UNIVERSITI PUTRA MALAYSIA

THE EFFECTS OF A TEN WEEK TRAINING PROGRAMME ON THE AEROBIC POWER OF FOOTBALL REFEREES IN MALAYSIA

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BY

SUBRAMANIAM NATHAN

Thesis Submitted in Partial Fulfilment of
the Requirements for the Degree of
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Dedicated to you, Mum and Dad, my primary source of inspiration throughout life, I lovingly dedicate this work. Your endless sacrifices, great generosity and constant encouragement have helped make so many of my dreams come true. Thank you for instilling in me the belief that I could accomplish anything I wanted in life, if I was willing to work hard enough. Although, I have not always succeeded, I am still trying to live up to the standards you set for me. I want you to know that any good I might do on this earth, I do to honour you.

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SUBRAMANIAM NATHAN

JANUARY 1995

Chairman : Abdul Aziz bin Zakaria, M.S.

Faculty : Educational Studies.

The purpose of this study was to investigate the effectiveness and acceptabilty of a ten week aerobic training programme to improve the aerobic power of football referees to enable them to run at least 2600 metres in the Cooper's 12 Minute Test. The study also investigated whether there was any significant difference in the distances covered by the three groups of football referees in the Cooper's 12 Minute Test after ten weeks of training. It evaluated whether there was a significant difference in the two training methods employed in this study. The Cooper's 12 Minute Test was used to measure the aerobic power of the referees. The design of this study focussed upon individual distances covered in the pretest,

providing training for ten weeks and determining if referees improved in aerobic power as a result of treatment.

Three hypothesis were tested at .05 level of significance. The dependent t-test was used to test hypothesis one. The results indicated that the aerobic power of the subjects in experimental group two improved significantly. All the subjects in experimental group two were able to run more than 2600 metres in the Cooper's 12 Minute Test. ANOVA procedures were used to test hypothesis two. The results ANOVA indicated that there was a significant difference in the distance covered by the three groups of referees in the Cooper's 12 Minute Test after ten weeks of training. The Newman-Kleus method of making multiple comparison indicated that the experimental group two showed the best performance and the control group the poorest in the Cooper's 12 Minute Test. The third hypothesis was tested using the independent t-test. The results indicated that the training method used by the experimental group two was better than the training methods used by the other two groups. All three null hypothesis were rejected. The results of this study provide meaningful support for the conclusion that a planned aerobic training programme is likely to be effective and acceptable to improve aerobic power of the football referees. This training programme therefore, can be adopted as a formal aerobic training programme for football referees.

Abstrak Tesis Yang Dikemukakan Kepada Senat Universiti Pertanian Malaysia Sebagai Memenuhi Syarat Untuk Ijazah Sarjana Sains.

KESAN PROGRAM LATIHAN SELAMA SEPULUH MINGGU KE ATAS KUASA AEROBIK PENGADIL-PENGADIL BOLASEPAK DI MALAYSIA.

OLEH

SUBRAMANIAM NATHAN

JANUARI 1995

Pengerusi : Abdul Aziz bin Zakaria, M.S.

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Tujuan kajian ini adalah untuk menguji keberkesanan dan penerimaan satu program latihan aerobik selama sepuluh minggu untuk mempertingkatkan kuasa aerobik pengadil-pengadil bolasepak dan dengan itu, membolehkan mereka berlari sekurang-kurangnya 2600 meter dalam Ujian Cooper 12 Minit. Kajian ini juga adalah untuk mengetahui sama ada terdapat perbezaan yang bererti ke atas jarak larian oleh tiga kumpulan pengadil selepas menjalani latihan selama sepuluh minggu. Ia juga menilai sama ada terdapat perbezaan yang bererti di antara dua kaedah latihan yang digunakan dalam kajian ini. Ujian Cooper 12 Minit telah digunakan bagi mengukur kuasa aerobik pengadil-pengadil tersebut. Kajian ini memberi tumpuan ke atas jarak larian oleh individu dalam ujian pra, menjalankan latihan selama

sepuluh minggu dan mengetahui sama ada pengadil-pengadil tersebut meningkatkan kuasa aerobik hasil dari latihan itu.

