

**THE DOCTORAL THESIS ABSTRACT BY MR. STROE
V. GABRIEL VASILE**

**THESIS SUBMITTED TO: NATIONAL UNIVERSITY OF
PHYSICAL EDUCATION AND SPORT, Bucharest,
Romania, 2017**

THESIS ADVISOR: Ph.D. Professor ȚIFREA CORINA

**THESIS TITLE: MODERN TENDENCIES AND
DIRECTIONS REGARDING THE OPTIMIZATION OF
PHYSICAL CONDITION OF FOOTBALL REFEREES
FROM THE POINT OF VIEW OF PROFESSIONAL
DEVELOPMENT**

This thesis consists of 3 parts, 12 chapters, 233 pages, ending up with a number of 204 bibliographical titles and 9 online bibliographical titles.

Introduction

In the last decades, football has developed continuously, its popularity has risen considerably, the great national and international competitions being given special attention by business people and being frantically supported by tens of thousands of spectators fascinated by the beauty of the 'king sport'.

The fact that the current football financial state offers all the necessary conditions for high performance, victories being highly paid, the struggle for getting them has become the ultimate objective governing the activity of the teams involved in this noble sport.

Due to the vanity in football nowadays, the role of the referee team has substantially strengthened, being known the fact that only those people owning strong personality traits and prove they possess technicality are able to finish major matches by making balanced decisions following the regulations. Football referees, besides their love for this sport, need to prove a judicious physical and theoretical training that requires vast knowledge in their domain.

Part One

Modern umpirage has a major role in insuring a proper unfolding of the game. If the theoretical preparation is essential in training a top referee, physical training must have a similarly important place in a referee's developing process. We need to mention that in the last decade football has had an impressive evolution at all levels, but mostly at the level of game dynamics shown by the speed and aggressiveness of each moment of the game.

Together with the evolution of the dynamics of the game, not only the players must have a compelling physical training, but also the referees, so much the more they can more or less decide on the game. To our mind, the referees need to have that innate feature called intelligence, but besides this they should own qualities and movement skills correctly developed so that the process of umpiring to unfold using a minimum of energy.

The former international referee Shamsul Maidin, now a FIFA instructor, mentioned some qualities needed by a top referee: hard work, intelligence, concentration, very good physical training, psychological training, experience, courage, the ability to manage the game, knowing the rules of the game and not in the last place honesty.

It is true that details make differences, and in order for these details to be controlled you need to strive, to really want to be appreciated, to passionately perform this activity, to be aware of the fact that without sacrifices great results do not appear.

Conclusions - Part One

Mastery in umpiring implies using a lot of physical, intellectual and psychical energy along with a series of various difficulties. This mastery can be achieved only with the help of special physical training methods tightly connected to a detailed acquirement of umpiring methodology and to permanent practical activity, meaning a multilateral approach of the whole professional development process.

The methodical and theoretical base of referees' training underlie the formative development process of the football referee training, by organizing the theoretical knowledge, the practical skills which need to be coordinated with the methodological requirements of the International Amateur Referee Association.

In order for a referee to be able to take a match to the end successfully, he needs a solid, systematic training which is theoretically and psychically standardized.

The level of physical training considerably influences the referee's psychical moods and consequently this leads to exigencies growth. Watching the phases of

the game from close, given the performing of a great number of 150 runners in 90 minutes, needs covering a distance of 7 to 11 km with variable intensity, which represents an effort demand connected to weather conditions which can influence a body weight loss of 1-2 kg per match. The physical effort of a referee, under current conditions, is equal to or even exceeds that of a player.

Generally speaking, the psychic state of a referee varies during the game according to the score evolution and the intensity of the players' and audience's reactions towards the decisions they made. The matches when one of the teams proves superiority on the field do not lead to psychological issues.

Currently, the training level is assessed through special tests. Mostly in the second part of the match, one can see the progressive growth of endurance. Statistically, 60% of the goals are scored in the second half of the game, which leads to increased physical and nervous demands regarding the referee, which implies getting over fatigue and can create further difficulties in managing the game.

Specialized Romanian studies in this area do not have enough materials and publications regarding a future complex training of football referees, because of the fact that the dynamics of a football match has evolved much nationally and mostly internationally and a top referee must benefit of a complex training from the physical, mental and theoretical point of view.

The regulations change annually, making it possible to have two field referees in the future and two referees next to each goal to validate a normal goal under slightly determinable conditions.

