



International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (RJIIF): 5.38
IJPESH 2023; 10(4): 189-192
© 2023 IJPESH
www.kheljournal.com
Received: 09-05-2023
Accepted: 10-06-2023

Praveen Kumar S
Ph.D., Research Scholar,
Alagappa University, Karaikudi,
Tamil Nadu, India

Dr. R Senthil Kumaran
Director, Directorate of Physical
Education, Alagappa University,
Karaikudi, Tamil Nadu, India

Corresponding Author:
Praveen Kumar S
Ph.D., Research Scholar,
Alagappa University, Karaikudi,
Tamil Nadu, India

Effects of fartlek training on improving endurance ability in university men kabaddi players

Praveen Kumar S and Dr. R Senthil Kumaran

DOI: <https://doi.org/10.22271/kheljournal.2023.v10.i4c.3022>

Abstract

Kabaddi is an Indian team sport that needs high endurance, good motor, and sensory skills, and neurological, cardio-respiratory, and musculoskeletal systems. The motor skills focus on good speed, agility, coordination, strength, and sudden variations in paces. The present study aims to investigate the effects of fartlek training to improve endurance capacity in university male Kabaddi players. It is a clinical trial that is randomized, controlled, and uses a 12-minute walk/run test as a measurement tool to assess endurance ability. 50 male Kabaddi-1 players were chosen, and the control and experimental groups were split equally. The statistical analysis was carried out utilizing Paired and Unpaired T-tests as a result of the substantial difference in endurance (p-value 0.0001). Male Kabaddi players that participate in fartlek training have improved early endurance, improved recovery, and delayed early tiredness.

Keywords: Chronic low back pain, Interferential current electrotherapy, physiotherapy, rehabilitation

Introduction

Our native sport, Kabaddi, is one of India's most popular sports. Many rural and urban people play this game, and tournaments are held at various levels. The 15th Asian Games are where it is being contested, and our squad has won medals for our country. South India gave birth to the team-contact sport known as Kabaddi. The Hindi word "Kabaddi" is where the term first came from. Which means "holding your breath". Kabaddi is the national game of Iran and Bangladesh and the State game of Punjab, Tamil Nadu, and Andhra Pradesh. In India Kabaddi is a major sport, which is played all over India. Kabaddi is played in more than sixty-five countries, especially in Asian countries.

Endurance is the ability to perform the task with the least maximum effort exerted by the body. There are numerous physiological changes in the body that occur when endurance increases that have beneficial implications, including cardiac alterations such as an increase in cardiac output and stroke volume, Increases in the respiratory cycle, tidal volume, and surface area for gaseous exchange are a few examples of respiratory alterations. In the musculoskeletal, when there is excessive load on skeletal muscle fibres, these fibres increase their diameter and volume called Hypertrophy. There are micro-tears taking place in skeletal fibres which are healed and repaired by the satellite cells produced by daughter nuclei after cell multiplication and fusion.

Fartlek is a term used for "speed play" in the Swedish language. It is a training method in which there are mixed sessions of slow and fast segments of paces". This training can include walking, brisk walking, jogging, running, and sprinting. Fartlek training can be arranged or planned in any manner as per the subject's endurance ability. Unstructured fartlek can be used for beginners and elite runners due to its unstructured pattern protocol. The fluctuation in pace and intensity will help all the 3 body systems to be active that is the Aerobic system, the Anaerobic system, and lastly Anaerobic lactic system. A fartlek session can be completed alone or with another runner or in a group and improves speed and running tactics. The subject can keep challenging by accelerating the pace and replacing the earlier protocol for progressing. As there are high chances of early fatigue, trauma, muscle soreness, a runner's knee, and dehydration, it is important to practice this in proper running shoes, maintain a proper diet, rest between the sessions, drink plenty of water, and ample amount of rest.

As it is a slightly high-intensity workout for a subject, it can be done alternate days or 3 times a week to avoid the risk of injuries.

Kabaddi is an Indian team sport based on athletic training that requires high endurance, good motor and sensory skills, and neurological, cardio-respiratory, and musculoskeletal systems. Motor skills focus on good speed, agility, coordination and strength. It is played in 40 minutes. In Kabaddi, a player is revived against a player of the opposing team who has been eliminated. The game lasts 40 minutes with a five-minute break between halves. Each team consists of seven players, and the team that gets all its players to the opposing side gets four extra points. Unstructured fartlek training helps these players improve their endurance skills. This training can be done in all sports such as soccer, rugby, throw ball, volleyball, skating, lawn tennis, badminton, etc. that require good speed, agility, coordination and strength. The unstructured fartlek training was performed by the participants of the experimental group in combination with the conventional Kabaddi training. Instead of continuously running 5 runs at the same pace, it was replaced by the unstructured Fartlek protocol. In contrast, in the control group, players ran continuously at the same pace for 30 minutes.

