UNIVERSITY OF BELGRADE
FACULTY OF SPORT AND PHYSICAL EDUCATION
Belgrade, 23. 12. 2018

ACADEMIC-SCIENTIFIC COUNCIL ACADEMIC-SCIENTIFIC COUNCIL OF THE FACULTY

The Academic-Scientific Council of the Faculty of Sport and Physical Education has held on 18th a board meeting on 03. 09. 2019 (02-No. 2560/18-10) in accordance with Act. 29 and 30 of the Rules on Doctoral Academic Studies - consolidated text 02-No. 681 of April 9, 2015 and Section 41-43. of the Statute of the University of Belgrade - Faculty of Sport and Physical Education 02-No. 934 / 18-2 of June 6, 2018, at the proposal of the Academic Doctoral Council, a decision was made to establish a Commission for the Review and Evaluation of the Doctoral Dissertation of student Filip Kukic, under the title:

"USE OF BODY COMPOSITION CHARACTERISTICS IN DEVELOPING A SCREENING MODEL FOR GENERAL PHYSICAL FITNESS OF POLICE OFFICERS"

The following professors formed the panel of experts:

1. Prof. dr Milivoj Dopsaj, Full Professor, University of Belgrade – Faculty of Sport and Physical Education;
2. Prof. dr Zoran Pajić, Associate Professor, University of Belgrade – Faculty of Sport and Physical Education;
3. Prof. dr Nenad Koropanovski, Associate Professor, Academy of Criminalistic and Police Studies, Belgrade, Serbia;
4. Prof. dr Jay Dawes, Associate Professor, University of Colorado, Colorado Springs.

After reviewing the final version of the PhD dissertation, candidate's biography and the list of the published articles, the panel of experts is submitting the

REPORT

ABOUT THE EVALUATION OF THE ACHIVED CONDITIONS AND ACCPETANCE OF THE PhD DISSERTATION

INTRODUCTION

The final version of the PhD dissertation entitled as: **Use of body composition characteristics in developing a screening model for general physical fitness of police officers,** candidate Filip Kukić submitted to the Faculty's archive on 03. 09. 2019 (02, No. 2560/18-10). By the decision of the Academic-Scientific Council of the Faculty of Sport and Physical Education held on 22. 11. 2018 (02-No. 2560/18-3) the committee was assigned to analyze and evaluate the project of PhD dissertation of the candidate Filip Kukic (Student ID. 5005/2015). Thus, the duration of writing the dissertation took eight months, which is in

accordance with the project and academic standards. The final version was submitted in a total volume of 145 pages.

BIOGRAPHY OF THE CANDIDATE

Main information

Candidate, **Filip Kukić** was born on 13. 02. 1989 in Sombor, Republic of Serbia.

Education

September 2012 to February 2014 – MSc Professor of Sport and Physical Education
September 2008 to September 2012 – BSc Professor of Sport and Physical Education
September 2004 to May 2008 – High school "Nikola Tesla" in Apatin (1st year) and "Sports Gymnasium" in Belgrade (2nd through 4th year), Serbia.
September 1996 to May 2004 – Elementary school "Žarko Zrenjanin", Apatin, Serbia

Pedagogical and other occupational activities

12-16th May 2018 – Speaker at 7th International Symposium on Healthy Lifestyle. Title: *Physical fitness in police workforce: issues and solutions*. Ljubljana, Slovenia.
Since January 2018 – Developing and delivering educational courses for the strength and conditioning coaches employed in Abu Dhabi Police as part of the continuous education.
Since May 2017 – Planning and programing exercise procedures for employees of Abu Dhabi Police.
Since January 2015 – Organization of training section (within Police Sport Education Center) and supervising trainers and instructors.
October 2010 – February 2014 – Teaching assistant at Biomechanics, Faculty of Sport and Physical Education, University of Belgrade.

Scientific publications and competencies of the Candidate.

Candidate Filip Kukić has published 15 referent units in journals of different ranking:

1. Articles published in thematic proceedings of international meaning (M12-14) – 2,
2. Articles published in journals of international meaning (M21-23) – 7,
3. Articles published in journals from of international category (M24) – 1,
4. Articles published in leading national journals (M51) – 8,
5. Articles published in journals of national meaning (M52) – 2,
6. Articles published in international conference proceedings (M33-34) – 11.

