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RELATION BETWEEN BASIC PHYSICAL CAPABILITIES AND THE THEORETIC KNOWLEDGE LAWS OF THE GAME WITH THE SUCCESS OF REFREEING OF FOOTBALL REFEREES

1. INTRODUCTION

In order to be able to discuss and to scientifically research the problem of successful arbitration in football it is necessary to fulfill the needed conditions in order to achieve good quality and modern arbitration in football we have to know the following:

- 1. knowing and researching the Laws of the Game;**
- 2. must possess physical and mental capabilities, good health condition, moral and social values, moderate and authoritative personality of a football referee;**
- 3. has to know and follow modern tendencies in the development of a football game**

The purpose of this project is to isolate the group of anthropologic characteristics of football referees (and basic motoric) which have an impact on the success of arbitration in football.

Anthropological status of referees from the aspect of Kinesiology Sciences pre-defined considerable number of essential features and for that reason it is accessed to the test selection (variables) of subspace of anthropological status that is in practice used to estimate capacity required for football refereeing license in order to allocate characteristic group of licensed referees in accordance with the existing criteria and to give significance to applied tests such as:

- 1. basic physical capabilities**
- 2. laws of the game**

2. PROBLEMS AND THE AIM OF THE RESEARCH

The advancement of today's football puts great challenges upon the players when we talk about it from the aspect of physical capabilities, however, today's football also puts great challenges and high levels of capabilities on those who try to execute the Laws of the game and within those challenges they should be as objective as possible. So, we can say that really important condition for the successful arbitration besides, knowledge Laws of the game is the follow modern tendencies in the development of a football game and referees capabilities. Hence, the problem of this research represents the intensity of connection of basic physical capabilities Laws of the game and the success of arbitration of football referees in the Sarajevo Canton. The aim of this research is to define the connection between the physical capabilities and the Laws of

the game and how it impacts the success of arbitration of football referees in the Sarajevo Canton.

3. METHODS of WORK

3.1. Sample of examinees

The population from which samples were taken are football referees of the Sarajevo Canton, 90 of them, age span from 18-45 years of age and who have met the criteria for getting a license to be referees in football matches in the next season at all levels of competition in Bosnia and Herzegovina.

3.2. Sample of variables

Variable to evaluate the basic physical capabilities

To evaluate the basic physical capabilities the following tests have been selected which measure: explosive strength, speed, coordination, repetitive strength, flexibility and balance. All of the basic physical capabilities will be tested with three tests each.

1. Standing long jump (MFESDM), 2. Standing triple jump (MFETRO), 3. Standing high jump (MFESVM), 4. 20 m running, high start (MFE20V), 5. Foot tapping against the wall (MBFTAZ), 6. Foot tapping (MBFTAN), 7. Foot slalom with two balls (MKLSNL), 8. Steps to a side (MAGKUS), 9. Mobility in the air (MKTOZ), 10. Push ups (MRESKL), 11. Lifting torso from lying position (MRCDTŠ), 12. Forward bend on the bench (MFLPRK), 13. Forward bend with spread legs (MFLPRR), 14. Side stretch (MFLBOS), 15. Standing on a both feet along a balance bench with eyes opened (MBAU20), 16. Standing sideways on a low balance bench with eyes shut (MBAP2Z), 17. Standing on a foot along a balance bench (MBAU10).

Variables for the evaluation of success of football referees in the Sarajevo Canton in a football game (criteria variables)

Variables to evaluate the success of football referees in the Sarajevo Canton during a football match and which are going to be used during this research will be based on the subjective evaluation of former football (FIFA) referees, by watching a taped match or observing a match in person, and they are evaluated as follows:

1. Grade success in using the laws of the game VESULG
2. Grade success in positioning and movement VESPOM
3. Grade issuance of discipline measures VEIDME
4. Grade issuance of technical measures VEITME
5. Grade success in cooperation with other referees VESCOR
6. Grade capability in arbitrating the game VECARG
7. Grade feeling for the game and giving advantage VEFGGA

Variables used to evaluate the theoretic knowledge of football referees of the Sarajevo Canton in regards to the Laws/Rules of a football game

Testing will be done by former football (FIFA) referees, who will prepare the test in using the knowledge, from all 17. articles Laws of the game, delegate five questions.

