CHAPTER-I

INTRODUCTION

Man is active being. Movement and physical activities are vital to his well being both from physiological and psychological perspective. The time when sports were nothing more than an enjoyable recreation for individual is irrevocable past. The phenomenon of sports today intervenes in almost all field of human endeavor and very often it even has a central position. A sport thus has experienced an enormous extension quantitatively as well as qualitatively with many positive but some negative aspects too.

Now a day's Sports has become a part and parcel of life. Millions of fans follow different sporting events all over the world with an enthusiasm bordering on devotion. Many people participate in games and sports for fun, happiness, pleasure as well as for health and fitness. Increased participation in sports has resulted in competition which has become an important element of modern life. Competition provides the means by which one can show one's worth successfully. ¹

Today the sports persons are trained scientifically with the latest training methods and sophisticated instruments for higher performance improvement in different sphere of sports. Contemporary Sports science has enable the sports person to develop physically for competition and as a result the records are being broken at a greater speed.

¹ Peter Arnold; 'Education, Physical Education and p° Development'. London: Heinemann Educational Book

114.
In today's scientific age, in every field of human endeavor, systematic objectives and scientific procedures are followed in accordance with the principles based on experience. Advance countries like U.S.A., Germany, Russia, Australia, Britain and others, have made rapid progress in games and sports like Athletics, Soccer, Hockey, Basketball to name a few. This progress and the international achievements have been possible only due to research experimentation and application of scientific knowledge. ²

Sport's is accepted as a cultural phenomenon. There are constant endeavors to achieve higher standards of sports performance. As a result today competitive sports demands optimum physical fitness for highest level of sports performance. Many people take part in sports activities for the fun of it or for health and fitness. A sport has become a profession to some having skills and ample financial benefits are linked with a high degree of popularity. ³

It is universally accepted that regular physical exercises enable the individual to stay physically fit and to sustain the average individual in his daily activities. However anybody who wishes to participate successfully in games and sports; aspires to be a champion or to reach the top level he must go beyond the simple rule of regular exercise. He must engage in intense and frequent physical drills and gear toward developing those physical qualities which are most necessary for success in particular sport endeavor. ⁴

² H. William; Physical Education and Sports in Changing Society; (New Delhi, Surjeet Publication; 1980); PP.12-13.
³ S.R.Sergio; “Character Violence in Sports Governed by Criminal Law” (Olympic Review 1976) P. 44
Countries all over the world try to show their success in the international sports competition. Each and every country develops its own innovation and techniques, tactics and strategies for exhibiting top level performance so as to emerge winner and champion of sports. Modern games and sports are getting tougher and faster day by day. Now the game is enthralled by speed, stamina, great strength, suppleness, power packed encounters along with sophistication of equipment, facilities and cloths. There is all round encouragement to improve with new set-ups and even changing styles or techniques on the whole. The basic fitness at international level and even at national level are quite improving as is widest the majority of participation largely due to scientific training schedule.

The game Kho-Kho a down to earth is the most popular game besides Kabaddi in rural India having considerably long tradition. At present it is most popular among all the indigenous team games of India. Competitions are being held from school level to national level. Occasionally attempts are being made to put this game on the level of international competition. The national interest in raising the standard of these games continues to be high.

Kho-Kho like yogasana, malkhamb, lathi, phari-gadga, Kabaddi, Atayapatya, Langdi, lagore, viti-dandu, are peculiar indigenous activity preserved and handed over to the present generation. History, however, fails to record the exact date and location of their origin. Dnyaneshwar, Eknath and Saint Tukaram are highly respected as some of the foremost among religious saints and social reformers of Maharashtra. In their poetic writings; in praise of the God these saint poets have returned to the indigenous activities in an allegory at times under different nomenclature from 12th to 17th centuries. During the Maratha period, for want of piece these games and activities might have been played only on special occasions, such as at fairs and festivals. In the political field, Maharashtra also took a
lead in rejuvenating the indigenous activities, especially the team games. The Deccan Gymkhana, Poona not only organized sport meet in 1914 and 1915, but also published the first book on rules of the indigenous game kho-kho in 1910 and there after published two more revised editions of this book in 1919 and 1928. The Hanuman Vyayam Prasark Mandal, Amravati established in 1914 made organized efforts through the Indian Olympic Association to put this team game on the world sports and as a result, they gave a demonstration of Hu-Tu-Tu, Kho-Kho and Malkhamb among others at the world sports pedagogic congress, in Berlin in 1936. Akhil Maharashtara Shareerik Shikshan Mandal established in 1927 under took very systematically organized plans and consequently framed the revised rule of these games in 1931 and 1934 and published them in the form of a book. The Bombay physical culture association and the Gujrat Vyayam Prasark Mandal also contributed towards the revision of the game, framing the rules and popularizing the game during the modern era. As a result of the efforts made by these organizations, the kho-kho federation of India was established in 1955 which looked after the rules and regulations the play field and made several modifications from time to time. 5

Kho-Kho is a chase and tag game. The chaser chases the runner to dismiss him from the game. The game is called Kho-Kho because it is obligatory on the part of the active chaser to utter ‘kho’ behind a seated chaser to hand over chase to the seated chaser for the progress of the game, failure in its, is a foul.

