



INTERVAL TRAINING EFFECTS ON FITNESS VARIABLES RELATED KABADDI PLAYERS

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ABSTRACT

The sphere of sports therefore includes rather varied kinds of activity. A number of "ancient" sports (running, jumping, throwing, wrestling, etc.) originated from definite forms of work and then combat actions. The forms of sports movements and actions invariably changed compared with their initial basis, developing in accordance with the requirements of the sporting activity. Sports in the modern world have become extremely competitive. Now-a-days, sports have become an essential part of life. 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. As a many sided social phenomenon, sports is an active preparing a person for leisure and other socially necessary types of activity and alongside this is one of the important means of the ethic and aesthetic education, satisfaction of the moral requirements of its historical development sport has occupied a prominent place both in the physical, as well as in the moral culture of a society. Its social significance continues to soar. Interval training also helps prevent the injuries often associated with repetitive endurance exercise. They allow one to increase his training intensity without overtraining or burn-out. In this way, adding intervals to his work-out routine is a good way to cross -train. According to the Sports Medicine, more calories are burned in short, high intensity exercises. If one is counting calories burned, high intensity exercise such as intervals are better than long, slow endurance exercises, but the trainee may pay a price. Interval training is alternate periods of intense work

and active recovery. Interval training involves activities that are more intermittent. It consists of Alternating periods of relatively intense work and active recovery. It allows performing more work at an intense work load over a long period of time than working continuously.

KEYWORDS: Effectiveness, Interval Training, Kabaddi Players, modern life, sporting activity.

INTRODUCTION

Games and sports have been part of human life almost since time immemorial. Be it as a necessity for his survival. Hunting for food, shelter and safety from wild animals or other enemies, or as a pursuit of pleasure; games and sports have been indispensable to mankind, and have become part of his culture. The games and sports are a great unifying force and have tremendous effect on national and international integration (Singh 2004). Modern sports, therefore, have taken roots in different areas of social life with a mere pursuit only of those who take part in sports as competitors. The historical introspection of the place of sports in the social structure leads to the conclusion that 'sports' is an integrated component of society and its concept and role in the society has been changing with the changing time. Sports as many sided social phenomenon are an active factor in physical education, one of the basic forms of preparing a person for labour and other activities and alongside this one of the important means of the ethical and aesthetic education, satisfaction of the moral requirement of society, consolidation and expansion of international ties. Sports are included in the system of social relation and are conditional in its development by the social economic and related factors. (Singh 2004). Sports as a competitive activity. Here we speak about activity the specific form of which is competition in the proper essence of the word related to some specific physical activity. Games are team activity where the movements of the body change from one action as in case of games like football, basketball, kabaddi, volleyball etc. In these games, all of a sudden certain movement is done to outwit the opponent. They require more elaborate organization and strategies based on intense competition.

Physical fitness is the capability of the heart, blood vessels, lungs and muscles to function at optimal efficiency. Optimal efficiency means the most favourable health needed for the enthusiastic and pleasurable participation in daily tasks and recreation activities. Optimal physical fitness makes possible an effective lifestyle that unfit cannot enjoy. To develop and maintain physical fitness requires vigorous effort by the total body. According to USA council of physical fitness and sports, "Enough physical capacity to cope with the physical need of life"

Physical fitness is related to sports performance. According to Schanbal (1987), "Sports performance is the unity of execution and result of a sports action or a complex sequence of action measured or evaluated according to socially determined and agreed norms."

Long investigations and practical experiences have shown excellence in performance; in competitive sports is interplay of numerous factors. Condition of health, psychic values, general physical fitness, technical efficiency, specific capacity of the organism, tactical skills and competitive experience are some of the principal factors which influence competitive activity. Proper preparation for it and specific relation in the sphere of this activity is taken as a whole. In order to give the best possible performance at any competition, the assistance of scientific disciplines is sought. With the introduction of the basic principles of science, physical education and sports has become a subject of scientific research. Now various special branches of science such as biomechanics, physiology of sports, sociology of sports etc. have been established which are concerned with the physical education and sports. New techniques based on insight and understanding of the sports researchers, have been evolved.