Monograph study/book chapter or article in thematic book of proceedings of international meaning (M14)

1. **Kukic, F.,** Al Maamari, M. (2017). Evaluation of the aerobic fitness in Abu Dhabi policemen. In: Simeunović-Patić, B. (Ed.), Thematic Conference Proceedings of International Significance – Vol III, Archibald Reiss Days. Belgrade, Serbia: Academy of Criminalistic and Police Studies, Zemun, Belgrade, p. 439–448. (5 points)
2. **Kukic, F.,** Dopsaj, M., Dawes, J., Prcic, D. (2018). Effects of a 4-week training intervention on estimated VO_{2max} and body composition among female police

officers: pilot study. In: Simović, D. (Ed.), Thematic Conference Proceedings of International Significance – Vol II, Archibald Reiss Days. Belgrade, Serbia: Academy of Criminalistic and Police Studies, Zemun, Belgrade, 2018. p. 439–448. (5 points)

Articles in journals of international meaning (M21)

1. Orr, R. M., **Kukić, F.,** Čvorović, A., Koropanovski, N., Janković, R., Dawes, J., Lockie, R. (2019). Associations between Fitness Measures and Change of Direction Speeds with and without Occupational Loads in Female Police Officers. *International Journal of Environmental Research and Public Health*, 16(11):1947. 2018 IF = 2.468 (8 points)
2. Čvorović, A., **Kukić, F**., Orr, R., Dawes, J. J., Jeknić, V. Stojković, M. (2018). Impact of a 12-week postgraduate trining course on the body composition and physical abilities of police trainees. *Journal of Strength and Conditioning Research.* DOI: 10.1519/JSC.0000000000002834 2018 IF = 3.017, (5 points)

Articles in journals of international meaning (M22)

1. Vuković, M., **Kukić, F.,** Dopsaj, M., Čvorović, A., Janković, D., Prćić, I. (2019). Effects of leisure time physical activity frequency and volume on body composition of police officers, *Research Quarterly for Exercise and Sport*, DOI: 10.1080/02701367.2019.1646391, 2018 IF = 2.032. (5 points)
2. **Kukic, F**., Jeknic, V., Dawes, J., Orr, R., Stojkovic, M., Aleksandar, C. (2019). Effects of training and a semester break on physical fitness of police trainees, *Kinesiology*, In press. 2018 IF = 1.383 (5 points)

Articles in journals of international meaning (M23)

1. **Kukic, F.,** Dopsaj, M., Dawes J., Orr R., Cvorovic, A. (2018). Use of human body morphology as an indication of physical fitness: Implications for police officers. *International Journal of Morphology*, 36(4): 1407-1412. 2018 IF = 0.369, (4 Points)
2. **Kukić, F.,** Šćekić, A., Koropanovski, N., Čvorocić, A., Dawes, JJ., Dopsaj, M (2019). Age-related body composition differences in female police officers. *International Journal of Morphology*. (In press). 2018 IF = 0.369, (4 Points)
3. Milasinovic, R., Cvorovic, A., **Kukic, F.** (2019). The advantages of waist to height ration over commonly used anthropometric measurements in preadolescents and adolescents – a case study from Montenegro. ***Iranian Journal of Public Health***, In Press. 2018 IF =1.225 (4 points)

Articles in journals of international meaning (M24)

1. **Kukić, F**., Todorović, N., Cvijanović, N. (2019). Effects of a 6-week controlled exercise program and semi-controlled diet on body fat and skeletal muscle mass in adults. *Human Sports Medicine*, 19(1), 7-14, (4 points)

Proceedings in international scientific conferences – full papers (M33)

1. **Kukić F.,** Čvorović A., Dawes JJ, Koropanovski N. Body mass index differences of police cadets and police officers. In: Mandarić, S., Moskovljević, L., Marković, M. & Ćosić, M. (Eds.), Effects of applying physical activity on anthropological status of

children, adolescents and adults. Belgrade, Serbia: Faculty of Sport and Physical Education, University of Belgrade; 2017. p. 193–8. (1 Point)

2. Stanković, A., Mrdaković, V., **Kukić, F**., Ubović, M., Ilić, D. (2016). Reliability of isometric knee extension at different knee angles – tested in opened and closed kinetic chain conditions. In: Suzović, D., Janković, N., Prebeg, G. & Ćosić, M. (Eds.), Effects of applying physical activity on anthropological status of children, adolescents and adults. Belgrade, Serbia: Faculty of Sport and Physical Education, University of Belgrade; 2016. p. 182–189. (1 Point)