The game of Kho-Kho is based on the natural principle of physical development. It is vigorous and fosters a healthy competitive

spirit among the youth and not merely running with speed but also a
natural instinct to overtake, to pursuit, to catch a kill. No doubt speed
is the heart of the game and to stand to a relentless pursuit of nine
minutes at a stretch. The heart demands stoutness and stamina
controlled sprint, dodging, diving are some of the skills exhibited
during the game. It is generally noticed that the defender executes
sudden action such as swift running, turning, dodging, stopping
twisting, abrupt stopping etc. produce great psycho, neuromuscular
strain especially at abdominal locomotive and spinal region. In fast
tempo of the game, perceptual motor skill need thorough assessment
and application in the field. The game also needs more of the skillful
execution such as sitting and getting up, giving kho, fast running,
sudden stopping covering, pole turning, diving, faking, intermittent
sudden burst of speed all these activities are essential for attackers.
Further the game also needs quick, reflection, intelligence to cope
with new situations and the needs quick reflection, intelligence to
cope with new situation and perfect eyesight. The repetitive
movement’s zigzag running, foot work, dodge, sudden start and
stopping, sitting and getting up may lead to injury and disability.
Development of the back, abdomen, neck muscle, leg-power for
running, agility and good speed etc. should be our target in our
training schedule and conditioning programme.

In Kho-Kho everybody is forced to take active part in the game.
Everybody is compelled to expose himself to the attack. Kho-Kho is
thus a game of chase and hence speed in running is the fundamental
requisite of the game. Much of Kho-Kho is about running; a premium
is therefore placed on speed. However a straight, continuously
accelerating maximum speed needed for a sprint race is of little use in
Kho-Kho. The Kho-Kho players should not have maximum but
optimal i.e. best speed which could let him control his body and come
almost to dead stop at any moment as the situation demands running
in Kho-Kho includes not only moving quickly from one place to another, but also to quickly change to position from squatting to rising and vice-versa; cut back and cut short, pivot and dodge, forward as well as backward short shuttle run. Thus agility coupled with speed is the next hypothesized pre-requisite of the game.

According to Newton's third law of motion, to every action there is an equal and opposite reaction; power is required for propelling one's body forward or backward as well as for planting one's body while coming to stop; comes through pushing the ground. A player having exclusively high strength and power of the legs can alone receive maximum advantage from the ground. He comes suddenly to dead stop by dashing hard against the ground and restarts abruptly with hard push against it. Leg power and endurance are the next hypothesized requisites of the game.

A player with great strength and high explosive power of leg will not necessarily become an efficient Kho-Kho player, but he needs relatively high muscular as well as cardio vascular endurance to stay long in active play. The runner tosses his entire body weight in the air, every step and has to overcome inertia every now and then gravitational force however, executes "restricted" or controlled movements and he gets exhausted too quickly. Therefore, endurance is the next pre-requisites of the game.

A defender in Kho-Kho is not allowed to rest and has to face promptly the fast approaching pursuit with full concentration to the ever changing situation of the game and is therefore liable to succumbs earlier to nervous tension because they have to play in more restricted conditions laid by rules and regulation of the game. In Kho-Kho like every game of chase the defender runs ahead and attacker follows him, thus attack is from behind. The object of the runner is to stay or remain in play on the ground as long as possible.
Between two runners of equal skills the players who will play the
game longer will be the player who conserves energy by avoiding
unnecessary running. For this purpose he needs high auditory
perception which will enable him to hear the fast approaching foot
step behind him to judge the minimum distance of safety and to allow
at least some moments to rest, as well as to plan ahead for the next
move. An intelligent runner knows that as per rule many restrictions
are placed on the attacker and that he must take maximum
advantage of them. At all the times the runner prefers to face the
attack from the front. This requires more courage and high level skills
such as faints and fake as well as pivot and dodges.