Kabaddi is a combative team game, 'played with absolutely no equipment, in a 13 meters x 10 meters rectangular court, either outdoors or indoors with seven players on each side of the ground. Each side takes alternate chances for offence and defense. The basic idea of the game is to score points by entering into opponents' court and touching as many defense players as possible without getting caught in a single breath. (Nataraj 2008). The sports have a long history dating back to pre-historic times. It was probably invented to ward off group attacks by individuals and vice-versa. The game was very popular in the southern part of Asia played in its different forms under different names. A dramatized version of the great Indian epic, the "Mahabharata" has made an analogy of the game to a tight situation faced by Abhimaneu, the heir of the Pandava kings when he is surrounded on all sides by the enemy. Buddhist literature speaks of the Gautama Buddha playing kabaddi for recreation. History also reveals that princes of yore played kabaddi to display their strength and win their brides. (Rao 2000). The game, known as Hu-Tu-Tu in western India, Ha-Do-Do in eastern India & Bangladesh, chedugudu in southern India and kaunbada in northern India, has undergone a sea change through the ages. Modern kabaddi is a synthesis of the game played in its various forms under different names. (Nataraj 2008)

Defense in kabaddi is a combined effort in which seven players defend themselves from the attack of single attacker, the raider from the opposite court. Team work is therefore of crucial importance for strong defense. Unlike in other team games, each player has to have the capacity to fill in for at least two or three defense positions other than his own due to the out and revival rules of play. The main function of the defense players is to score a point by catching the raider and retaining him in their court until he loses cant. This is risky because if the raider touches one or more of the defense players (also called antis) in the process without getting caught and manages to reach his home court with cant, the defense will lose that many numbers of points. These points will go to the attacking side and the number of players touched by the raider will be declared 'out'. Until the defense side retrieves as many points in their raiding turns, they will have to carry on the game with the reduced number of players. It is therefore; very necessary for the kabaddi players to study the various offense and defense positions and their specific functions. (Rao 2004).

In kabaddi the basic defense positions are in three zones, named right zone, center zone and left zone, the defense player occupying one of these zones have specific functions to perform, in coordination with his counterparts in the other defense zones, for maintaining the defensive strong hold. The player is identified by the position he occupies irrespective of the varying number of offense and defense players, In kabaddi, muscular strength of arms is of immense importance, for both raider and antis. During the course of forty minutes of game, both raider and defense players repeatedly use arm strength. Raider uses his arms frequently to escape from holds, to push and pull defenders in combination with muscular power, unlike raider, defense players use only arms to hold a raider. As both raider and defense players overcome the resistance of each other, muscular endurance is necessitated. Explosive power of legs and arms are found to be very essential, in kabaddi. The movement executed in kabaddi, is swift and explosive in nature. Several of the techniques executed by the raiders are of lower limbs and are performed quickly and suddenly. Leg power is of vital importance, for both raider and defense, for quick start, turns and stooping. They should possess optimum amount of leg power to generate force from the ground. Both raider and anti- raiders frequently make use of their arms to touch, escape, and counter the movements; to escape from hold and for the application of firm on opponents. Defense players, for all types of hold, predominantly use both the arms. Quicker and faster movements of arms, by raiders and defensive players, guarantees better performance in holding

the raider or in executing individual and group holds. A slow and lethargic movement is detrimental to secure a point. Invariably, raider and anti-raider push and pull each other, during the course of game, either to hold or escape; and repeated movements of similar type need muscular power and endurance. Arm strength and power dominate in kabaddi, as game is a body contact game.

