenon.

The modern world appears to be much more concerned with the world of sports. Sportsmen and spectators are very clear about the value and significance of sports. There is hardly any individual who has been deprived of its impact in the developed countries of the world. Now winning the competitions involves the national prestige as each nation strives to win a tournament in which they compete. There are certain nations/states which try to project the superiority of their political ideology and socio-political system through spectacular achievements in the sports world. They show their excellence by winning the maximum number of medals in all the international competitions. The participating competitors in sports, at the national and international level also competing to win the name, fame and laurels for their countries and also raise their prestige.

Today, the preparation of an athlete for top notch achievement is a completely dynamic state characterized by a high level of physical, physiological, psychological as well as anthropometric efficiency and degree of perfection of the necessary skills, knowledge, technique and tactical preparation. An athlete arrives at this stage only as a result of appropriate training. Thus, athletes training today are a multisided process of expedient use of aggregate factors so as to influence the development of an athlete.
and ensure the necessary level of participation. The success or failure of an individual athlete depends on the blending of physical ability, conditioning, training mental preparation and the ability to perform well under pressure. It is not uncommon to hear coaches and athlete express disbelief on how poorly their team performed against a certain opponent or how they field in the crucial situation.

Volleyball game occupies a significant place among all other games and sports. In some respects it is unique as a sport. It is an ideal sport and a grand energetic game, giving enjoyment and pleasure, determining fitness and dedication. It requires physical and mental attitudes to be on top goal to tackle all eventualities in the match. In order to achieve optimum performance in game and sports, physical education teachers, coaches and trainees has to understand about all these factors. The factors are physical fitness, technical and tactical level of sportsman, physiological fitness, physiological make up and finally anthropometrics measurement of the performer and contribute to overall performance. Teachers or coaches must train the performer keeping view of these aspects in their training program.

Volleyball, which is an excellent sports event among team sport, has been widely accepted as a highly competitive as well as a recreational game throughout the world. It is now recognized as one of the most breath taking and dramatic sport of the Olympics both from the players and spectators view Point.

Volleyball has developed into a highly competitive sport which requires a high level of physical, physiological and psychological fitness also. Volleyball is the game who requires specific body morphology which may best suit to demand of game. The game itself having a high level of competition requirement quick sudden movements and fast reaction. Modern game of Volleyball is characterized by absolute self control and maximum concentration.

Volleyball is a complex game of simple skills. The Volleyball court is a rectangular field with the size of $9 \times 9$ m on each half separated by a net of 2.24 m in height in the middle. Two teams in the match, as opponents, exercise various skills and tactics to attack and to defend. The ball is served into play through attack. The players try to make the ball fall down onto the ground of the opposite side. To defend, they try to prevent the ball from falling down onto the ground of their own side. A
team can touch the ball three times on its own side. Volleyball is a sport of constant motion. The basic pattern of movement includes a dig (an underarm pass made with the forearms), a set (an overhead pass made with the hands), and a spike (the overhead attacking shot). Teams can also try to block the opponent's spike as the ball crosses the net serve skill is important for initiating the game but it’s also used to win the rally in the present competitive era of the game.

Volleyball is a sport played by two teams on a playing court divided by a net. The objective of the game is to keep an inflated ball aloft, preventing it from contacting the ground or playing surface on our side of the net, while attempting to score points by putting the ball into play on our opponent’s side of the net with such force or skill cannot be returned. The modern game requires true teamwork, and is an elegant blend of power and fitness, speed and quickness, jumping and leaping. In Volleyball the spiking is most attractive skill of the game as well as spike plays an important role in winning the competitions. In Volleyball, technical and tactical skills, anthropometric characteristics and individual physical performance capacities are most important factors that contribute to the success of a team in competitions.

In the last fifteen years the sport of Volleyball has become popular all over the world. The increasing number of high quality professional teams has made official matches more intensive and spectacular. Today, competitions such as the World Championship, the world cup, the World League and the Olympic Games entail several exhaustive matches played very close to one another. As a result, top ranking players are forced to improve their quality of technique with high intensive intermittent movement in a dynamic competitive situation.