PART TWO - PRELIMINARY RESEARCH REGARDING THE PHYSICAL CONDITION LEVEL OF THE ROMANIAN FOOTBALL REFEREES IN THE SECOND AND THE THIRD LEAGUES

The Aim of Research

The aim of this study lies in analyzing the performance values of the referees in the third league, of the Referees Central Board established by the International Amateur Football Federation and applied by the CCA to the physical assessment tests as a follow up to their individual physical training for the national matches and not only.

The importance and actuality of this topic lie also in the completion of the theory and especially of the existing practice part with regard to the performance of the football referee in the first and second leagues.

The Objectives of the Preliminary Study

The objective of this research aims at knowing and rising the level of physical training of the referees following the standard tests taken in order to create a really honest umpirage in the given football match conditions.

Tasks

- documentation on the given topic
- setting up the group of referees under research
- summarization of the obtained data
- elaboration, analysis and statistical interpretation of the results of the physical tests
- drafting conclusions of the preliminary research

The Assumption of the Preliminary Research

Due to the evolution of football dynamics, not only the players but also the referees need to benefit of a superior physical training determined by the contents of the training and the continuous assessment through FIFA standardized tests.

The Subjects of the Preliminary Research

The preliminary study went off between September 2012 - March 2013 on:

- Dinamo stadium
- Tineretului Stadium
- Mogosoaia National Complex

The 38 subjects of the three FIFA tests are considered to be the future of the elite of the Romanian umpirage, as the second and the first league referees and the FIFA referees groups are annually chosen from amongst them.

The *tests* taken by the referees:

1. Repeated sprints test **6x40 m** which measure the referees' ability to run at maximum speed for 40 m. The pauses between each sprint of 40 m were 60 second- long backwards walks to the start line. The referees had to start at the signal of the assessor.
2. **YOYO** - the YOYO test was used to assess the long speed run of the referees, which was about running 20 meters, to and back, in 10 seconds with 10 seconds pause between heats, the running series being repeated 45 times.
3. The **Cooper** test - measures the state of physical condition of the referees, the distance they could run (in meters), in a constant rhythm for 12 minutes.

Tests assessment conditions:

- The referees took the tests wearing warming-up footgear (it was forbidden to wear spiked trainers or spiked football boots)
- the tests were taken on a running track and on a football pitch with a flat surface that prevents sliding
- the tests were measured with the electronic manual chronometer
- the markings of the tests were signaled with cones and a start line placed at 1.5 meters

The Phases of Assessment

Phase I - The phase when we accumulate professional knowledge regarding the theme of the research study

- the task of the research: the study of the professional bibliography
- the completion deadline: November 2011 - March 2012
- the venue:
 - The UNEFS Library, Bucharest
 - The National Library of Romania
 - The Romanian Football Federation Library

Phase II - The phase of research organizing

- The research tasks:
 - formulating the suppositions of the study
 - choosing the groups to be studied for the preliminary research
 - presenting the tests
 - organizing and developing initial assessments with respect to the preliminary research
- The completion deadline: September 2012 - March 2013
- The venue:
 - UNEFS, Bucharest
 - The Referees Central Board
 - Dinamo Stadium
 - Tineretului Stadium
 - Mogosoia National Complex

Preliminary Research Conclusions

1. During the preliminary research, the final grade for the referees in the physical test 6x40 m has raised between the first performance and the second one regarding

the 6 rotations in this way: between 0.11 and 0,23 which means 2.0%-4.2% progress between the initial and the final grades.

2. The difference between the grades is included in the interval of trust of 0.01-0.32% in 95% of the cases, in both tests the dispersion of the grades is homogenous.

3. The 't' bilateral test shows a statistically significant difference in grades.

4. The intensity of the effort in the first three performances (initial and final) shows a slight difference to an average one between grades (0.38-0.46%); a moderate difference in the fourth performance (0.49), and in the fifth the intensity of the effect (0.68) showing a middle difference to a big one between the two grades and a value of the intensity of the effort of 0.82, which means a big to huge difference. One cannot accept the idea of null and accepts the idea of research.

5. The mean value of the grades got by the referees during the preliminary research in the YOYO test regarding the initial and the final tests as far as the six performances are concerned has raised, reaching a progress of 4.9% respectively 12.2% (during the 4th performance).