Proceedings in international scientific conferences – abstracts (M34)

1. **Kukić, F**., Dopsaj, M., Vuković, M., Čvorović, A., Janković, D., Prcić, I. (2019). Association of frequency and volume of physical activity with body fatness of police officers. Rocky Mountain Chapter, 2019 RMACSM Annual Meeting, Denver, CO, March 1-2. (0.5 point)
2. Čvorović, A., **Kukić, F**., Dopsaj, M., Janković, D., Prcić, I. (2019). Anthropo-morphological and performance releted differences between police college cadets and police employees. Rocky Mountain Chapter, 2019 RMACSM Annual Meeting, Denver, CO, March 1-2. (0.5 point)
3. Bone, J., Tramel, W., **Kukić, F**., Čvorović, A., Janković, D., Koropanovski, N., Lockie, R. G., Orr, R. M., Dawes, J. J. (2019). Associations of muscular power and endurance to change of direction speed under two loading conditions among female police officers. Rocky Mountain Chapter, 2019 RMACSM Annual Meeting, Denver, CO, March 1-2. (0.5 point)
4. Tramel, W., **Kukić, F**., Čvorović, A., Prćić, I., Koropanovski, N., Lockie, R. G., Orr, R. M., Dawes, J. J. (2019). Relationships between body composition and change of direction speed under two different loading conditions among female police officers. Rocky Mountain Chapter, 2019 RMACSM Annual Meeting, Denver, CO, March 1-2. (0.5 point)
5. **Kukic, F**., Dopsaj, M., Cvorovic, A., Markovic, M. (2018). Possible new indicators for body composition analysis in males. At 3rd Annual Sports Medicine Conference, 16th November, Abu Dhabi, UAE. (0.5 point)
6. **Kukic, F**., Cvorovic, A., Abdulovic, A., Dopsaj, M. (2018). Preventive effect of short-term exercise program on Police Officers: Pilot study. At 3rd Annual Sports Medicine Conference, 16th November, Abu Dhabi, UAE. (1 point)
7. **Kukić, F**., Čvorović, A., Dawes, J. J., Orr, R., & Dopsaj, M. (2018). Does BMI negatively impact performance in local muscular endurance, sprint performance and metabolic power in police. Presented at the 2018 RMACSM Annual meeting, Colorado Springs. (0.5 point)
8. Čvorović, A., **Kukić, F**., Dopsaj, M., Dawes, J. J., & Orr, R. (2018). Differences in anthropometric and physical performance measures in law enforcement officers based on age groups. Presented at the 2018 RMACSM Annual Meeting, Colorado Springs. (0.5 point)
9. Čvorović, A., & **Kukić, F**. (2018). Body composition and physical fitness of police cadets: Correlative analysis. Presented at the 15th International Scientific Conference "Transformation processes in sport," Budva, Montenegro. (0.5 point)

Articles in leading national journals (M51)

1. **Kukić, F.,** & Dopsaj, M. (2016). Structural analysis of body composition status in Abu Dhabi police personnel. *Nauka, Bezbednost, Policija*, 21(3): 19-38. (3 points)

2. **Kukić, F.,** Stanković, A., Mrdaković, V., Ilić, D., Ubović, M. (2017). Intra-session and inter-session reliability of electromyography in leg extension during maximum voluntary isometric contractions of quadriceps: The effect of knee angle. *Fizička Kultura*, 71(2): 99-110. (3 points)
3. **Kukić, F.,** & Dopsaj, M. (2017). Factorial analysis of body composition in Abu Dhabi policemen. *Bezbednost, Beograd*, 59(2): 5-26. (3 points)
4. Stojković, M., Čvorović, A., Jeknić, V., **Kukić, F.** (2017). Influence of two-month training program on anthropometry and VO2max in recreational athletes. *International Journal of Physical Education, Fitness and Sports*, *6*(2): 19-24. (3 points)
5. **Kukic, F.,** Dopsaj, M., Cvorovic, A., Stojkovic, M., Jeknic, V. (2018). A brief review of body composition in police workforce. *International Journal of Physical Education, Fitness and Sports*, 7(2), 10-19. (3 points)
6. **Kukic, F.,** Čvorović, A., Dawes, J.J., Orr, R., Dopsaj, M. (2019). Relations of body voluminosity and indicators of muscularity with physical performance of police employees: Pilot study. *Baltic Journal of Sport & Health Sciences*, 4(111), 30-38. (3 points)
7. Kukić, F and Čvorović, A. (2019). The strategic approach to an improvement of health-related physical fitness of police officers: an 8-week exercise intervention – pilot study. *Security Belgrade*, In press. (3 points)
8. Dawes, J. J., Orr., R. M., Lockie, R. G., Kornhauser, C., Holmes, R., Kukić, F., and Čvorović, A. (2019). Accuracy of self-reported height, body mass and derived body mass index in a group of law enforcement officers. *Journal of Criminalistics and Law – NBP Belgrade*, 24(2), In press. (3 points)