Tiga hipotesis telah diuji pada .05 tahap bererti. Ujian t dependent telah digunakan untuk menguji hipotesis pertama. Keputusan yang diperolehi menyatakan bahawa kuasa aerobik subjek dalam kumpulan percubaan dua telah meningkat dengan bererti. Kesemua subjek dalam kumpulan percubaan dua telah berlari melebehi jarak 2600 meter dalam Ujian Cooper 12 Minit. ANOVA digunakan untuk menguji hipotesis kedua. Keputusan ANOVA menunjukkan bahawa berlaku perbezaan yang bererti ke atas jarak yang dicatatkan oleh ketiga-tiga kumpulan pengadil dalam Ujian Cooper 12 Minit selepas menjalani latihan selama sepuluh minggu. Kaedah Newman-Kleus, iaitu kaedah perbandingan pelbagai, menyatakan bahawa kumpulan percubaan dua menunjukkan prestasi yang terbaik dan kumpulan terkawal menunjukkan prestasi terlemah dalam Ujian Cooper 12 Minit. Hipotesis ketiga telah diuji dengan menggunakan ujian t independent. Keputusan menunjukkan bahawa kaedah latihan yang digunakan oleh kumpulan percubaan dua adalah lebih baik berbanding dengan kaedah latihan yang digunakan oleh dua kumpulan yang lain. Ketiga-tiga hipotesis null ditolak. Keputusan kajian ini menunjukkan program latihan aerobik yang digunakan dalam kajian ini boleh diterima dan digunakan untuk meningkatkan kuasa aerobik pengadil-pengadil bolasepak.

CHAPTER I

INTRODUCTION

The Federation of International Football Association (FIFA) announced in FIFA News (1993), that football is played in 179 countries. As such, FIFA considers football as the most popular game in the world. Wherever the game is played, referees are needed to officiate the matches. Quality refereeing provides players with a chance to display a high level of skills and tactics. It ensure smooth flow of play and this brings about satisfaction and enjoyment to the fans. Thus, the attributes of quality refereeing ensures that it is a challenging, exciting and rewarding task. On the other hand, poor refereeing creates anxiety, frustration, anger and eventually some negative physical behaviour by players who perceived that they had been unfairly judged. When this happens, the referees feel frustrated, abused and unappreciated (Machin, 1990).

According to Eissmann (1988), a good referee can be distinguished by his ability to judge incidents accurately, an ability which is directly dependent upon his physical condition, experience, knowledge and application of the laws of the game. This observation was supported by Castillo (1990), who stressed that the physical condition of a referee would strongly affect his quality of refereeing. He further emphasised that physical fitness was necessary for referees. FIFA supported the observation that a study based on the

referees' physical condition was necessary at the World Under 17 Football Championship in Italy (1992). Casarin, a member of FIFA Referees' Committee was appointed to conduct the study. His findings showed that the referees who officiated in a 90 minute match covered approximately 12.7 km. It was further reported that Nil Odartay, the playmaker of the victorious Ghanaian team, covered less distance than the referee who officiated the match.

Based on the findings of the above study, he recommended to FIFA the following guidelines:

i. Aerobic fitness is essential for referees in order to be close and in the correct position to judge infringements and make appropriate decisions.

ii. All referees must achieve a minimum distance of 2600 metres in the Cooper's 12 Minute Test.

He strongly felt that the days of the referee "as a friendly ageing gentleman" were over. Referees must be athletes whose running potentials and intensive movements were comparable to those of the players themselves (Casarin, 1992).

In view of the above study, FIFA announced that only referees who could achieve a minimum distance of 2600 metres in the Cooper's 12 Minute Test would officiate in the Pre-World Cup matches and at the 1994 World Cup Final Competition in the USA (FIFA News, 92 (2)).

