CHAPTER - I
INTRODUCTION

Throughout human evolution man has been a nomad, a hunter, and a farmer. His body has high degree of functional adaptability for physical activities. In fact, human evolution started with movement, and development of Homo sapiens was largely dependent on the action of muscles. Primitive physical activity was related first to survival activity - the incessant search for food, clothing, shelter and protection from hostile environment and propagation of species. As society became more and more complex and structured, to keep pace with the complexity of civilization, organization of physical activities in play and military training became inevitable\(^1\).

Human beings need to learn almost every single movement during a laborious period of learning. Human beings can realize a great variety of human movement patterns. Several movement possibilities a human being discovers, is usually decided during childhood and later childhood, which is regarded as the age in which the eagerness as well as the possibility to learn reaches the highest level. With the help of body movement children discover and develop the mutually dependent perceptive faculty and movement experience, in order to enlarge their picture of the world.\(^2\)

As children grow with age, it is generally assumed that these changes would be accomplished by similar progress in the development of basic motor skills and abilities. However assumption ignores the dependence of motor


development on exposure to skill, opportunity for practice, interest and motivation. Because motor development, under greater environmental influence, cannot be presumed to be automatic\(^3\).

Man’s endeavour to achieve higher standard of performance has remained unchanged. As a result, today’s sports and games demand optimum fitness and the highest degree of performance. If the level of fitness is below their abilities, performance tends to go down though the sportsperson is well versed in skill of a particular sport. Merely playing the game, in which one likes to excel, may develop certain level of fitness but to excel at the higher level of competition all the components are to be developed independently and collectively under the supervision of an expert. The research findings show that most of the games demand a higher level of speed, strength, endurance, flexibility, coordination of the organism for higher performance and technical perfection alone is not sufficient\(^4\).

Walking, running, jumping and throwing are all movements that have acquired a different significance. During this evolution, which lasted many years, the meaning of records, sports technique, and tactics have evolved. Words such as performance, competition, record, training, self-restraint, personal achievement, express the essence of the world of sports. Sportspersons strive to leave a mark for posterity, set record, or tie their name to an Olympic medal\(^5\).

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Numerous research studies have been done to ascertain the factors contributing to comprising physical performance. Most of these studies have identified the same or similar components, although the term selected to describe the components are not always the same. The physical performance components that are identified by researches are strength, endurance, speed, flexibility, agility, coordination and balance. These components are manifested through the fundamental skills of running, jumping, lifting, throwing or holding, which make up the basic pattern of movement\textsuperscript{6}.

In the present day competitive era, an individual is always interested to learn how he can maneuver others. It is essential that one’s self perception is needed to assess one’s ability and skills. One’s own achievement and performance in a given task is always compared with his previous performance and or with others. A very important part of this is the case of perceived ability. A human being is able to recognize someone’s opinion concerning one’s abilities at different level of interactions.

Excellent performance in sports at national and international level is the result of “fitness”. Although several factors significantly contribute for the successful performance, physical fitness programme will take the centre stage. A highly physically fit player will be able to perform from the beginning of the game till the end by maintaining the same level of performance. A physical conditioning programme will take care of both general and specific fitness, which requires, needless to say, systematic and scientific approach. Coaches and trainers lay emphasis on skill related physical fitness after laying a good foundation of general fitness.

Performance in a given sports is a complex combination of several factors some dominating and others supportive. Nevertheless every factor has its own role to play. The complex nature of performance is not merely the product of physical, psychic, physiological, nutritional and other prerequisites; but it is the accrued result of training and competition over a period of time supported by the society. The entire personality of the sportsperson is developed which primarily affects the performance. Available literatures indicate that participation in various kinds and amount of physical activity can significantly influence the health and performance. The teacher/coach will have to organize and lay stress and guide this process\(^7\).

Ability, a relatively stable underlying trait, is largely unmodified by practice unlike skills that can be modified. Abilities support certain skills, which is composed of several factors. Regardless of any time and effort one devotes if one does not have the requisite abilities for the game the person cannot achieve success in a given sport\(^8\).