- Law 1. The Field of Play LOG FOP
- Law 2. The Ball LOG BAL
- Law 3. The Number of Players LOG NOP
- Law 4. The Players Equipment LOG PEQ
- Law 5. The Referee LOG REF
- Law 6. The Assistant Referee LOG ASR
- Law 7. The Duration of the Match LOG DOM
- Law 8. The Start and Restart of Play LOG SRP
- Law 9. The Ball in and Out of Play LOG BIO
- Law 10. The Method of Scoring LOG MOS
- Law 11. Offside LOG OFF
- Law 12. Fouls and Misconduct LOG FAM
- Law 13. Free Kicks LOG FKI
- Law 14. The Penalty Kick LOG PKI
- Law 15. The Throw-In LOG THI
- Law 16. The Goal Kick LOG GKI
- Law 17. The Corner Kick LOG CKI

3.3. Methods used in processing data

To define the relations of space, basic physical capabilities, theoretic knowledge of the Laws of the game and the success of arbitration of football referees the canonicl correlation analysis was used and in which we got data about :

- Level of canonicl correlation (**CR**),
- In the column (**Canonicl R-sgr.**) % of common variables of researched area is found.
- Under the sign (**Chi-sgr.**) the importance of links of the research area.
- Levels of freedom (**df**),
- Error margin (**p**),
- Matrix of cross correlation,
Correlation variables of the first and second set with factors

3.4. Results and discussion

The results of the canonicl analysis for this research are presented in tables 1, 2 and 3

- In the column marked as (**Canonicl R**) levels of canonicl correlation (functions) are shown, which describe the link in-between the two sets of data.
- In the column (**Canonicl R-sgr.**) % of common variables of researched area is found
- Under the sign (**Chi-sgr.**) the importance of links of the research area is shown.
- Under the sign (**Df**) levels of freedom are shown.
- Column (**p**) represents the level of importance of the pairs of canonicl factors.

- In the columns **(KF 1)** and **(KF 2)** the structure of the isolated canonicl factors is marked.

Using the Canonicl correlation analysis (table no.1), two important and positive canonicl functions were isolated (Canonicl R) which explain the general link of basic physical capabilities, theoretic knowledge Laws of the game and the success of arbitration of football referees, at the level of importance $p = .000$. Both of the isolated canonicl functions of the two sets of variables is relatively high (Canonicl R) = .937 and (Canonicl R) = .793, which could explain (Canonicl R-sgr.) = 90% and (Canonicl R-sgr.) = 70% of the joint variable set of basic physical capabilities, theoretic knowledge Laws of the game and the success of arbitration of football referees. The values of the links of the research area is (Chi-sgr.) = 3078 and (Chi-sgr.) = 2452,1.

In the first canonicl function two important and positive canonicl functions were isolated.

The first pair of important canonicl factors (table no. 2) in the area of basic physical capabilities and theoretic knowledge of the rules of football is defined mainly by variables from the basic physical capabilities where the following stood out: speed, explosive strength and flexibility, and in regards to the theoretic knowledge of the rules of football the following stood out: free kicks, throw-ins and goal kick the goalkeepers area.

The canonicl factor individually best defines the following variables:

- The Penalty Kick LOG PKI (.922)
- The Goal Kick - LOG GKI (.220)
- Sidestretch (MFLBOS)
- The Throw-In LOG THI (.205)

In the area of how successful the referees were (table no. 3) The first pair of important canonicl factors is best defined by the following variables:

- Success in positioning and movement – VESPOM (.146)
- Issuing technical measures – VEITME (.109)
- Capability in arbitrating the game – VECARG (.101)

So we can say that this canonicl factor is fairly compact because almost all factors take part in its formation with relatively valuable saturations therefore we can define it as a factor of success of arbitration of football referees..