FIFA (1993) directed all National Associations to register only the referees who fulfilled the following conditions:

i. The proposed referee passed the medical examination (Appendix A).

ii. The age of the proposed referee should be at least twenty five years old but not more than forty five on 1st. January of the year for which he was nominated.

iii. The proposed referee could run a minimum distance of 2600 metres in the Cooper's 12 Minute Test.

Based on the recommendations from various National Associations, FIFA selected 752 referees and registered them as FIFA referees to officiate in the tournaments organised by FIFA or its Associations. The General Secretary of the Asian Football Confederation (AFC), Vellappan (1993) announced that 159 referees from 34 National Associations in Asia were up-graded to the status of FIFA referees. The distribution of FIFA referees in each Asian country is shown in Table 1.

Table 1

The Number of FIFA Referees in Each Country in Asia.

Countries	Number in each country.
Japan, Syria, China, Saudi Arabia and South Korea.	7
Bahrain, Hong Kong, Indonesia, Thailand, India, Iran, Iraq, Singapore and Jordan.	6
Bangladesh, North Korea, Chinese Taipei, Nepal, Oman, Qatar, Pakistan, Yemen and UAE.	5
Philippines, Lebanon, Malaysia, and Myanmar.	4
Brunei and Sri Lanka	3
Macau	2
Maldives	1
Kuwait, Vietnam, Laos and Kampuchea	Nil

Source: Adopted from "List of Asian Referees" by P. Vellapan, 1993, AFC News, 92 (10), 3.

In 1993, the Football Association of Malaysia (FAM) was able to register only 80 national level referees and four FIFA referees to officiate in the Semi-Pro league, the Football Association (FA) Cup and the Malaysia Cup. FAM organised 14 matches to be played on three days in a week. The matches were played at different venues throughout the year. A total of 56 referees were required to officiate the matches. Though only 56 referees were required, FAM faced problems because the employers of these referees at times did not grant them leave to officiate the matches.

In addition to the above refereeing assignments, FAM also requires the services of referees to officiate other tournaments involving schools, clubs, higher instituitions of learning and states throughout the year. This means that FAM needed a large pool of qualified referees in order to organise the tournaments successfully.

A survey by the Malaysian Football Referees' Committee (MFRC) in May, 1993 indicated that there was a shortage of football referees in Malaysia. MFRC cited the following reasons for the shortage:

i. Seven senior referees retired.

ii. Six referees failed in the referees medical examination.

iii. One hundred and twenty referees were selected by FAM to run the Cooper's 12 Minute Test. Thirty eight referees (32%) failed to achieve 2600 metres in the test.

It was reported that the 38 referees failed the test because they were not physically prepared with an effective training programme. However, MFRC suggested that with the implementation of a proper training schedule, a more satisfactory performance could be achieved (FAM 93 (4)). The concept of providing training for referees was supported by Moffart et al. (1977), Burke (1977), and Roberts & Morgan (1971).

The first study by Moffart et al. (1977) indicated that significant improvement in aerobic power in college men occured when they trained three days per week for ten weeks. They also found that there was no significant difference in improvement between subjects who exercised three consecutive days per week or subjects who exercised every alternate day. In the second study Burke (1977) compared males and females after an eight week training programme in which all subjects exercised at a target heart rate of 75% to 85% over a fixed distance. It was concluded that while hereditary factors may limit the potential of females in relation to males, the average female can expect relative improvement in aerobic power similar to that of the male. In the third study, Roberts & Morgan (1971) observed that running, cycling and swimming programmes produced significant improvements in aerobic power, with running being the superior mode.

The three studies indicated that significant improvement in aerobic power could be achieved using a running programme with a frequency of three days per week over a period of eight to ten weeks.

Statement of the Problem

The problem of the study was to investigate the effectiveness and acceptabilty of a ten week aerobic training programme to improve the aerobic power of the referees to enable them to run at least 2600 metres in the Cooper's 12 Minute Test. The study would also investigate whether there would be any significant difference in the distances covered by the three groups of referees in the Cooper's 12 Minute Test after ten weeks of training. Finally, it would evaluate whether there was a significant difference in the two training methods employed in this study.