Movements in sports and games are highly specific and are the results of training and experience. Motor abilities are causal to fundamental body movements and specific to sports skills. For successful performance of a skill, components of motor ability contribute independently and interdependently.\(^9\)

The role of motor abilities, such as, strength, endurance, speed, flexibility, agility and coordinative abilities are the prerequisites for motor

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actions in all sports. Their improvement and maintenance is crucial in sports training\textsuperscript{10}.

Evidence proves that successful competitors in different sports possess physique, strength, endurance, speed, flexibility and agility and are reasonably distinct. Like wise, their contribution to the performance is different for each sports\textsuperscript{11}.

The level of performance is dependent upon several factors including structure and function of the nervous system, structure and biomechanical profile of the skeletal muscle, mechanics of muscle, joint and lever and external mechanics. Each of these components has its specific influence on a given performance trait. Innovation of new training methodology, long term uninterrupted training supplemented with scientific knowledge, improved technique, better selection trials and good nutrition have been attributed to high level performance\textsuperscript{12}.

That motor capabilities have been found to be an independent group from other coordinative abilities. They state that the main reason of this phenomenon is the different mechanism of motor control in neuronal centers. Abilities are "potential side" of motor capacity and the outcome of tests of motor fitness can be treated only as indirect measurement and only under the certain conditions that they have enough validity. They proposed to treat all the "potential side" of


\textsuperscript{11}Dietrich Harre, Principles of Sports Training (Berlin: Sportsverlog, 1982), pp.10-14.

motor capacity as "health - related - fitness", but the effective ones - as "performance related"\textsuperscript{13}.

Improvement of one skill/ability has an impact on other abilities as well. Mere possession of motor abilities does not have any significance unless there is training to improve and maintain it. During training and competition it is observed by coaches, that few players are more skillful than the others. Individuals differ in the facets of physical, mental and personality, which are important for learning, and performance. However, difference in abilities to learn and perform skills is not dependent on size of physique. It is evident that some sportspersons have greater innate capacity for learning and performing in certain physical tasks.

In training sportspersons, varieties of training means and methods are used to develop and to maintain different motor and coordinative abilities in different proportions. Several studies have revealed and suggested that conditioning programme of several weeks ranging from 6-10 weeks facilitates improvement in strength, speed, power, agility and coordination as per the load dynamics and content of the programme. It is generally accepted that more exercises of competitive movements will have greater transfer of training effect. Varieties of simple, easy, complex and difficult exercises in abundance will have greater effect on the improvement of different coordinative abilities. Slow, fast, continuous runs, fartlek training, interval training, weight training, plyometric training, own body weight exercises, medicine ball exercises, exercises with harness belts, acceleration runs, active and passive stretching and varieties of exercises and drills with and with out equipment are commonly adopted means and methods to bring about desirable changes in the

sportsperson’s capacity in developing and maintaining the related physical abilities.

Motor ability factors are required in all sports in different proportions and should be specific to the game as the skills are different for each sporting activity. If a performer has a large number of these components, he is said to be a natural athlete, that is he, possesses the foundation from which he can develop excellence in a number of motor activities. The motor ability factors required for basketballers are equally important for football and various other sportspersons. General motor ability in itself does not permit a sportsperson to be excellent performer in any particular activity. It only furnishes the base from which excellence can be achieved by becoming proficient in those skills, which are specific to that particular sport. Some of the components have rather large potential while others have limited potential for development\(^\text{14}\).

Motor ability tests measure the immediate capacity of a person to participate in a variety of sports. A very high score in motor ability test would mean that the person has a high degree of present ability for most of the sports. Execution of pole vault by an athlete, powerful punches by a boxer, rhythmic gymnastic movement by a gymnast requires high proficiency. Combination of several movements such as speed, strength, balance, coordination, and flexibility contributes to the execution of total movement. There are several factors that contribute to the successful performance in any given sports\(^\text{15}\).

Winning is a predominant goal in competitive sports. Constant improvement in physical performance and the resultant breaking of the


established records continue unabated. Larger and greater opportunities for sport participation increase the genetic pool of potential record breakers. Sportspersons are trained longer and harder than ever before to achieve their goal\(^\text{16}\).