A chaser should possess all the above mentioned abilities and
traits of runners. In addition to these they need special characteristics
that assist their team to score more with ease and efficiency. All
chasers should be co-operative with each other and work together to
dismiss and runner within shortest possible time. To achieve this
object every chaser should help to add to the speed to the game and
not allow a moment of rest to a runner who would either cause him
fatigue or enter in to an uncomfortable position or finally dismiss him.

It is very difficult to give list of qualitative aspect of player’s
performance that helps players succeed or fail in the game.
Performance in Kho-Kho largely depends on fitness factors viz. speed,
endurance agility, power flexibility, reaction-time, neuromuscular
coordination and speed of movement’s etc. player participating in
matches has to possess physical capacities necessary for long and
strenuous competitive game. Game of Kho-Kho demands optimum
physical fitness for the match. Speed, explosive strength, endurance
agility and flexibility are the principle qualities, which should go with
skill to enable players to withstand the strain of a long drawn and
keenly contested match.
Many people play Kho-Kho for fun and fitness; others are more ambitious with mind focused on club, school, university and national honors. Either way some attention towards general and specific fitness should yield more than adequate rewards. Apart from improvement in health even the lowest of novices should gain in suppleness and rhythm.

Since 1914 when the Deccan Gymkhana, Poona made pioneering efforts to frame the rules and regulation of conduct for the competition in Kho-Kho. The attention of interested coaches and experts was concentrated more on development of the rules of the game and the dimensions of its play fields, from the organizational point of view than improvement in performance abilities of players. The player is expected to respond effectively to the unexpected situation which arises while playing during the action of the game. Now a days, this attention has been shifted towards the players. Experts and Coaches are trying to develop methods of improving player’s performance. From those days to now a steady perceptible improvement in the game has been noticed. There is more intelligent play and the standard of individual play and team work is much higher. The technique of skill development is fast improving. At this juncture, it can be stated that the method of improving the technique of skill development should logically follow the method of forecasting potential abilities of the players. From this point of view, it is seen in the published literature records no attempt has been made of experimental research in indigenous games and sports. Virginity of this field has prompted the present investigator to make humble beginning with the scientific study of development of method of sport training in Kho-Kho. A development of method of sports training is a long process. Cores of coaches, doctors, sports persons; scientists and professionals have been conducting research and are still trying to find out most effective methods to achieve perfection in this game.
This study is an attempt in this direction in Kho-Kho, the popular game of India.

STATEMENT OF THE PROBLEM

Most of the investigation attempting to assess the value of physical exercises training programme as a means of altering physical efficiency. The activities generally involve high energy expenditure and are commonly believed to be effective in contributing to physical efficiency. The effectiveness of physical exercises like strength, speed, endurance and agility requires high-energy expenditure of physical fitness and the performance ability is not well known. The review of literature does not reveal any studies investigating the effect of strength, speed, endurance and agility exercise training programme on the playing ability of the kho-kho players. Kho-kho being an indigenous activity did not get attention of researches and hence remained ignored so far as specific training in concerned. The scholar himself was a kho-kho player and hence wants to find out the effect of specific training on fitness components and on the performance of kho-kho. It was considered appropriately by the research scholar to investigate effectiveness of physical exercise programme on the kho-kho performance.

The purpose of the study was to found out the “Effect of explosive Strength, Speed, Endurance and Agility Training on the performance of kho-kho players.”

OBJECTIVES OF THE STUDY

The specific objectives of the present study were: To study overall effectiveness of specific training programme on the performance of the kho-kho player.

To compare difference between the control group and experimental group performance, before and after the training.
To suggest regular effective training programme to kho-kho players.

**HYPOTHESIS**

Explosive strength, Speed, endurance and agility training programme shall have no effect on the performance of kho-kho players.

**DELIMITATIONS:**

The study was delimited to the male subjects with age range from fourteen to eighteen years.

The study was further delimited to district level kho-kho players.

The Study was also delimited to the explosive strength, speed, endurance and agility Training programme.

**LIMITATIONS**

As the subjects selected for the study were all within the Mumbai City but not within a residential camp. The factors like diet, life-style, daily routine habits, etc., which might have had an effect on the results of the study, was considered as limitation.

The meteorological variations such as air temperature, atmospheric pressure, relative humidity etc. during the training period could not be controlled and their possible influence on the study was also recognized as a limitation.

The effect of other physical activities that might have influenced the data collection was accepted as a limitation.

The emotional stages of the subjects and motivational factors which might have had influence on the result of the study were also accepted as a limitation.
DEFINITION OF SPECIFIC TERMS

Explosive Strength:

1. According to Clarke. 6 Strength is the ability to carry out daily task with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure time and meet unforeseen emergencies.