The game of Volleyball offers opportunities for the development of strength, endurance, speed, agility, and neuro-muscular skills as well as immediate action along with many precise educational outcomes. The game of Volleyball requires a conditioning program, which develops flexibility, muscular strength, power and agility all of which must be integrated to achieve the optimum skill performance from each player.

From the above statements it is clearly evident that Volleyball is a game which is unique in its nature of play and required specific skill and character to be
succeed at top level. But one thing is very clear that the success or failure of a player depends on the blending of physical ability, conditioning, training mental preparation and the ability to perform well under pressure. It is not uncommon to hear coaches and athletes express disbelief on how poorly their team performed against a certain opponent or how they field in the crucial situation.

In recent years more and more attention has been paid to nature of physical fitness not only in terms of general health but also of the special physical requirement for competitive sports and certain highly specialized and demanding occupations. As a result of current work particularly in the field of ergonomic and physical education it appreciated that the achievement and maintenance of high level of physical fitness produce significant effects on the working of human body.

Physical fitness is an inseparable part of sports performance and achievements. The quality of its utilization value is directly proportional to the level of performance. It means the greater the level of fitness, the greater the ability of a person to attain higher level of performance.

An individual with high level of general motor ability possesses the basic motor qualities necessary to achieve excellence in a number of activities may still be unable to perform well in a particular sports unless he has developed a specific skill of that sports through long hours of practices. Strength, speed, endurance, agility, reaction time and speed of movement are general components of performance in the field of sports and games. General motor ability assists a sportsman in learning the specific skills and forms a solid base, over which he can develop excellence in the particular game, he is involved.

Strength and quickness combined with agility and these are the main components of specific fitness required in Volleyball. The development of these components should be related to the specific conditions of game as they play an important role in achieving significant results in various techniques of offence and defense of Volleyball game.

Strength as one of the factor of conditioning, which plays an ever-increasing role in the modern system of training. Strength produced by a contraction of the
muscle fibers. The contraction results due to the proteins present in the muscle, mainly atomism. Strength can be developed through systematic resistance training. This is the most important condition for achieving good performance in all kinds of competitions. The development of specific strength for each specific sport can be achieved through specific training means. A great progress has been made in this field during recent years. In the past, athletes began their training in the fine weather and continued until the end of the autumn. They then retired during the winter. Today, things have been changed. Training never stops and it is exhausting and continues around the year with varying intensity, duration and resistance to suit the particular sport. The reason why records are being broken in every competition. This is due to the fact that methods of increasing the specific quality of strength for each sport is continue to improve. This is the conclusion that the strength is a which has factor more and more dominance in the modern system of training.

Without muscular exhibition the human body neither be the functional and nor can the muscles strength make a top performance. So strength is an important component, which affects the performance in any activity. Therefore, we can say that strength as one of factors of various methods plays and ever-increasing role in the modern system of training.

The power required for jumping ability as per demand of the game is also base on strength. Besides strength and power, quickness combined with agility and flexibility are also important components of specific fitness required in Volleyball.

Flexibility is an important component of physical fitness, which helps in synchronizing the various movements. More over flexibility is an essential part of life even to a common man who can avert a possible injury resulting from a fall while performing his daily chores. It has been a common belief that a high degree of flexibility is necessary for success in all athletic endeavors.

Other than the physical fitness, the type of individual physical structure is also an essential factor in his/her motor performance. Evidence of this is common place. Observe the well proportionate physique of Boxers and Gymnasts, the super structure of great Volleyball and Basketball competitors, the solidness of top flight Football players. The wariness of champion distance runners and massive build of
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great Shot Putters and Discuss Throwers. This, the physical structure of an individual plays a dominant role in high level sport competitions.