Monitoring physical, physiological abilities can provide the coach and scientists an objective and reproducible means of assessing a sportsperson’s training status, physical strengths, and performance capabilities. Information generated from the tests conducted can be used to make appropriate adjustments to an individual’s training programme. The test result also provides information on individual’s status amongst his group and helps in evaluating the programme, and modification needed, if any.

The scientific nature of sports training is a factor that has become increasingly predominant. Training the sportsperson for competitive sports is a major task that coach will have to handle in meeting the long-term objectives for excellence in sports. A holistic approach in achieving the higher level of sporting performance is the basis for the long and sustained performance improvement.

Pursuit of excellence is a never ending process. The will to excel and to win is intense among sports persons at the international level. Physique and motor abilities occupy a predominant place in the process of building up high-level performance. Execution of right technique, tactics, possession of appropriate level of fitness and exposure to different level of competitions are attributed to high-level performance.

The main aim of sports training is preparing the sportsperson for higher performance in a given competition. The show of performance in competition is the reflection of combined effect of performance factors. Competition is closely linked to training. Several competitions are always playing a decisive role and by participating in varied competitions a sportsperson develops the ability to adapt quickly to different competitive situations. More the exposure to competitions better the learning and the sportsperson gains experience as result influences the development of performance and promotes a proper attitude towards performance\textsuperscript{17}.

Smith\textsuperscript{18} substantiated the views expressed by Harre, Matveyev and Bompa and states that performance is finding newer and higher boundaries and new limits are set time and again. Speed, endurance and strength are seen in varying combination and executed in a coordinated and efficient manner. The development of performance in competition is achieved through a training process that is designed to induce the automation of motor skills and enhance structural and metabolic functions.

Since long, strength, speed, endurance, flexibility, agility and balance are considered to be the components of motor abilities. Recently, the word agility has been replaced by the term coordinative ability. Coordinative abilities and physical abilities are distinguished and the basis for the differentiation is that coordinative abilities are connected with mental factors and require less

\textsuperscript{17} Dietrich Harre, \textit{Principles of Sports Training} (Berlin: Sportsverlog, 1982), pp.216-221.

energy while physical abilities are expressed by using comparatively more energy\textsuperscript{19}.

“Some studies on the coordinative abilities state that they are event-specific and the degree of development of different coordinative abilities differ at various age levels both among males and females. Development of coordinative abilities and motor abilities would be able to achieve high level of performance”\textsuperscript{20}.

Co-coordinative ability is a new term, which is still in its infancy. Scientists have defined coordinative ability in different ways and have classified it based on various factors. Coordinative abilities are primarily dependent on the control and regulation process of central nervous system. The theory of motor coordination, therefore, is the basis for understanding the nature of coordinative abilities. For each coordinative ability the motor control and regulation process functions in a definite manner. In case of a skill, this process are largely automatic\textsuperscript{21}.

Performing integrated patterns of movement with good coordination involves agility, balance, speed and kinesthetic sense. The essential quality of this factor concerns the capacity of an individual to perform specific movements in a series quickly and accurately. Good coordination is associated with insight into the nature of the movement with kinesthetic sense, and with a learner’s perception of relationships. As a result of this information, received


\textsuperscript{20} V.N.Platonov, General Methods and Theory of Physical Culture (Moscow: Progress Publishers, 1986), pp. 71-75.

from the senses, the individual is able to control his movements more accurately\textsuperscript{22}.

Co-ordination is a complex biomotor ability, closely interrelated with speed, strength, endurance and flexibility. Importance of coordination lies in the acquisition and performance of technique and tactics and their application in unfamiliar situations, which includes different terrain, equipment and apparatus, climatic conditions and opponents. Coordination is also solicited in space orientation when the athlete’s body is in unfamiliar conditions like vaulting as well as in circumstances when the athlete loses balance such as slippery conditions, quick stops and sudden impact from opponents\textsuperscript{23}.

Coordinative abilities are honed to perfection in sports where complicated movements are structured like in gymnastics, figure skating, down hill skiing. Likewise in every sport, a definite level of coordinative ability is required to overcome different situations. However, general coordination is the basis for all other types of coordinative abilities. The significance of coordinative abilities is less in sports with standard structure of movements and relatively constant in a competitive situation. Perfecting technique and tactical mastery determines the development of coordinative ability.