Objectives of the Study

The objectives of the study were as follows:

i. To investigate the effectiveness of a special ten week aerobic training programme prescribed for a group of selected Selangor football referees and to identify whether the referees in the group were able to run at least 2600 metres in the Cooper's 12 Minute Test.

ii. To evaluate the aerobic power as measured by the distances covered by the three groups of football referees using the Cooper's 12 Minute Test after ten weeks of training.

iii. To compare the effectiveness of two types of aerobic training programme used in this study.

Significance of the Study

This study was designed specifically to look into the aerobic power of football referees in Selangor because it is a requirement for a referee to be able to run at least 2600 metres in the Cooper's 12 Minute Test in order to qualify for the Referees Physical Fitness Test.

The findings of this study would provide significant feedback on the effectiveness of a ten week aerobic training programme for football referees. This study would evaluate and validate a special Ten Week Training Programme which could be adopted as a formal aerobic training programme for football referees. The training programme identified in this study could contribute significantly towards improving the aerobic power of football referees.

After undergoing ten weeks of aerobic training, the referees could expect a significant improvement in the aerobic power and would be able to run more than 2600 metres in the Cooper's 12 minute test. An achievement of this status would definitely be a strong motivating factor for these referees and also to all aspiring football referees.

Hypothesis of the Study

The following null hypothesis were tested at the .05 level of significance:

Ho_1. There will be no significant difference in the aerobic power of the selected football referees after participating in a special ten week aerobic training programme.

Ho_2. There will be no significant difference in the distances covered by the three groups of referees in the Cooper's 12 Minute Test after ten weeks of training.

Ho_3. There will be no significant difference in the two training methods employed in this study.

Limitations of the Study

This study, which involved the measurement of aerobic power of football referee in Malaysia, was limited to the following conditions:

i. Sixty part-time referees registered with the Football Association of Selangor (FAS) for the year 1993.

ii. Those referees born between January 1, 1955 and December 31, 1960.

iii. Those referees who officiated in the Selangor Premier and Dunhill League in 1993 season.

iv. Those referees who lived within 17 kilometers from Maktab Perguruan Ilmu Khas, Jalan Cheras, Kuala Lumpur.

v. Those referees who passed the medical examination conducted at the Kinrara Army Hospital.

vi. Those referees who were not handicapped or having abnormalities.

vii. The aerobic power (cardiovascular fitness) measured using the Cooper's 12 Minute Test. No other physical component would be measured.

viii. Weather and track conditions, personality of the subjects and the varying degrees of motivation might limit the accuracy of this investigation.

Operational Definitions.

The following terms may be understood within the context of this study.

Referees.

Those who have passed at least the Theory Class Two examination and the Practical examination conducted by Football Association of Selangor and possess certificates. They must possess medical fitness certificate and must have actively officiated in the Selangor Premier and Dunhill League in the year 1993.

Subjects around Kuala Lumpur.

The subjects are football referees who live within 17 kilometers from Maktab Perguruan Ilmu Khas, Kuala Lumpur.

Medical Examination.

The subjects are examined on circulatory function, urine, dental, eyesight and hearing. (See Appendix A).

Dunhill League.

The best ten teams in the Selangor League participate in the Dunhill League and these ten teams play one another in league basis. The games are played at Stadium Merdeka and Stadium Raja Muda and the duration of a match is 45 minutes each half.

Premier League.

The next fifteen top teams who fail to be in the Dunhill League will participate in the Premier League and these teams also play each other on league basis. The games are played at Mardi, Klang Stadium, Kajang Stadium and the Jugra Stadium in Banting. The duration of a match is 40 minutes each half.

Cooper's 12 Minute Test.

The subjects start behind a line and, upon the starting signal, run and/or walk as many laps as possible around the 400 metre track within 12 minutes. Upon the signal of the whistle to stop, the subjects should stop, the tester and assistants take note of the distance covered.