Athletes for superior performance in any sports are selected on the basis of their physical structure and body size, which has proved to be appropriate for high performance in the particular sport. Harnok (1990) revealed anthropometric measurements were central concerns of first phase of the scientific era of measurements. Which have been began in 1860’s current, interest in anthropometric measurements focus in three areas, girth measures, body type and body composition. The assessment of such measures including classification, prediction of growth patterns and prediction of success in motor activities as well as prediction of total performance of the sportperson.

The measurement of structure and proportion of the body are called anthropometry. It has wide application as one of the essential parameters constituting the selective diagnostics of any game or Sports Anthropometry consists of making external measurement of the human body. The result can be used to appraise body build, nutritional status and posture.

Rao revealed that there seems to be a general agreement that anthropometric endowments are the best criteria of predicting success in sports. Anthropometrical measurement for assessment of physical status was expanded quite naturally to include consideration of body types and the relation of physique to one’s health, immunity from diseases, posture, physical performance and personality qualities. Anthropometric variables such as weight, standing height, sitting height, foot length, lower leg length, thigh length, leg length and shoulder width are related to optimum and skillful performance in team as well as individual sport.

Anthropometric measurements consist of objective measurements of structure and functions of the body. The measurement of the structure includes items such as weight, total height and width, the depth and the circumferences etc. The measurements of functions includes such items as pulse rate arterial and venous, blood pressure, muscles strength, basal metabolic rate, estimate from cardio-vascular posture and breathing capacity.
After an intensive study of anthropometric measures on Olympic athletes, Garay, Levine and Lindsay Carter concluded that level of performance in a particular event demand a particular type of body size and shape, other aspect being similar, they established high relationship between structure of an athlete and the specific task (event) in which he excelled.

For competitive sports or for selection of a particular sport, one has to consider the measures of human body and the physical fitness, which play a dominant role at higher level of sports competition.

Anthropometric measurements were matter of concerns of the first phase of the scientific area of measurement which began in 1960’s. Current interest in anthropometric measurements focuses on three areas – growth patterns and prediction of success in motor activities, as well as, assessments of obesity. Body composition was concerned in past with the obesity of the individual. In measuring these aspects, the total body weight and fat weight, fat weight and lean body weight which includes muscles, bones and vital organs. The higher percentage of fat body weight, the higher the percentage of obesity. The physical fitness, anthropometric measurement variables and body compositions are very important factors for achieving the high level of performance in standard competitions.

Balsevitch and Siris have pointed out that the Russians are strongly guided by the anthropometric data derived from statistics of large number of world champions. The knowledge of science is easy to formulate but too difficult to practice. The system is quite complicated in this regard. However, a theoretical base-line, one formulated can help to add the knowledge by further analysis and interpretations and therefore, it seems reasonable to work on this system. The physique is however, not the only instrument. There is a combination of factors which may help us to reach some useful conclusions. For example, if an athlete possesses the required body size of a middle and long distance runner, but less of aerobic capacity, then it seems logical for a coach or a trainer to decide his or her future. Therefore, we can depend on such tests that may be formulated by understanding the structure of performance in a sport.
Scientists and physiologists have been the view that anthropometry and physical components of an athlete have a lot to do with the performance, more than the techniques and tactics of a player of a team. The research findings show that a high level of technical perfection alone has nothing to do with the success in competitive sports. Most of the games demand a greater amount of speed, strength, endurance, flexibility, co-ordination and maximum fitness of the organism.

Training of a player must start from young age, it means selection must be made at the school level. The potential athlete should be selected on the basis of physiological and morphological characteristics and for different sports event should be given proper extensive training by the experienced coaches over prolonged periods.

For the physiological systems of the body to be fit, they must function well enough to support the specific activity that the individual is performing. Moreover different activities make different demands upon the organism with respect to circulatory, respiratory, metabolic, neurological and temperate regulating functions. Physiological fitness has been explained by scores of physiologists in specific to each activity. With training and conditioning the heart becomes more efficient and is able to circulate more blood while beating with less frequency. For standard amount of work the heart becomes slower as training progresses. These heart rate changes indicate a decreasing load on the cardio-vascular adaptation to exercise.