Based on fundamental research work the following five coordinative abilities are identified. They are, space orientation ability, kinesthetic differentiation ability, rhythmic ability, reaction ability and balancing ability\textsuperscript{24}.

\textsuperscript{22}Barrow and McGee, Op. Cit., p.115.


\textsuperscript{24}Peter Hirtz, Koordinative Fakigkiten im Schulsports (Berlin: Volk und Wissen, Volkseigner, 1985), p.32.
Coordinative abilities enable the sportsperson to do a group of movements with better quality and effect. Skills are always the solution to single mechanical task whereas coordinative abilities exist as prerequisites for several motor actions. Although coordinative abilities and motor skills are interdependent and interrelated but should not be equated. Learning of movements has a positive effect on the coordinative abilities and vice versa. Good coordination involves agility, balance, speed and kinesthetic sense. Quickness and accuracy are significantly related to coordination\textsuperscript{25}.

Agility is a synthesis of an athlete’s “coordinative abilities,” which include the following: static and dynamic equilibrium balance, differentiation: accurate, economical and adjustment of the body movements and mechanics, orientation: spatial and temporal control of body movements, reactiveness: quick, well directed response to stimuli, rhythm: observation and implementation of dynamic motion pattern, timing and variation, adaptive ability: modification of action sequence upon observing or anticipating new or changing conditions and situations, combinatory ability: coordination of body movements into a given action. These abilities are the elements of specific technical skills, which, in turn, are simply solutions to particular motor tasks. They should be considered prerequisites for achieving one’s athletic potential. While all training must be approached with respect to specific tasks, some general guidelines can be recommended for training agility on the basis of these coordinative abilities\textsuperscript{26}.


“The new movement pattern learnt in each training period help in the development of coordinative abilities. Further he states that it is important that at least a few new movement patterns are learned in each training period.”

Kabaddi is a team as well as a combat game. Kabaddi is characterized by discreet movement execution on the part of both offensive and defensive players. Raiding in Kabaddi is an individual ability. Raider is an offensive player whose intention is to raid in the opponent court to secure as many points as possible and to escape from the strong hold of defense player or group of defense players. Defense is both collective and individual ability. Players of the defensive team aim at holding a raider, individually or collectively and foil the attempt of the raider to secure points either by holding him successfully or escape from the attacks. Frequently both raider and defense players have to encounter body weight of each other during the course of the game. These actions continue for forty minutes of duration in a limited area. This brings to focus the importance of strength, power, speed, endurance, agility, balance and coordination. Performing several techniques call for strength and power, execution of many techniques requires speed, agility and endurance, quick reflexes and few technique requires balance and kinesthetic sense in different propositions. It is apt to say that the techniques and tactical abilities, which are performed, requires a combined effect of these physical abilities, which will have greater role to play in performance enhancement.

Kabaddi is one of the very popular sports in India, is gaining popularity in different parts of Asia. Recently conducted World Cup in Mumbai, India, during October 2004, is the testimony to the growing popularity of the game in which 12 countries participated from across the world.

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Kabaddi is a very exciting and thrilling game played between two teams each consisting of seven players. It is a body contact game and is played in an area of 12.5 meters by 10 meters, which is divided by a mid line. There is no object between the players like in other games for instance; there is neither a ball nor a net. The game is played for a duration of 40 minutes, which is divided into two halves with an interval of five minutes in between.

A raider, as a rule, has to utter the word Kabaddi loudly and continuously in a single breath lasting not more than 30 seconds during each raid. The raider is an offensive player who tries to touch the defensive players by his limbs and escapes from the hold of the opponents27. The raider who enters the opponent court with a definite purpose of crossing the baulk line to qualify himself to be safe, desires to cross the bonus line against a rock defense of opponents to secure a point or touch an opponent with his limbs and safely return to his own court. The raider, to keep himself safe and to escape from the hold of the opponents, has to use different movements like pulling and pushing, sliding, falling and rolling. These movements are to be performed with utmost precision during the course of the game repeatedly. Whereas a defensive player too has to run, pull, push, and turn, fall, block to hold the raider or to stop an agile raider individually or with a fellow player. These movements are found in several forms of execution of technique.