The link of success of arbitration of football referees with basic physical capabilities is achieved through the variable of successful positioning and movement – VESPOM and the capability of arbitrating a game – VECARG with variables of speed, explosive strength and flexibility, which could meet the capabilities of a football referee during the arbitration of one football match. The position of the foot tapping variable – MBFTAN shows us the fact that this is the capability that gives a certain contribution to the successful positioning and movement variable – VESPOM in regard to the success of arbitration of football referees in this research.

The link in-between the success of arbitration of football referees with the theoretic knowledge Laws of the game is achieved through the following variables: issuing technical measures– VEITME with variables of the penalty kick - LOG PKI, the goal

kick LOG GKI and, the Throw-In - LOG THI where in these two areas they are well linked and can guarantee successful arbitration of one football match. However, in order for a referee to be a complete figure a much more stronger link in the area in-between the variables of physical capabilities and the knowledge Laws of the game and the variable of successful arbitration is needed and not only be represented by a smaller number which is produces within the canonicl factors.

	Canonicl R	Canonicl R-sqr.	Chi-sqr.	df	p	Lambda Prime
0	.937	.901	3078.012	648	.000	.000
1	.793	.704	2452.173	598	.000	.000
2	.835	.697	282.215	270	.293	.011
3	.715	.511	206.797	238	.928	.037
4	.663	.439	161.686	208	.992	.076
5	.576	.331	125.179	180	.999	.137
6	.526	.277	99.779	154	.999	.205
7	.495	.245	79.344	130	.999	.283

Tabel No.1

	KF 1	KF 2
MFESDM	.149	.051
MFESVM	.163	.045
MFETRO	.181	.009
MBFTAN	.162	-.035
MBFTAZ	.138	.015
MFE20M	-.074	-.131
MKLSNL	-.050	-.021
MAGKUS	-.050	-.009
MKTOZR	-.028	-.050
MRESKL	.036	.300
MRCDS	.001	.337
MRSCUC	-.043	.340
MFLPRK	.154	-.195
MFLBOS	.207	-.094
MFLPRR	.197	-.223
MBAU20	.083	-.082
MBAP2Z	-.066	.312
MBAU10	.077	-.113
LOGFOP	.087	-.112
LOGBAL	.012	.128
LOGNOP	-.004	.035

LOGPEQ	-.029	.012
LOGREF	-.033	.235
LOGASR	.033	.014
LOGDOM	-.022	.243
LOGSRP	.022	.046
LOGBIO	-.017	.141
LOGMOS	-.066	.132
LOGOFF	-.015	.136
LOGFAM	-.040	.195
LOGFKI	.053	-1.062
LOGPKI	.922	.229
LOGTHI	.205	.073
LOGGKI	.220	-.485
LOGCKI	-.005	.117

Tabel No. 2

	KF 1	KF 2
VESULG	-.231	.916
VESPOM	.146	-.063
VEIDME	-.116	-.014
VEITME	.109	-.155
VESCOR	.019	.124
VECARG	.101	-.056
VEFGGA	.033	.019

Tabel No.3

4. CONCLUSION

In order to determine the relation between the basic physical capabilities and the theoretic knowledge Laws of the game with the aim of success of arbitration of football referees of the Sarajevo Canton the results were analyzed that came back from the selected 90 examinees of an age span of 18 to 45 years of age and who have met the criteria to be been licensed for the next competition season at all levels of competition in Bosnia and Herzegovina.

Canonical correlation analysis isolated two important and significant canonical functions (Canonical R) which explained the general connection of basic physical capabilities, theoretic knowledge Laws of the game and the success of arbitration of football referees at the level of importance $p = .000$. Both isolated canonical functions of these two sets of variables is high (Canonical R) = .937 and (Canonical R) = .793, which could explain (Canonical R-sqr.) = 90% and (Canonical R-sqr.) = 70% of the joint variable set, basic physical capabilities, theoretic knowledge Laws of the game and the success of arbitration of football referees. An important link of researched areas is (Chi-sqr.) = 3078 and (Chi-sqr.) = 2452,1.