Physiological system is highly adaptable to exercise. Each task has major physiological components and fitness for the task require effective functioning of the appropriate system. Involvement in systematic program of training brings about desirable changes in the physical and physiological ability which enhances the player’s performance in his sports.

Most of the researchers, coaches and teachers of physical education emphasize that a player or an athlete must posses such characteristics of the body which suit him/her the most in his/her sport. The physiological characteristics are acknowledged to be fundamental and significant for an individual’s development to achieve elite level performance in any sports discipline.
The acquisition of new knowledge for betterment of performance of human organism in relation to physical, motor and physiological qualities is in process of saturation. To strive for still better is a million dollar question to the experts of sports. In the process they also explore the field of psychology and enlisted certain psychological parameters which influence sports performance.

Psychology as a behavioral science has made its contributions for improving sports performance. It has helped coaches to coach more effectively and player’s to perform more proficiently. This psychological aspect of sports is gaining much attention among sports administrators. A rapidly growing area of interest in sports psychology concerns the use of stress management, procedures such as bio-feedback and relaxation training to endurance athletes to improve their performance by reducing anxiety, aggression and to improve motivation level.

Volleyball is a highly competitive sport which requires a high level of physical, physiological and psychological fitness. Modern game of Volleyball is characterized by skill, accuracy, technique tactics and differentiation, which can be facilitated by absolute self control, concentration and maximum motivation level at the ground.

Most of the coaches agree that the physical characteristics, skills and training of the players are extremely important but they also indicate the good mental preparation for competition is necessary component of success. In western countries like Quba, France, Germany, Argentina, Brazil etc. much stress on the training for mental preparation of their national Volleyball Team. A coach has the job of helping the athletes to find out his specific talents and factors for their fullest potential. This includes developing not only the physical attributes but also his attitudinal motivational and psychological traits.

In the modern sports world the psychological make-up of a sportsperson is as much important as physiological variables, techniques and tactics. Psychology has become the backbone of higher performances especially in achieving peak performances both during training and competition. Sports psychology though still in infancy in the developing countries has made a definite impact on sports performance during training and competition it is extensively being used in the developed countries
for selection and grooming of talents. In the U.S.S.R. (Now Russia), U.S.A., G.D.R. and few other countries are almost the top countries in the world of sports today. It is mainly due to coordinated efforts being made by their control boards, coaches, players, sports medicine doctors, bio-scientists, physiologists and sports psychologist. Although other co-associates of psychology do play a very positive role in the training and competition but still the psychological abilities play a decisive role in attaining and executing peak performance winning international competitions generally depend upon psychological training and abilities.

There is no denying the fact that many of the psychological aspects are very much weighted to the personality make-up of an individual. There is growing awareness about the personality being a dynamic concept and not a genetically determined construct. Talent and aptitude for athleticism are uniformly visible in all sports. Elite athletes have arisen from “white” races and come from “dark” African tribes, they have come from highly affluent societies and they have emerged from “underdog” dwellings, blue eyes.

Human aggression is as old as mankind itself. Within the framework of the history of Psychology, theorists and researchers have been attempting to explain, define and predict the performance of aggressive acts since psychology emerged as a science. Virtually all major personality theorists have made statements concerning the composition and casual factors involved in aggression as an inborn instinct, trait theorists analyze a trait called aggression, and behavior theorists’ focus upon the operant and vicarious reinforcements that lead to the performance of aggressive acts.

Aggression is defined as the infliction of an aversive stimulus either physical verbal on gestural, upon one person by another. Aggression is not an attitude but behavior and most critically, it is reflected in acts committed with the intent to physical harm. This definition of aggression includes such wide ranging acts engaged in by athlete’s coaches and/or spectators – as physically hitting another individual and verbal abuse.