Raider and anti / anties have to overcome repeatedly, the body weight of one or more defense players and vice –versa. It is identified that Kabaddi players perform mainly the movements such as quick starting, sudden stopping, change of direction, shuttling, pulling and pushing. To perform such difficult movements both raider and the defensive player (anties) must possess high-

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27Prabhakar K. Walanj, Coaching in Kabaddi (Baroda: Published by Amateur Kabaddi Federation of India), pp.47-51.
level of physical abilities achieved technical and tactical perfection, possesses judgment and intelligence. To perform these difficult movements continuously for duration of forty minutes one must possess high level of motor abilities as well. All the movements mentioned above are carried out within the permitted rules of the game. This highlights the significance of motor and coordinative abilities.

Performing the techniques accurately, gracefully, rhythmically, and quickly in a coordinated manner to near perfection, coordinative abilities have a great role to play. Coordinative abilities have an influential role for instance, orientation ability is required for both the raider and the defense players, as they have to know where they are in relation to their own teammates and raider during the game. Differentiation ability is required to enable to apply the techniques accurately and precisely and players must distinguish the amount of force and speed to apply in different situations. Players must have the ability to maintain dynamic balance while raiding and changing direction and anties to move back and forth to their position during an aggressive attack. Reaction ability to react quickly either to hold or to escape and rhythmic ability for smooth and proper flow of techniques.

The act of raiding in Kabaddi is performed alternately by both the team players. The defensive player has a particular position in the field and each player has a definite role to play, either as an initiator to catch a raider, or to support an initiator. A raider however has an important role to attack the anties by raiding in opponent court and bring point to his team. Hence, the requirements of a raider and a defensive player are different. There should be proper balance of motor and coordinative abilities, which are the prerequisites to perform well. A player can excel if the requirement is specific to the game. However, basic motor abilities are needed to the core.
It is difficult to expect every single player in a team to have all the qualities and capabilities; however, a balanced team must be selected. The success ultimately is determined by a players actions and actions of the other members of the team in a team sports. The performance of each one in a team shall have to match the challenges encountered in competition. As the demands of Kabaddi game are very unique, game calls for variety of abilities and an individual must develop and maintain the abilities, which are very much required and are to be tested to reveal one’s playing ability.

Several scientific works conducted by researchers reveal that motor and coordinative abilities are required in athletics, football, basketball, volleyball, hockey, wrestling, judo, and gymnastics and in other sports. It is also revealed that there exists a relationship between motor abilities, coordinative abilities and performance. It was established that certain motor abilities and coordinative abilities are dominant and game-specific. The degree of presence and dominance depends upon the nature of movements, duration of activity, rules of the games and level of sportspersons. These aspects assist the coach in directing the training to achieve higher level of performance in competition. These studies give direction to the researchers and coaches of Kabaddi, the game that is lesser know till now, to tackle the problems associated with the research.

A careful scrutiny of performance enhancement in team games and duel sports in the recent time is due to perfection in execution of technique and tactical variations, application of speed and power and faster game tempo combined with suitable physique. This has put the players under tremendous pressure and one need to be super fit to excel at the national and international level competitions. A clearly defined training management strategy is essential in controlling the many factors affecting the athletic performance and it is
essential that these factors are used as a positive force to improve performance\textsuperscript{28}.

In cyclic events like track events, swimming and cycling, performance can be easily quantified and it can be rated objectively. In duel, combative and team sports like wrestling, judo, boxing, taekwondoo, volleyball, basketball, football, hockey and in Kabaddi, quantification and objective assessment of performance is very tedious. In duel, combative and team sports due to quick movements, changing situations and complex nature of movements, registration of performance quantitatively is one of the most difficult tasks.