Having in mind that football is an activity with almost the most complexity and that actions are conducted almost constantly, at one time on one side of the football field and then on the other side of the football field which requires the referee to move all the time (Peleg,-I.: (1991) in order to make the right decisions we can say that the selected system of variables has a solid connection with success in a football game. Of course, during a football match there are many situations when the referee has to run long distances, has to be where the action is and in a difficult state of the organism/body has to make a decision that is objective to the situation on the ground. Therefore, to have the arbitration at a high level it is important that it encompasses all basic physical capabilities at the highest level so we have to strive to develop not only one dimension of the physical or functional area but also it is important to organize and execute training units in conditions that are very similar to a situation in a football match and to have situations where all capabilities are put on the test, and this is a football match.

Football does not only require from a referee a high level of basic physical capabilities, nor only rational movement but also the capability in making crucial decisions when all capabilities are being tested. (Johnston,-L.: McNaughton,-L.: (1994). In football even the movements are not standardized, but they are variation, (Talović, M. i I. Rađo(2003) which requires from the referees more involvement and the need to be as close as possible to the location where the activities are going on. It is well known that during the game there are many long balls, balls going diagonally across the whole field which asks from the referee to have exceptional capabilities in all segments, and even philological, when he has to make decisions under the pressure of fatigue and those decisions will not be harmful for anyone therefore we can say that in football there are no standards, fixed and closed stereotypes of movement, but variation of plastic stereotypes are ready for alternative movements so this is one more requirement for the football referees.

5. LITERATURE

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SUMMARY

The aim of this research is to establish a relation in-between the basic physical capabilities and the theoretic knowledge laws of the game with the success in refereeing of football referees of the Sarajevo Canton. The population from which samples were taken are football referees of the Sarajevo Canton, 90 of them, age span from 18-45 years of age and who have met the criteria for getting a license to be referees in football matches in the next season at all levels of competition in Bosnia and Herzegovina. The sample of variables in this research covers areas of basic motorics (18), theoretic knowledge laws of the games (17) and the estimate of success in refereeing in football games (7) variables.

The results of the final analysis show that the whole system of variables which in this research represent basic physical capabilities and the knowledge Laws of the game by the football referees of the Sarajevo Canton has a statistical connection with the system of variables which in this research makes the success of refereeing of football referees. Since football is an activity that has almost the most complexity (referees are a part of football), we can say that the selected system of variables has a relatively

good connection for success and that these variables are very important in order for one referee to perform his task as good as possible at one match.. Of course during the training process attention should be given on the development of all basic physical capabilities, and not only one dimension of the physical area because in general we have to be physically and cognitively be present in order to finish the game at a high rhythm but making mistakes the least as possible.

Key words: basic motor skills, success of the refereeing, football referees

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Научни скупови Црногорске спортске академије – осмог Конгреса и седме међународне научне конференције одржаће се и ове године у хотелу „Плажа“ у Херцег Новом. Пријављено је преко 110 научних радова, од којих смо наслове десет који су први пристигли објавили, а у данашњем броју објављујемо следећих десет: 11. **Грујо Бјеговић, Изудић Тановић, Срђан Јаковљевић, Горијан Вуксановић:** „Утицај додатне наставе физичког васпитања на промјене антрополошког статуса ученика основношколског узраста“; 12. **Зоран Јонић, Јадранка Коцић, Мирјана Петровић:** Развој спортске културе у вртићима града Нила“; 13. **Грујо Бјеговић, Изудић Тановић, Горијан Вуксановић, Давид Јелић, Ђорђе Арнаут:** „Деформитети стопала код дјеце предшколског узраста у обданишту „Нова радост“ – Источно Сарајево“; 14. **Драгана Алексић, Бранислав Меквић, Слађана Тошић:** „Ефекти примјене елемената развојне гимнастике у настави фи-

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