6. The dispersion of the grades is homogenous in the two tests (initial and final) and in a ratio of 95% the difference between the grades is included in the interval of trust.

7. The intensity of the effect shows a middle to big difference between the two grades (0.61-0.58) during the first and the third executions and a very notable difference in the grades of the two tests (initial and final) during the last executions. In this way the idea of null is rejected and the idea of research is accepted.

8. The second execution of the YOYO test shows a low number, the intensity of the effect (0.28) between the grades in the two tests of the group - the null supposition is accepted, the completed program is not statistically significant.

9. In the Cooper test for referees one can notice an average growth in the final test, the real progress being of 8.1%. The difference between the grades has reached the statistical significance upper limit $t=3.5$ and $df=32$ according to the 't' test. The intensity of the effect 0.61 indicates a middle to big difference between the grades of the two tests so the idea of null is rejected and the idea of research is accepted, the progress being significant.

Part III - Experimental research regarding the optimization of the development of physical abilities and of standardized test evaluation of football referees

Assumptions

In order for us to fulfill this experimental research we started from the idea that excellence in being a referee undergoes physical, intellectual and psychical energy waste being accompanied by difficulties.

When this experiment began, at the national level there was no general methodology with regard to referees' physical training and this conditioned us to contribute to compiling programs for developing physical aptitude in the view of optimizing referees' performance needed in order to promote the tests and actions during the football match.

Aim

The aim of this research is to emphasize and elaborate optimal structures in the guise of preparation programs which need to imply objectives and operational contents applicable individually by football referees with regard to general and specific physical training that have not been explored since now.

The objectives of the research

- The objectives set for this research aims to elaborating working programs in the view of growing physical aptitudes especially when speaking of the second league referees.
- The practical application of 1. the set programs through raising physical indicators found in the tests prepared for accessing in the superior referees' leagues and 2. some better performances.
- Assessment of the main behavioural features of the referee considering the preparation of each match through editing the answers in the questionnaire.

The tasks

For the objectives to be fulfilled the following tasks have been established:

- Documentation and scientific foundation of the research.
- Setting the objectives and research organization stages.
- Taking the tests meant to emphasize the suppositions of the experiment.
- Elaborating the training programs.
- Collecting the data obtained during the experiment.

- Elaborating and editing the conclusions drawn from the experimental research.
- Ending the research and editing the study.

The suppositions of the research

1. The organized physical training program through, rigorous application of some standardized exercises both on the football pitch and outside it will conduct to positive effects on the performance level of the referee during the games. The physical capacity of the second league referees can be improved through leading training, more exactly by personalizing and evaluating the main moving aptitudes in the lean areas based on applying and promoting the FIFA tests.

The organization and the evolution of the research

This was possible due to the fact that starting with June 2013, in the second league referees' group, a physical trainer was named and I collaborated with him in terms of distributing the training programs towards the 38 referees that were under research.

The period when the formative experiment developed was June 2013-May 2014, having three training sessions per week, with a working program based on standardized methods oriented towards:

- developing the general and specific physical abilities under effort.
- training besides matches and during non competition periods.

We need to mention that before each training session according to training programs that we suggested one performed 20-30 minutes of active stretching and isometry.

The subjects of the research

The 38 subjects under the evaluation of the three FIFA tests are considered to be the future of the Romanian refereeing elite, from among them being annually promoted the second and third league referees as well as the group of FIFA referees. It is worth mentioning the fact that the subjects of the experiment implemented the physical training programs in their own individual training. The program lasted from June 2013 until May 2014.