Articles in national journals (M52)

1. **Stanković, A.,** Đorđević-Nikić, M., **Kukić, F.,** Petrović, M., Cvijanović, N., Todorović, N. (2013). The effect of strength training on the testosterone level in men. *Fizička Kultura*, 67(2): 157-166. (1.5 points)
2. Mrdaković, V., Kostić, S., Janković, N., Matić, M., **Kukić, F.,** Ubović, M., Ilić, D. (2014). Kinematic analysis of a side volley in soccer. *Fizička Kultura*, 68(2): 122-135. (1.5 points)

In scientific and practical engagements Filip Kukić gained scientific competency at the level of: M14 - (2 x 5) + M21 - (2 x 8) + M22 - (2 x 5) + M23 - (3 x 4) + M24 – (1 x 4) + M33 - (2 x 1) + M34 - (9 x 0.5) + M51 – (8 x 3) + M52 – (2 x 1.5) = 10 + 16 + 10 + 12 + 4 + 2 + 4.5 + 24 + 3 = 75.5 scientific points. In regards to scientific influence, candidate has: - WoS IF = M21 – (2.468 + 3.017) + M22 – (2.032 + 1.383) + M23 – (0.369 + 0.369 + 1.225) = 5.485 + 3.415 + 1.963 = 10.863 points of the international influence (1.552 averaged impact per published article).

Related to the field of the PhD dissertation, Filip Kukić published the papers directly connected to the aim and purpose of the dissertation's investigation.

1. **Kukic, F.,** Čvorović, A., Dawes, JJ., Orr, R., Dopsaj, M. (2018). Relations of body voluminosity and indicators of muscularity with physical performance of police employees: Pilot study. *Baltic Journal of Sport & Health Sciences*, 4(111), 30-38.
2. **Kukic, F.,** Dopsaj, M., Dawes J., Orr R., Cvorovic, A. (2018). Use of human body morphology as an indication of physical fitness: Implications for police officers. *International Journal of Morphology*, 36(4): 1407-1412.

3. **Kukic, F.,** Dopsaj, M., Dawes, J., Prcic, D. (2018). Effects of a 4-week training intervention on estimated VO_{2max} and body composition among female police officers: pilot study. In: Simović, D. (Ed.), Thematic Conference Proceedings of International Significance – Vol II, Archibald Reiss Days. Belgrade, Serbia: Academy of Criminalistic and Police Studies, Zemun, Belgrade, 2018. p. 439–448.
4. **Kukic, F.,** Dopsaj, M., Cvorovic, A., Stojkovic, M., Jeknic, V. (2018). A brief review of body composition in police workforce. *International Journal of Physical Education, Fitness and Sports*, 7(2), 10-19.
5. **Kukić, F.,** Dopsaj, M. (2017). Factorial analysis of body composition in Abu Dhabi policemen. *Bezbednost, Beograd*, 59(2): 5-26.
6. **Kukic, F.,** Al Maamari, M. (2017). Evaluation of the aerobic fitness in Abu Dhabi policemen. In: Simeunović-Patić, B. (Ed.), Thematic Conference Proceedings of International Significance – Vol III, Archibald Reiss Days. Belgrade, Serbia: Academy of Criminalistic and Police Studies, Zemun, Belgrade; pp. 439–448.
7. **Kukić F.,** Čvorović A., Dawes J.J, Koropanovski N. (2017). Body mass index differences of police cadets and police officers. . In: Mandarić, S., Moskovljević, L., Marković, M. & Ćosić, M. (Eds.), Effects of applying physical activity on anthropological status of children, adolescents and adults. Belgrade, Serbia: Faculty of Sport and Physical Education, University of Belgrade; pp. 193–198.
8. **Kukić, F.,** Dopsaj, M. (2016). Structural analysis of body composition status in Abu Dhabi police personnel. *Nauka, Bezbednost, Policija*, 21(3): 19-38.