INTERVAL TRAINING

Interval training is a type of physical training that involves bursts of high intensity work. This high intensity work is alternated with periods of rest or low activity, the eponymous intervals. The term can refer to any cardiovascular workout (e.g. cycling, running, rowing, etc.) that involves brief bouts at nearmaximum exertion interspersed with periods of lower-intensity activity. Interval training is often practiced by long distance runners (800 meters and above). Sprinters and footballers have also been known to use this type of training. Distance runners often practice interval training on tracks, running hard at a certain pace for a specified distance (or, less often, time) and jogging, walking, or resting for a set distance or time before the next speed burst. Distances can also vary; one example would be a "ladder" workout consisting of a 1600-meter, two 1200-meter, three 800-meter, and four 400-meter repetitions, each at an appropriate speed and with an appropriate amount of recovery, ("Interval training", 2018). Interval training adheres to the principle of adaptation. Interval training leads to many physiological changes including an increase in cardiovascular efficiency as well as increased tolerance to the buildup the lactic acid. These changes result in improved performance greater speed, and endurance. Interval training also helps to avoid injuries associated repetitive overuse common in endurance athletes. During the high intensity efforts, the anaerobic system uses the energy stored in the muscles (glycogen) for short bursts of activity. Interval training is a form of progressive conditioning in which the intensity of the activity, the duration of each bout, the number of bouts, the time or kind of rest periods between bouts or the order of the bouts are varied. The variables associated with interval training include the number of repetitions, the duration of effort, work intensity and duration of recovery (Dhayanithi, 1991).

Interval training is a high intensity workout followed by a rest interval during which activity of moderate to low intensity is carried out. This type of endurance training is very good for improving aerobic capacity, which is a must for sports such as Kabaddi which demand explosive strength and endurance. Kabaddi is a sport which is patterned on the Interval style, i.e., one raid

of high intensity for 30 seconds followed by moderate activity by the raider when he assumes his defense position in his home court before his next forage into the opponents' court again of high intensity. The sport itself is patterned on the style of Interval training since the raider goes for high intensive activity during his raid lasting about 30 seconds while his counterparts have a recovery interval until he returns to home court. Interval training is a fitness training method which is used in other forms of training such as circuit training and weight training with a number of repetitions which is considered very good for improving aerobic capacity of the sports persons ("Interval Training", 2018).

The surfaces on which athletes run on can play a vital role in determining how well they perform. It has been documented that skill acquisition on different playing surface requires a look practice. Kabaddi is a sport which is extremely popular in India. In majority of tournaments are still conducted on soft mat and clay fields. Hence the Indian kabaddi players are on variety of surfaces which have different friction and traction. Since slight adjustment in terms of friction and traction is required on various surfaces hence the same applies for kabaddi players also (Meyers & Barnhill, 2004). Volume and intensity have a high degree of relationship, because athletic exercise usually involves both quantity and quality. Therefore, it is difficult to differentiate between them in training. For instance, when a swimmer sprints, the distance and time of the event represent volume and the velocity of performance indicates intensity. Placing different relative degrees of emphasis on these components in training yields different effects on the body's adaptation and training status. The higher the intensity and the longer it is maintained the higher the energy requirements and the more the stress on the central nervous system and the athlete's psychological sphere (Bompa, 2000).

Interval training is as a programme of repeated running with a set of interval and restful jogging after each run. The period between runs must be long enough to allow the athlete some time to recover from previous run, but not long enough to afford him complete recovery. Doherty described two types of Interval training. In the first type one run half or three quarter of the actual distance at competition. Speed or even faster, which requires a longer interval of slow jogging. This is called "long interval training" which required more endurance. The Second type is "Short interval training" on this Doherty gave the following comment. With the short interval, there were two types of work out pace endurance work and speed endurance work. In pace endurance distance pace and interval are kept constant and the number of repetitions are

increased as condition improves. In speed endurance type, distance, Interval and number of repetition is fixed and pace varied. In this, the interval is comparatively shorter. Interval training is a form of progressive conditioning in which the intensity of the activity, the duration of each bout. The number of bouts, the time or kind of resting period between bouts, on the order of the bout is varied.

Interval training involves the periods of intense training, interspaced with rest periods. During the rest period, the chemical fatigue produced from exercises can be paid off and new sources of energy are supplied to the muscle. The intensity of training on the cardiovascular system is much greater than in distance running. The interval training stresses the glycogen system, which results in the production of high levels of discomfort associated with all intensive exercises. As a result interval - trained athletes are subject to high levels of physiological stress. They are familiar with this stress and they know how to adjust to it during competitions. The major point of interval training is that if the work rate or intensity is increased while work duration is held constant the athlete will increase his work capacity to higher levels. Interval training is a form of progressive conditioning in which the intensity of the activity, the duration of each bout, the number of bouts, the time or kind of rest periods between bouts or the order of the bouts are varied. The variables associated with interval training include the number of repetitions, the duration of effort, work intensity and duration of recovery.