The conclusions of the experimental research

- The mean value of the grades in the physical test has raised since the first performance until the final one during the six repetitions (6x40m), spanning between 2.6% - 7.1% in the experiment group.
- The difference between the mean values, in 95% of the cases having an interval of trust of 0.03 - 0.78, show us that the dispersion of the mean values is homogenous in both tests (initial and final), regarding the six repetitions of the experiment group.
- When the statistic supposition was checked with the help of the bilateral 't' test it was noticed that the difference between the mean values is insignificant at the first attempt but at the next five repetitions the difference (initial and final $t=2.70$; $df=37$) reached the statistic significance. The null supposition is rejected and the research supposition is accepted, the progress being significant with the experiment group.
- *The intensity of the effect (0.28-0.44)* indicates a slight to middle difference between the mean values of the 2 test with the experiment group at the first four performances and a middle to big difference of the mean values at the fifth and sixth performances.
- In the YOYO test, the mean value of the grades obtained by the referees with the experiment group has raised from the initial test to the final one (6.3-7.9%) during the six performances.
- The difference between the initial and the final mean values in a ratio of 95% is included in the interval of trust (0.35-0.85), the dispersion of the grades being homogenous at the six performances of the experiment group.
- Checking the statistic significance in the bilateral 't' test showed a difference between the mean values (initial and final) at the 6 repetitions of the YOYO test between $t=4.93$, $df=37$. The null supposition is rejected and the research supposition is accepted, the progress being significant.
- In the YOYO test taken by the experiment group, the intensity of effect shows a big to very big difference between the two mean values in repetitions 1, 2, 3 included between 0.85-0.98, a big difference at the fifth repetition (0.81) and an extension of the repetition with a very big difference at repetitions three and four (1.11-1,24).
- In the Cooper test, the mean value of the grades got by the experimental group has raised in the final test (5.5%), the statistic significance after the 't' test emphasized a difference between the mean values statistically significant, the null supposition is rejected and the research supposition is accepted.

- Refereeing is a continuous process and the need of development and harmony with the requirements imposed by the game is also continuous. The referee needs to make balanced decisions according to the regulations and not to contradict the 'laws of the game'.

Final conclusions

- The mean value of the grades in the running physical test **6x40m** comparing the experiment group to the subjects of the preliminary research is bigger in the case of the experiment group by 2.73 meaning (48.8%) the intensity of the effect show a big to very big difference 6.76% between the mean values of the two groups.
- According to the Levene test regarding the homogeneity of the two tests, the 't' test itself shows a significant difference between the mean values in the final test for the two groups of referees.
- Considering the YOYO test, comparing the experiment group and the subjects of the preliminary research, the mean value of the grades got by the referees after the six repetitions is 0.27 times bigger (3.16%) for the experiment group.
- Referring to the intensity of the effect and comparing the values of the two groups, the experiment one and the one of the subjects of the preliminary research, it results a big to very big difference 0.70 and a middle difference to a big one of 0.77 at the third attempt, the last three repetitions having a value of 0.15 in favour of the experiment group.
- According to the Levene test for the uniformity of the dispersions of the two groups we get a result of equal dispersions at repetitions 1-4-5-6 and unequal at 2-3.
- The null supposition is rejected and the research supposition is accepted, the difference between the mean values being significant.
- Comparing the values of the Cooper test, the mean value of the grades taken by the experiment group is 0.06 times bigger (0.6%), the intensity of the effect showing a slight difference between the mean values of the two groups.
- *The independent 't'* test shows a significant statistic difference between the grades got in the final test by both groups, the uniformity of the dispersions being equal; the null supposition is rejected and the research supposition is accepted.
- Together with the evolution of the dynamics of the game, it is not only the players who need to have a well balanced physical training but also the referees the more so as they can more or less decide on the game.

- In our opinion, the referees need to have that native trait named intelligence , but also qualities and skills related to a better movement so that refereeing to be performed with a minimum of wasted energy (tiredness being a distracting factor regarding concentration on the field).
- Due to the existing vanities in the world of football, the role of the referees has become substantially more important, given the fact that only people with both moving and personality skills, who prove to be resolute, can make balanced decisions (the level of correlation between the position a referee is in and the accuracy of the decision) within the limits of the rules.
- In the training process there is the trainer-athlete couple that needs to be at the refereeing level as well, with the difference that this couple is himself, the referee being the designer of the training and also the result of this. This leads to the referees' need to have a lot of knowledge about the whole training process (technico-tactical training, also the theoretical one, the psychological one and not in the last place for the competition) knowledge that needs to expand permanently.
- A good referee should have 2 directions in mind: the ability to digest the critics and, very close to it, the ability to be open to a constructive self criticism.
- Following the questionnaire given to the referees in the experiment group resulted that there was a series of causes and conditions that can generate psychological stress: critics from the coach, players, mass-media, supporters, verbal abuse, threats, aggresion etc.
- Considering a physical trainig at a higher level, the referee should know the role and importance of physical training, general and specific, and develop his general and specific resistance, his speed, mobility, in other words to have a multilateral physical training both outside and on the field.
- A top referee training, the mastery in refereeing is a process of a high complexity, paying attention to other areas as well, respectively theoretical, psychological, nutritional training with a lot of intelectual, physical and psychical energy waste.