Most psychologists describe aggression in terms of behavior. Aggressive behavior has been associated with distractive acts, sexual attacks, prejudiced, genital activities, drug and alcohol addictions, crying complaining, waging war’s and so.
Lorenz advocates that sport ought to be substitute for war. In other words, because all competitive sports situations hold some degree of hostility between opponents and participants in them which allows aggression to be dissipated in acceptable manner.

Because of the pervasiveness of violence and acts of aggression in our society generally considerable research, focusing on the origin, instigation and maintenance of aggression has substantially increased the understanding of many of the processes mediating aggression but a sufficient explanation of why human has yet to be derived.

Social learning viewpoint (Bandura, et al, 1961) is that the actual performance of aggressive act is dependent upon the person’s evaluation of reinforcements that will be presented on the basis of the responses which may be made to a given situation. Aggression has become an integral part of contemporary sport society. Coaches have become sensitive to a player’s ability to withstand and reply to physical coercion. It is acknowledged that some players progress upwards primarily because of their ability to fight. Toughness and willingness to fight have become important in establishing a positive identity. This aggressive attitude is not only present in body contact sports but, it has become an increasingly prevalent aspect of all competitive sports. The arousal, which results from even momentarily disturbing an opponent, may that such attitude suggest a high degree of aggressiveness in sports. Empirical research has identified tough mindedness and aggressiveness as a personality trait which coincide positively with athletic ability and success Neal,(1963); Ogilvie,(1970); Cooper,(1969) were performed thousands of studies concerning problems related to aggression in sports have rarely been studied on an empirical basis. Fehr (1983) state that athletes are aggressive because of vicarious and operant reinforcements. They see other players’ regarded in terms of cheers and high monitory prizes and salaries for being aggressive and violent and they follow suit. Johnson, Hilton and Johnson (1954) found champion athletes to be significantly distinguished than other athletes as the former manifested high aggression. Kane (1965) indicated that aggression has been found to be significantly associated with success in athletic skill. Ogilvie, et al (1965) found that the gold medalist swimmers in Olympic Games were more aggressive than the non-medalist swimmers. Kumar and Verma (1989) found that high achieving female athletes to be more aggressive as compared to low achievers. Sangwan (1990) found sprinters possessing high
aggressive tendencies, performed better in competitive sports than the sprinters possessing low aggressive tendencies. So keeping these aspects in view it has been observed by researcher that aggression may also play a vital role in successful execution of skill or strategy during the Volleyball match. Sometime during Volleyball match a player need to be aggressive according to situation and some time he need to control his aggression otherwise his aggression may hamper his performance that might be too costly for his own self and for his team as well.

In the same respect motivation in general is a proof which indicates why people participate in sports, the way they do. The urge to run and play when young, to excel when competing, to struggle when confined, to be aggressive when in anger and to face when frightened are typical of man as he matures, develops and moves through life’s many dangerous and competitive situations.

The basis of achievement motivation is motive to achieve, those who engage themselves in a task on account of an achievement motive are said to work under the spirit of achievement motivation. Achievement motive comes into picture when an individual knows that his performance will be evaluated, that the consequence of his actions will be either a success or a failure and that good performance will produce a feeling of pride in accomplishment. Hence achievement motive may be considered as a disposition to approach success or a capacity for taking pride in accomplishment when success at one or another activity is achieved.

Achievement motivation actually combines two personality contracts: The motive to approach success with purpose to experience pride or satisfaction in accomplishment and the motive to avoid failure is the capacity to experience shame or humiliation as consequences of failure. Every one has both characteristics. We all like to be successful, and we all feel good when we accomplish something. On the other hand, we all feel bad when we make a mistake, perform poorly or are unsuccessful in our achievement efforts.

An understanding of the nature of achievement motivation is helpful in understanding in general as well as specifically in terms of what they do; how well they do and how long they continue in sports. Once one comes to know as to what works as a “driving force” it becomes easier to guide the athlete into achieving
excellence. When the desire for achievement becomes a dominant for the person, it is expressed in restless driving energy aimed at achieving excellence, getting ahead, improving upon past records, beating competitors, doing things better, faster, more efficiently and finding unique solutions to difficult problems.