Like in any other team sports, in Kabaddi too, individual and collective brilliance plays a vital role. Defensive players occupy certain position on the field in which they have special ability to perform. These positions are: a) Left Corner b) Left Cover c) Right Corner d) Right Cover. Cover and corner hold the hand of “in player” to form a chain. Corner and cover players have specific function to perform and are assisted by “in players” and players of other zone. Depending upon the raider’s movement, cover and corner chain take position and move according to the movement of the raider. The movement performed and holds attempted by the cover and corner is almost the same, however cover is in proximity to raider than corner. As long as all the seven players are on the court the defensive system remains the same, however if a player is out, the remaining players rearrange the defense system by shuffling the players. This compulsion forces the players to suit themselves to other defensive positions these have its implication on the game performance. The more the adaptability of defensive players to a position, other than the one in which they have specialization, better is the performance. Unlike defense, raiding depends

solely on individual ability. If main raider/s is out other players, will have to raid on the opponent court. Raider on many occasion have to assume the role of defensive players though his main forte is attack. If one takes a closer look at the defensive and offensive positional play, all the players must learn, acquire and adapt themselves to various positions for the team’s optimum performance, although specialization does exist.

To give best performance a Kabaddi player requires all the motor and coordinative abilities. However, it is expected that certain motor and coordinative abilities may be dominant. This vital information may help the coach to pay more attention without ignoring the other abilities.

There is paucity of literature and scientific work in Kabaddi. To ascertain the potential of Kabaddi players and to know the relationship of selected motor and coordinative abilities, the investigator has undertaken this study.

**STATEMENT OF THE PROBLEM**

The purpose of this study was to know the relationship of selected motor ability variables with the game performance of junior national male Kabaddi players.

The purpose of this study was also to know the dominating motor abilities that are required for the junior national male Kabaddi players.

The purpose of this study was also to compare the positional play of offensive and defensive players of junior national male Kabaddi players.

**DELIMITATIONS**

1. The study was restricted to the performance of offensive and defensive Kabaddi players at junior national level.
2. The study was restricted to a total of 100 male Kabaddi Players from Karnataka, Andhra Pradesh, Kerala, Tamilnadu and Pondicherry who has participated at the Junior National level championships.

3. The study was further delimited to five motor abilities viz., strength, speed, endurance, flexibility and agility.

4. The study was further delimited to four coordinative abilities viz., kinesthetic differentiation ability, space orientation ability balance and complex reaction ability.

LIMITATIONS
1. The performance of the players was provided by the experts through subjective rating, which is considered as one of the limitations.

2. The study was confined to the level of participation of the players, not to their performance and training age.

3. To get the best out of the players during the test period, no special motivational technique was employed which is considered as another limitation.

4. Diet, regular practice, past experience, sports training and participation in competitions, meteorological factors were not taken into consideration, which was another limitation.

HYPOTHESES
To accomplish the purpose of the study, the following hypotheses were framed.

1. There is difference in muscular endurance of arms among defensive and offensive Kabaddi players.

2. There is difference in muscular endurance of abdomen among defensive and offensive Kabaddi players.

3. There is difference in explosive power of arms among defensive and offensive Kabaddi players.
4. There is difference in explosive power of legs among defensive and offensive Kabaddi players.
5. There is difference in running speed among defensive and offensive Kabaddi players.
6. There is difference in cardio respiratory endurance among defensive and offensive Kabaddi players.
7. There is difference in stretch ability of legs among defensive and offensive Kabaddi players.
8. There is difference in extent flexibility of trunk and shoulder among defensive and offensive Kabaddi players.
9. There is difference in agility among defensive and offensive Kabaddi players.
10. There is difference in dynamic balance ability among defensive and offensive Kabaddi players.
11. There is difference in kinesthetic differentiation ability of upper limbs among defensive and offensive Kabaddi players.
12. There is difference in space orientation ability among defensive and offensive Kabaddi players.
13. There is difference in complex reaction ability among defensive and offensive Kabaddi players.
14. There is difference in kinesthetic differentiation ability of lower limbs among defensive and offensive Kabaddi players.
15. There is correlation between performance and muscular endurance of arms of Kabaddi players.
16. There is correlation between performance and muscular endurance of abdomen Kabaddi players.
17. There is correlation between performance and explosive power of arms of Kabaddi players.
18. There is correlation between performance and explosive power of legs of Kabaddi players.
19. There is correlation between performance and running speed of Kabaddi players.
20. There is correlation between performance and cardio respiratory endurance of Kabaddi players.
21. There is correlation between performance and stretch ability of legs of Kabaddi players.
22. There is correlation between performance and extent flexibility of trunk and shoulder of Kabaddi players.
23. There is correlation between performance and agility of Kabaddi players.
24. There is correlation between performance and dynamic balance of Kabaddi players.
25. There is correlation between performance and kinesthetic differentiation ability of upper limbs of Kabaddi players.
26. There is correlation between performance and space orientation ability of Kabaddi players.
27. There is correlation between performance and complex reaction ability of Kabaddi players.
28. There is correlation between performance and differentiation ability of lower limbs of Kabaddi players.
29. There is multiple regression of the performance in Kabaddi on the selected motor ability variables.
30. There are few variables, among the selected motor ability variables, which act as dominant predictors of performance in Kabaddi.