VARIED SURFACES ON SPORTS PERFORMANCES

All sport surfaces are capable of returning energy to athletes. The athlete contacts the sport surface; energy is transferred from the athlete, through the foot and shoe, into the surface. As the athlete leaves the surface, some of this energy can flow back in the opposite direction from the surface to the athlete. Thus, energy transfer to and from the surface can have a large influence on athletic performance. Hockey, athletics, and tennis are examples of sports that in the past predominantly took place on natural surfaces but now commonly occur on artificial surfaces (Cox, 2003). The development of artificial surfaces in sport was mainly the result of a need to reduce maintenance costs and the influence of adverse weather conditions on surface playing ability. Although artificial surfaces have helped extend the boundaries in some sporting domains such as gymnastics and athletic sprinting events, the force magnitudes and the direction of forces acting on the human body have also been altered. Research has suggested that the increased use of artificial surfaces in place of natural surfaces in sport has led to a higher prevalence of overuse

injuries. Research is needed to assess changes in loading and movement patterns when participating on different playing surfaces.

The increasing number of teenagers and adults playing sports such as football, tennis, American football, or field hockey, driven by the need to exercise, to stay fit, to train harder and longer to become professional, or as part of a team practice, has resulted in more frequent use of professional pitches. Even though many sports were developed and are still played on natural surfaces, and especially grass, the intense and extensive use of these surfaces had led to the development of artificial turfs, specifically designed for a wider access, for economic and climatic reasons (cheaper maintenance fee, use under all weather conditions), and to speed up the game. Artificial turfs have been developed to enhance players' satisfaction and comfort while reducing injuries, but there is an ongoing discussion between those who claim that there are a lot more injuries suffered by the athletes playing on artificial turf and those who do not think that there is a significant increase of injuries between playing on natural grass or on artificial turf (Dunlop, 2000).

It is essential to provide high quality, safe and affordable sports surfaces in order to attain the health and social benefits from sports participation. Investment, construction and research into artificial sports surfaces have increased to meet this provision. Full provision cannot be met without natural turf surfaces, which also have an important role as green spaces in the built environment. For improved access to sports facilities, there needs to be a significant improvement in the durability of natural turf surfaces and thus greater understanding of the human-natural sports surface interaction.

THE GAME OF KABADDI

The simplifications of the rules not only attract the players and also the spectators. The game of Kabaddi is played forty minutes with an interval of ten minutes. Playing in the artificial surface and in other surfaces continuously for forty minutes is more difficult. The players who have good endurance only can play the game continuously without fatigue, and also can perform better. Hence, cardio respiratory and strength endurance is vital for all the Kabaddi players at all the levels (Singh, 1991). Kabaddi at any level is a thrilling game enjoyed by players of all ages. The vast majority plays the game primarily for social reasons and do not normally have the opportunity for the sort of coaching that could significantly improve both their individual skills and overall performance.

Kabaddi has gained fame all over the world. Kabaddi is an attacking and defensive game. Especially of the attack is an individual effort while defence is a combined effort. 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. That means the greater the level of fitness. The greater the ability of a person is to attain higher level of performance (Williams, 1962). Kabaddi is a traditional outdoor game played with minor variations in all regions of India - in fact, in most parts of Asia. It is an ancient backyard and homegrown game. Kabaddi requires tremendous physical stamina, agility, individual proficiency, neuromuscular coordination, lung capacity, quick reflexes, intelligence and presence of mind on the part of both attackers and defenders. Kabaddi is basically a combative team game played by both men and women or male and female. Each team consists of 12 players of which seven players are on court at a time and five on the reserve. A Period of 45 minutes with a five minute break (20-5-20) for men, 35 minutes with a five minute break (15-5-15) for women junior girls and sub junior boys and girls. Kabaddi is played with absolutely no equipment in outdoor/ indoor rectangular court. The measurements of the indoor are 13 meters length, and 10 meters width for men and junior boys players; 12 meters and 8 meters width for women and junior girls; and 11 meters length and 8 meters width for sub junior boys and girls.