Statement of the problem

The problem is stated as "Effects of Fartlek Training to Improving Endurance Ability in Male Kabaddi Players"

Purpose of the study

The aim of the study is to determine the effects of fartlek training on improving endurance ability in university male Kabaddi players.

Hypothesis

The researchers proposed a hypothesis that there is a significant effect of fartlek training on improving endurance performance in male Kabaddi players.

Limitations

1. Only university male Kabaddi players were selected.
2. The age group considered was 18-25 years.
3. 50 subjects were selected for the study.
4. Data collection before and after the test (before and after 6 weeks of training) A 12-minute walk/run test was conducted to assess endurance capacity.

5. Speeds could not be recorded.

Methods

Each topic has less than two to three years of training experience. Prior to being chosen for the study, players weren't following any particular diet. The College of Physiotherapy's ethical committee gave its approval to the study protocol. Wanless Hospital, MMC, Miraj on March 21, 2019. Written informed consent was obtained from the study institution and the subject stating the entire title, 5 study protocol, and risks to the study institution. Using computer-generated random assignment, we chose a total of 50 individuals and divided them equally into the experimental group (N=25) and the control group (N=25).

Procedure

12-minute walk/run test The reliability and validity of the 12-minute walk/run test is 0.9. Additionally, it is a trustworthy measurement technique for determining the individual's endurance level. Both groups underwent a 12-minute walk/run test prior to the commencement of training. On the 400-meter track, markers were laid out at 100-meter intervals to measure the distance covered. Participants were encouraged to exert themselves as much as possible to maximize the distance traveled. Respiratory rate, pulse rate, Spo₂, and blood pressure were measured at rest, immediately, and after 3 minutes. The respiratory rate, pulse rate, and oxygen saturation were measured using a fingertip pulse Oximeter. A mercury sphygmomanometer and stethoscope were used to record blood pressure. A tape measure to record distance and height. Weight machine to record weight. A colored marking cone used to mark 100-meter intervals over a distance of 400 meters. After 6 weeks of training, the identical approach as the pretest was used to conduct the 12-minute walk/run test, these data were used to analyze the endurance abilities of the male Kabaddi players. Each player in both groups adhered to a strict diet plan that included carbohydrates, vitamins, minerals, protein, glucose drinks, fruit, and so on to maintain health and reduce the risk of dehydration and deficiency. Players wore appropriate running shoes to reduce the risk of injury.

Training Protocol ("Fig. Table. 1")

Table 1: This is a training plan that was followed consistently every week for the next 6 weeks.

Week 1, 2, 3, 5, 6	Control Group	Experimental Group
Day 1	Conventional Training	Fartlek Training + Conventional Training
Day 2	Conventional Training	Fartlek Training + Conventional Training
Day 3	Conventional Training	Fartlek Training + Conventional Training
Day 4	Conventional Training	Fartlek Training + Conventional Training
Day 5	Conventional Training	Fartlek Training + Conventional Training
Day 6	Conventional Training	Fartlek Training + Conventional Training
Day 7	Conventional Training	Fartlek Training + Conventional Training

Experimental group training protocol

Fartlek training (3 alternate days/ per week for 6 weeks) + Conventional training (6 days/per week for 6 weeks) both on the same day. One day of rest was given per week.

Unstructured Fartleks Training included Walking, Jogging, Running, and Sprinting for 30-40mins. These training were replaced with conventional training running protocols. Fartlek was done according to how the subject's body felt. If the subject felt tired, walking was initiated, and as the body

recovered jogging, running, or sprinting was performed. So, there was no specific segment or combination of the paces for any of the participants. Conventional training included Warm Up, Pre-Training Stretching, Standing Broad Jumps, and Half Squat jump, Vertical Jump, Burpee Jump, Hop Jump, Shuttle Run, Post-Training Stretching, and Cool down exercises.

- Week 1: 10 repetitions in each set* 3 sets.
Week 2: 15 repetitions in each set* 3 sets.

Week 3: 20 repetitions in each set* 4 sets.
 Week 4: 25 repetitions in each set* 4 sets.
 Week 5: 30 repetitions in each set* 5 sets.
 Week 6: 35 repetitions in each set* 5 sets.

15 seconds rest between the sets. In the absence of fartlek training, no Walking, Jogging, Running, or Sprinting were added to the days.

Control group training protocol

Conventional Training (6days/week for 6weeks). One day of rest was given per week. Conventional training included warm-up, pre-training stretching, standing broad jumps, half squat jump, vertical jump, burpee jump, hop jump, shuttle run, post-training stretching, and cool-down exercises. 20-30 mins continuous running was added every day instead of fartlek training.

Week 1: 10 repetitions in each set* 3 sets.
 Week 2: 15 repetitions in each set* 3 sets.
 Week 3: 20 repetitions in each set* 4 sets.
 Week 4: 25 repetitions in each set* 4 sets.

Week 5: 30 repetitions in each set* 5 sets.
 Week 6: 35 repetitions in each set* 5 sets.
 15 seconds rest between the sets.