Achievement motivation is a player’s predisposition to approach or associate with competitive situation. Research on Bandura’s self efficiency theory suggests that achievement motivation can be enhanced through experiences of success. Coaches and teachers can help young people develop their achievement motivation by making sure that are not repeated failure. The young athletes who benefits from the passive outcomes associated with sports will enjoy increased to active and will contain his or her sports participation.

Volleyball is a game in which success depends on the athleticism of the participants. In particular, the ability to jump high, quickly and explosively is essential for most of the Volleyball skills, including spiking, blocking, jump serving and even setting.

A player who is proficiently fit in skill does not only enjoy Volleyball more but he is also capable of using all the skills attend and mastered by him through strenuous end along practice right to the end of the game. The combination of skill and physical, physiological and psychological fitness is indispensable for a good player, without either of which he will not be able to achieve much.

Unfortunately we, Indians still believe in magic formulas for transforming limited trained class champions. This limitation can only be reached through the implication of new research findings. Thus to spot out the gaps and subsequently bridge them the scholar in the form of present study is making modest effort in this direction to prepare the anthropometrical and physiological characteristics of national level Volleyball players. Moreover Volleyball being a highly explosive sport, involves a unique movement technique over a relatively small court area. The match is won normally by a perfect amalgam of physical condition, mental attitude, courage, intelligence and the player’s technical skill and tactical efficiency. It calls for a co-ordinated functioning of the body and its reflexes. The use of scientific methods and techniques in the search and selection of potential Volleyballer is a matter of routine
in most of the developed countries. Especially in India unfortunately, selection process lacks proper attention and gravity, consequently, the sportsmen are selected from available pool, mainly in the basis of their previous performance in sports competitions. It is not recognized whether the available “talent” has a scope for further improvement. The coaches and experts have a call for fresh look at the methods for the selection of players. In the Indian context, therefore, it is necessary to modify selection procedure to identify talent at the right time or as early as possible. The body structure of a sportsman has tremendous influence on his physical performance. This fact calls upon the coaches, trainers and physical education teachers to give due consideration to various physical and physiological components of a sports men while selecting them for participating in competition. For superior performance in any sports competition and in Volleyball may, possible on the basis of all the factors (level of skill proficiency, physical fitness, physiological fitness, psychological fitness and anthropometric qualities) which affects the performance and which is essential for a successful player, therefore these factors should be considered during the selection of talented players.

Coaches must remain in touch with the proven and established methods of training to get a better performance from sportsmen. Because today the preparation of a player for achievement is a complex dynamic state characterized by high level of physical, physiological and psychological efficiency and the degree of perfection of the necessary skills and knowledge, technical and tactical preparation. Many other factors are also brought into action in his preparation (means of rehabilitation, parameters of loads, special nutrition, organization of general regime in accordance with the conditions of sports activity etc.). Thus players preparation in present competitive era is a multi – sided process of expedient use of aggregate factors, means method and condition so as to influence the development of an athlete and ensure the necessary level of preparation.

It has become a necessity to identify and select a future elite players right in childhood or adolescence. It makes many years of intensive regular training till an International sports performance level is achieved. The children, who are selected for elite sports activities require suitable conditions and sports facilities equipment of high quality, a rational style of life and the service of experts including a sports physician, a well educated and experienced coach etc. Such conditions can be created
for selected children only. Therefore, the correct identification, selection and placement of young talents are becoming important everywhere.

On the basis of above mentioned facts, it is considered worthwhile to investigate the relationship of selected skill, physical, physiological, psychological and anthropometric variables as predictors for performance of Volleyball young guns. Moreover, the present study would highlight some of the important factors which may have to bear in mind while looking for the selection of talented Volleyball players and also to develop these components through the systematic training program.