The kabaddi ground is divided in two halves. The distance between the center lines to baulk line is 3.75mt in case of men and junior boys, 3.00mt in case of women and junior girls, and 3.00mt in case of sub junior boys and girls. The distance between the baulk line and bonus line is one meter for all categories. The distance from Bonus Line to end line is 1.75mt in case of men and junior boys, 2.00mt in case of women and junior girls, 1.50mt in case of sub junior boys and girls. The distance between side line and lobby is one meter for all categories of grounds. The space between the play field and boundary line is 4.00mt for all categories grounds. The width of the all lines is 5cm. Kabaddi is reaching out to the masses. That it has emerged as a popular television sport too is an indication of the changing taste of India's sporting audiences. Cricket may enjoy an overbearing presence but there is room for other sports too.

AGILITY

Agility can be defined by the ability to explosively start, decelerate, change direction, and accelerate again quickly while maintaining body control and minimizing a reduction in speed

(Arthur & Bailey, 1988). Agility is the ability to change direction quickly and to control body movements, skills, requiring rapid movement of the entire body, in different directions and in response to unexpected circumstances. In simple words we can say that agility is ability to change direction accurately and quickly while moving rapidly. In some activities the ability to stop and start and to change direction quickly is much more important than in others. Agility is important in all activities that require quick changes in positions of the body and its parts. Fast starts and stops and quick changes in direction are fundamental for good performance in practically all court games. An agile person can quickly and efficiently mobilize the large muscle groups of the body in order to make rapid changes in direction of movement.

VARIOUS SURFACES IN KABADDI COURT

According to reports of Amateur Kabaddi Federation on India (AKFI) that there was every possibility of kabaddi being included in the 2020 Olympic Games as the norm of at least 50 countries playing the game would be achieved by that time. In this report it was mentioned that 32 countries are playing in a professional manner. The game has changed dramatically over the years and the surface has become soft mat instead of traditional clay which is still used in India. It has changed whole scenario as far as motor skills are concerned. This is due to surface friction often called the coefficient of friction or sliding coefficient, is used to measure a floor's ability to control the sliding of athletes on its surfaces. Whether Indian Kabaddi players' adaptation process is adequate from clay surface to mat, is investigated in the light of their agility. Although number of studies have been conducted which address kabaddi skills as well as kabaddi performance.

CONCLUSION

Interval training which means is a type of "physical training" and cardio workout that involves bursts of high intensity work. This high intensity work is alternated with periods of rest or low activity, the eponymous intervals. The term can refer to any cardiovascular workout that involves brief bouts at nearmaximum exertion interspersed with periods of lower-intensity activity. Athletes often practice interval running on tracks, running hard at a certain pace for a specified distance and jogging, walking, or resting for a set distance or time before the next speed burst. Distances can also vary; one example would be a "ladder" workout consisting of a 1600-meter, two 1200-meter, three 800-meter, and four 400-meter repetitions, each at an appropriate speed and with an appropriate amount of recovery. Interval training refers to the method of repeating stimuli of various intensities with a previously planned rest interval, during which the athlete

does not fully regenerate. It should calculate the duration of the rest interval by heart rate method. The athlete could repeat the portions of distance either by time or precise distance. Interval training can be a useful training method for all wishing to improve conditioning and performance levels. Beginners can benefit from this type of training when starting a cardiovascular program. People with higher fitness levels can use this method to improve endurance levels. Interval training consists of mixing more intense sessions with less intense sessions of the same or similar exercise. An example would be jogging or walking for a short period of time followed immediately by brisk walking and alternating these sessions for a complete cardiovascular workout. Interval sessions should use the same time principal as FIT or 15 - 60 minutes in length. Interval training is an excellent way to burn more calories, build endurance quickly and make workouts more interesting. Interval training involves alternating high intensity exercise with recovery periods and there are a variety of ways to set up interval workouts. One option is measured periods of work followed by measured periods of rest. An example would be 1 minute of high intensity work (such as a sprint), followed by 2 minutes of low intensity exercise (e.g., walking) and alternating that several times for 15-30 minutes. Interval training increased endurance that actually trains the heart to pump more blood to the muscles and it trains the muscles to extract that oxygen more efficiently, making all other workouts easier to handle. Working at high intensities raises your lactate threshold and can improve more power and endurance performance.

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