Statistical Analysis: Data were collected with a 12-minute walk/run test before and after exercise. T-tests, both paired and unpaired, were used for statistical analysis on the instant software.

Results and Discussion

When data was analyzed, after 6 weeks Unstructured Fartlek training program showed an extremely significant difference (p-value < 0.0001).

There was also a notable variation in resting pulse rate (p-value < 0.0001), resting respiratory rate (p-value < 0.0226), and 3min pulse rate (p-value resting respiratory rate (p-value < 0.0030). This study is done to see the effects of fartlek training to improve endurance ability in male Kabaddi players. Comparison between the mean results of physiological vitals in pre-12 min walk/run test and post-12 min walk/run test of control and experimental.

Table 2: Physiological vitals, pre-test, control and experimental

Physiological Vitals	Pre-test	Post-test	Pre-test	Post-test I
	Control	Control	Experimental	Experimental
Pulse Rate Rest	74.76	69	75.4	66.13
Pulse Rate Immediate	123.4	114.6	123.4	112.63
Pulse Rate 3 min	92.1	85.16	92.1	76.1
Respiratory Rate Rest	18.13	18.4	16.93	17.23
Respiratory Rate Immediate	34.16	31.53	36.96	32.16
Respiratory Rate 3min	23.96	21.86	23.96	19.56
Blood Pressure Rest	96.66	97.66	98.5	108.48
Blood Pressure Immediate	125	114.16	129.66	117.33
Blood Pressure 3min	102.16	98	100.16	94.5
SpO2 rest	98.4	98.63	98.36	98.8
SpO2 immediate	98.56	98.8	98.56	98.86
SpO2 3 min	98.73	98.8	98.7	98.83

Justification of the Hypothesis

The above study Results demonstrate there is no need for daily 20-30 min running in conventional training sessions. Early endurance can be developed with an alternative fartlek training protocol. This training can be used in all team sports such as volleyball, badminton, lawn tennis, rugby, soccer, cricket, etc., where motor skills are emphasized, i.e. speed, agility, coordination, strength, and sudden changes of pace.

Conclusion

- There was a notable variation in the results between the pretest and posttest of the 6-week training protocol of the experimental group.
- There was a notable variation in the results between the 6-week post-test training protocol of the control group and the experimental group.
- Fartlek training helps to improve early endurance ability in university male Kabaddi players in universities.
- It also postpones early fatigue and improves early cardio-respiratory recovery.

References

- Abida Begum, Ikram Hussain. Effect of fartlek training on selected physical and physiological variables of inter district women athletes: International journal of creative research thoughts; c2013.

- Dr. Kulothungan P, Dr. Sekarbabu K, Dr. Bupesh Moorthy S. Effect of intensive and extensive interval training on maximal oxygen uptake (V_{O_2} max) among kho-kho players. International Journal of Yogic, Human Movement and Sports Sciences. 2019;4(1):937-940.
- Dr. Manikandan S. Effect of fartlek training on cardiorespiratory endurance and muscular endurance among handball players. Indian Journal of Research. 2014;3:12. ISSN-2250-1991
- Elamaram M, Muthu Eleckuvan R. Effects of fatleks training on selected physiological parameters among college male athletes. Inter. J of Physical Education, Fitness and Sports. 2014;3:4. ISSN:2277- 5447.
- Engel FA, Ackermann A, Chtourou H, Sperlich B. High intensity interval training performed by young athletes: A systematic review and meta-analysis. Front. Physiol. 2018;9:1012. DOI: 10.3389/fphys.2018.01012
- Hoff J, Helgerud J. Endurance and strength training for soccer players: Physiological considerations. Sports Med. 2004;34:165-180. DOI: 10.2165/00007256-200434030- 00003
- Indra Adi Budiman. Comparison of the effects of the

- fartleks exercises and interval training towards the improvement of VO_2 maximum. *Inter. J of Physical Education, Sports and Health*. 2017;4(3):454- 459.
8. Lundby C, Jacobs RA. Adaptations of skeletal muscle mitochondria to exercise training. *Exp. Physiol*. 2016;101:17-22. DOI: 10.1113/EP085319
 9. Sudhakar Babu1 M, Dr. Paul Kumar PPS. Effect of Continuous Running Fartlek and Interval Training on Speed and Coordination among Male Soccer Players; *Journal of Physical Education and Sports Management*. 2014;1(1):33-41.
 10. Pardeep Kumar. Effects of fartlek's training for developing endurance ability among athletes. *International Journal of Physical Education, Sports and Health*. 2015;2(2):291-293.
 11. Bandhyopadhyay A. Validity of Cooper's 12-minute run test for estimation of maximum oxygen uptake in male university students. *Biol Sport*. 2015;32(1):59-63. Published online 2014 Nov 3. PMID: PMC431460-5. DOI: 10.5604/20831862.1127283.