**STATEMENT OF THE PROBLEM**

The statement of the problem was stated as “A predictive study for Volleyball player’s performance on the basis of skill, physical, physiological, psychological and anthropometric variables”

**OBJECTIVES OF THE STUDY**

The objectives of the present study were:

- To know the status of Volleyball Players in respect to selected skill, physical, physiological, psychological and anthropometric variables.
- To find out the correlation between performance of Volleyball Players and volleyball skills.
- To find out the correlation between performance of Volleyball Players and physical variables.
- To find out the correlation between performance of Volleyball Players and physiological variables.
- To find out the correlation between performance of Volleyball Players and psychological variables.
- To find out the correlation between performance of Volleyball Players and anthropometric variable.
➢ To find out the joint contribution of skill, physical, physiological, psychological and anthropometric variables on performance of Volleyball Players.
➢ To develop the equation to predict the performance of Volleyball Players on the basis of selected Independent variables.

**DELIMITATIONS**

The present study was confined to following areas:

1. Study was delimitied to male Volleyball Players.
2. Study was further delimited to 16-19 year Volleyball Players.
3. Study was also delimited to following independent variables
   I. **Skill Variable**
      ➢ Volleying
      ➢ Setting
      ➢ Passing
      ➢ Serving
   II. **Physical Variable**
      ➢ Leg Explosive Strength
      ➢ Shoulder Explosive Strength
      ➢ Abdominal Strength Endurance
      ➢ Flexibility
      ➢ Agility
   III. **Physiological Variable**
      ➢ Vital Capacity
      ➢ Respiration Rate
   IV. **Psychological Variable**
      ➢ Sports Achievement Motivation
      ➢ Sports Aggression
   V. **Anthropometric Variable**
      ➢ Height
      ➢ Weight
      ➢ Arm Length
      ➢ Fore Arm Length
      ➢ Flexed Arm Girth
      ➢ Fore Arm Girth
      ➢ Leg Length
      ➢ Thigh Girth
➢ Calf Girth.

4. Study was also delimited to the dependent variable i.e. performance of Volleyball players.

LIMITATIONS

The socio-economic daily life styles were considered Lack of physical and mental preparation of subjects before participation in test may be considered as limitation of the study.

The sincere and honest response of questionnaires by subjects was also considered as the limitation of the present study.

HYPOTHESIS

On the basis of experts opinion/available literature and scholar’s understanding it was hypothesized that:

➢ There is significant relationship between skill variables and performance of Volleyball Players.
➢ There is significant relationship between physical variables and performance of Volleyball Players.
➢ There is significant relationship between physiological variables and performance of Volleyball Players.
➢ There is significant relationship between psychological variables and performance of Volleyball Players.
➢ There is significant relationship between anthropometric variable and performance of Volleyball Players.
➢ There is significant joint contribution of volleyball skills, physical, physiological, psychological and anthropometric variables on performance of Volleyball Players.

DEFINITIONS AND EXPLANATION OF THE TERMS

Skill
Introduction

It is a proficiency, facility or dexterity that is acquired or developed through training or experience. An art, trade or technique, particularly one requiring use of the hands or body.

Skill is defined as “automatisation of motor procedures” which denotes the level of effectiveness with which a movement or motor action can be done. It is acquired through a long process of motor learning. In other words it can be said that skill is the capacity of the sportsman to realize techniques in actual motor action.

In sports, sportsmen come across with varying degree or level of skill who attempted to follow the same motor procedure or techniques because skillful movements are made possible by highly advanced control and regulation processes of motor co-ordination.

Physical Variables

Leg Explosive Strength

Leg explosive strength is the ability of leg muscles (lower and upper) to release maximum muscular force against the resistance in an explosive manner, which is within the shortest possible time such as performance on vertical jump.

A high percentage of movements in sports is of explosive nature and involves overcoming of some external resistance or of one’s own body weight. Explosive strength, therefore, is important in most of the sports. Even in endurance sports, explosive strength is important for start as well as for ‘spurt’ phase.