2. Mathew. 7 defined explosive strength as the ability to release maximum force in the fastest possible time. It is the ability of body or segment of it to apply force at rapid rate.

3. Barrow & McGee. 8 defined strength as the capacity of the individual to release maximum force in the shortest time.

4. Different authors have defined strength in various ways however definition offered by Hardayal Singh 9 is accepted for the purpose of this study. Hardayal defined Strength as the ability of individual to exert muscular force within minimum possible time. It is the ability to overcome resistance with high speed. It is of a different nature and is always found in motor movements i.e. in the form of dynamic strength.

---

6 Harrison H. Clarke; "Application of Measurement to Health and Physical Education", Elengwood cliffs N.J. prentice Hall; Inc' (1967); p.140


Endurance:

Endurance is the result of physiological capacity of an individual. It is the ability to continue successive movements in situations where the muscle or muscle groups are loaded heavily. In other word it is the ability to do movements, with the desired quality and speed under the condition of fatigue.

1. Clarke 10 defined the cardiovascular endurance as the moderate contraction of large muscle groups for relatively longer periods of time; during which maximum adjustment of the cardio respiratory system are necessary.

2. According to Barrow & McGee 11 endurance is the result of a Physiological Capacity of the individual to sustain movement over a period of time. It is the ability to continue successive movement in situation where the muscle or muscle groups being used & loaded heavily.

3. Heyward 12 defined muscular endurance is the ability of the muscle to maintain sub maximal force levels for extended periods. It is the result of the Physiological capacity of the individual to sustain over a period of time.

---

10 Harison H Clarke; op. cit. p– 152.

11 Barrow & McGee; op. cit. p– 117

12 Heyward. V.H; “Design for fitness”, Minneapolis Burgess publishing Co. (1984); P. 121.
4 According to Edward 13 endurance is the ability of the muscle to perform repetitive contraction over a prolonged period of time. Definition given by Edward is accepted for the present study.

**SPEED**

Speed is the ability to perform movements rapidly or ability to move the whole body quickly.

1. Barrow & McGee 14 Defined Speed as the capacity of the individual to perform successive movements of same pattern at a faster rate. In other way rapidly with which a movement or successive movement of the same kind may be performed by an individual.

2. Johnson and Nelson 15 defined speed as the rate at which a person can propel his body or part of his body through space.

3. According to Robert V Hockey 16 speed is the quickness with which one is able to move his body form one point to another. Definition offered by Hockey is accepted for the purpose of the present study.

---


14 Barrow & McGee; op. cit. P. 247


16 Robert V. Hockey; "**The path way of living**", (St. Louis; C.V. Mosbey Company; 1973); p.93.
Agility

5. According to Barrow & McGee. 17 Agility is the ability of the parts of the body to change direction rapidly and accurately.

6. Johnson & Nelson 18 defined Agility as the Physical ability which enables an individual to rapidly change body position and direction in a précis manner.

7. Jenson 19 defined agility as the ability to change the direction of the body or its part rapidly. Definition Suggested by Jenson & Cynthia is accepted for the purpose of the present study.

SIGNIFICANCE OF THE STUDY

Physical educationists and sport scientists have been constantly examining sports performance in relation to the individual skill and fitness standards. They try to discover those factors that contribute to high performance so that the findings could be utilized in the practical aspects of coaching and training. The present study will contribute as under:

1. The findings of the study will provide guidelines to physical education teachers and coaches to prepare training schedules.

2. Competitive kho-kho demand high level of physical and physiological fitness and personality traits during the

---

17 Barrow & McGee; op. cit. p-118

18 Johnson & Nelson; op-cit. p- 215

season. The players are loaded and taxed physically, as well as physiologically. A well planned and regulated training regime can bring the players to their peak performance level by developing physical and physiological condition and conditions players will withstand the wear and tear of the competitive season. Only those trained with proper requisites in terms of loading of paramount factors for the execution of skills, will put in his best according to the demand of the completion. Therefore; effect of speed, endurance and agility training the performance ability to kho-kho players, might enlighten the coaches in terms of preparation of kho-kho players.

3. The study may throw light on scientifically developed training schedule for kho-kho players in order to bring about optimum development of performance ability.

4. The observations of this study may help those concerned with coaching and training to formulate specific training programme in relation to various performance factors in kho-kho.

5. The findings of this study may also in general assist the physical education teachers; coaches and experts of the assessment of performance status of their players.

6. This study may give an opportunity and encouragement to the interested coaches to conduct further studies on different aspects to Kho-Kho.

7. The findings of the study may add to the quantum of knowledge in the area a training methods and results of the study may be of great value for designing suitable training programme for the movement of performance abilities.