**SIGNIFICANCE OF THE STUDY**

1. The present study may facilitate to know the relationship between the Selected Motor Ability variables with the game performance of Junior National Male Kabaddi players.
2. The present study may also help to know the relationship between selected Coordinative Ability variables with the game performance of Junior National Male Kabaddi players.

3. The result of the present study may provide information to the coaches and physical education teachers to formulate appropriate training programme for the development of motor and coordinative abilities of Kabaddi players.

4. The result of the present study may help to know the important motor and coordinative abilities required for players in Kabaddi according to their positional play.

5. The result of the present study may provide information to the coaches and physical education teachers the dominating motor and coordinative ability required for the Kabaddi players.

6. The study may help to overcome dearth of literature in this area.

7. The present study may facilitate other researcher to take up more and more studies in this area.

**DEFINITION**

**Motor Ability**

Motor ability has been defined as the present acquired and innate ability to perform motor skills of a general or fundamental nature exclusively of highly specialized sports and gymnastic techniques.\(^2^9\)

**Speed**

Speed is the capacity of the individual to perform successive movements of the same pattern at a fast rate.\(^3^0\).

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\(^{3^0}\) Ibid., p. 215.
Muscular Endurance
It is the ability to perform repeated isotonic or isokinetic contractions or to sustain an isometric contract against significant resistance.\(^{31}\).

Explosive Power
It is the ability to overcome resistance with high speed\(^ {32}\).

Flexibility
Flexibility is the movement of a joint through the full range of motion\(^ {33}\).

Cardio respiratory Endurance
It refers to the ability to perform large muscle, whole body, moderate intensity activity for extended period of time\(^ {34}\).

Agility
It is the physical ability, which enables an individual to rapidly change body position and direction in a precise manner\(^ {35}\).

Balance
It is the ability to maintain equilibrium in the state of rest and motion\(^ {36}\).


\(^{33}\)Bill Tancred, Health Related Fitness (London: Hodder and Stoughton Limited, 1987), p.28

\(^{34}\)Pate, McClennaghen and Rotella, op. cit., p. 280.


**Coordinative Abilities**

Coordinative abilities are the abilities expedient to form, coordinate and link into an integral whole the motive actions, and the ability to transform the actions already worked out or to change from some over to others, depending on requirements of changing situation\(^\text{37}\).

**Kinesthetic Differentiation Ability**

It is the ability to achieve high accuracy and economy (fine adjustment) of separate body movements and mechanical phases of total movements. It is based upon the conscious, precise distinction between force, time and space parameters of motor processes and those existing in the athletes.\(^\text{38}\)

**Space Orientation Ability**

It is the ability to analyse and change the position and movement of the body in space and time selected to a defined action area or to a moving object\(^\text{39}\).

**Complex Reaction Ability**

It is the ability to initiate quickly and to perform rapid and well-directed actions following a signal\(^\text{40}\).

\(^{37}\text{Matveyev, Op. Cit., p.146.}\)
\(^{38}\text{Harre, Op. Cit., p.153.}\)
\(^{39}\text{Ibid.}\)
\(^{40}\text{Ibid., p.154.}\)