Shoulder Explosive Strength

Shoulder explosive strength is the ability of shoulder muscles (deltoid) to release maximum muscular force against the resistance in an explosive manner, which is within the shortest possible time such as performance on medicine/soft ball throw or spiking on volleyball.

Abdominal Strength Endurance

It is the ability of abdominal muscles to work against resistance for prolonged period.
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It is a product of two motor abilities. It is the ability of abdominal muscles to overcome resistance or act against resistance for prolonged period. In all sports movements, whether fast or slow, movements have to be done under lesser or higher condition of fatigue. In games like Volleyball explosive strength appears in combination with strength endurance and is popularly referred to as power endurance.

Agility

Agility is not easily defined because it is the culmination of nearly all the physical abilities that an athlete possesses. When integrated with a coordination system, agility permits an athlete to react to a stimulus, start quickly and efficiently move in the correct direction and be ready to change direction or stop quickly to make a play in a fast, smooth, efficient and repeatable manner.

Agility is generally defined as the ability to change direction quickly and effectively while moving as nearly as possible at full speed.

Flexibility

It is defined as the range of possible movement about a joint or sequence of joints.

Flexibility provides another dimension in performance that allows a higher degree of freedom and ease of movement coupled with some important implications for greater safety from injury. In Volleyball, the players have to move suddenly in forward direction, sideways or downward directions, so flexibility of hip and back is of utmost importance.

Physiological Variables

Vital Capacity
The vital capacity is the maximum amount of air expelled from the lungs after a deep inspiration. Clark has described vital capacity as the largest volume of air that can be exhaled after deepest possible inhalation.

**Respiratory Rate**

Respiratory rate may be defined as the number of breath inhaled and exhaled in one minute when the person is under complete physical and mental rest.

**Psychological Variables**

**Sports Aggression**

Aggression is defined as the infliction of an aversive stimulus either physical verbal on gestural, upon one athlete by another during sports or physical activity. Aggression refers to any behavior that is hostile, destructive, and/or violent. Generally, aggressive behavior has the potential to inflict injury or damage to the target person or object. Examples of aggressive behavior include physical assault, throwing objects, property destruction, self-harming behaviors, and verbal threats. Aggression can have mental aspects, as well.

**Sports Achievement Motivation**

Achievement motivation is an “effective arousal state directing in an achievement oriented activity, cognitively appraised and potentially satisfying”. It is an athlete’s predisposition to approach or avoid a competition situation.

Achievement motivation can be defined as the need for success or the attainment of excellence. Individuals will satisfy their needs through different means, and are driven to succeed for varying reasons both internal and external.

**Anthropometric Variables**

Anthropometry is the science of measuring the human body and its parts. It is used as an aid to the study of human evaluation and variations.
According to Philips and Harnak the measurement of the structure and proportion of the body is called anthropometry and may refers as dimensions of the structure of the human body taken at specific site to give measurement of length, girth and width.

One of the most important tasks for physical educationists is to measure different parts and component of human body. The scientific terminology given to the measurement of man is “Anthropometry” which is a word synthesized from two Greek word – ‘Anthropos’ means man and ‘matreein’ means to measure.

There are hundred of human body measurements which have attracted attention of many types of specialist like anatomists, physical educationists, anthropologists, human biologists, human physiologists etc.

**SIGNIFICANCE OF THE STUDY**

1. The study may help the teachers of physical education and Volleyball coaches by informing them about the relationship of selected Volleyball skill, physical, physiological, psychological and anthropometric variables with performance of Volleyball Players.
2. The results of the study will also be helpful for preparing the training for Volleyball Players.
3. The study may critically estimate the volleyball skill, physical, physiological, psychological and anthropometric variables, which are essential for development of Volleyball Player’s performance.
4. The present study will also be helpful for creating certain norms based on, selected Volleyball skill, physical, physiological, psychological and anthropometric variables for Volleyball players.
5. Result of the study may provide idea about to what extent the variables are corrected with Volleyball Players.
6. Result of the study may help to control the life style and nutritional aspect of Players.