GENERAL INFORMATION ABOUT THE PHD DISSERTATION

GENERAL STRUCTURE OF THE DISSERTATION

The final version of Project of dissertation is presented on 145 pages, A4 – format, Latin letter in English language with 17 tables, 15 figures, 3 photos and 135 bibliographic references.

The Dissertation is presented through the following chapters and subheadings:

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1. INTRODUCTION

In introduction, the candidate gives an insight in foundations of policing occupations from the aspect of physical effort and risk factors in connection with physical abilities and physical preparation.

2. THEORETICAL APPROACH TO PROBLEM AND PREVIOUS RESEARCH

As the candidate goes further into the dissertation, he analyzes the most relevant available published literature that focuses on physical abilities of police officers of various

specialties (2.1. Physical fitness). Also, he defines the space of body composition within physical fitness (2.1.1. Body composition), with focus being on skeletal muscles (2.2.2.2. Skeletal muscles), body fats (2.1.1.2. Body fats), and methods of body composition assessment (2.1.1.3. Methods for body composition assessment). He thoroughly analyzes published articles related to physical abilities (2.1.2. Physical abilities), with focus on contractile characteristics of interest for the given problematics (2.1.2.1. Muscle properties) such as muscle force, muscle strength and muscle endurance.

Next to physical abilities, for the purposes of the project, candidate detailly explains the bioenergetics of movement (2.1.2.2. Bioenergetics of human movement) with analyzing aerobic and anaerobic metabolic pathways of energy production for physical work. He also explains the flexibility and needed dimensions of mobility and agility (2.1.2.3. Flexibility, mobility and agility).

In the last subheading (2.1.3. Association between body composition and physical abilities) candidate synthetized knowledges according to the available scientific literature that dealt with the relationship between the characteristics of body composition and physical abilities.

Based on the aforementioned information, the theoretical foundation of the Dissertation has been defined, which gave the base for defining the problem, purpose, aim and the tasks of the dissertation. Furthermore, for the specialized occupations such as police, candidate gives the rationale for the inclusion of systematic screening of relevant indicators of body composition as a precondition for an adequate health status, movement and functional abilities and arguably psychological, needed for sufficient professional performance.

3. PROBLEM, PURPOSE, AIMS AND TASK OF THE STUDY

This chapter consists of four subheadings: 3.1. Defining the problem, 3.2. Purpose of the study, 3.3. The aims of the study, 3.4. Tasks of the study.

The candidate defined **the problem** as an investigation of the associations between the characteristics of body composition and its quantitative relations to the level of physical fitness of male police officers.

Regarding **the purpose** of the study, candidate defined the research in relation to determination of body composition characteristics measured by the method of multichannel bioelectric impedance analysis. The focus was on establishing the statistically and biologically significant potential of body composition in screening and using it to, quickly, estimate physical fitness of police officers. The possibility of developing novel index indicators of body composition was emphasized in order to obtain more precise prediction of occupational physical fitness.

The aim of the study was defined in relation to determination of relationship between the phenomena of body composition and physical abilities, determination of external and internal validity of newly developed indexes of body composition, as well as determination of predication model that would predict the physical fitness based on the given body composition status.

The tasks of the study explained and defined the measurement procedures, methods of data collection, methods of defining the variables, and methods of calculating the new indexes of body composition with quantifying the level of physical abilities.

4. HYPOTHESES

Once the problem, purpose, aims and tasks were defined, the candidate set general hypothesis followed four supporting hypotheses.

General hypothesis

H_g – It is possible to define a physical fitness prediction model based on body composition characteristics.

Supporting hypotheses:

H_1 – There will be a significant association between the characteristics of body muscularity, expressed as indexed calculation and physical performance.
H_2 – There will be a significant association between the characteristics of body fatness, expressed as indexed calculation and physical performance.
H_3 – There will be a significant internal and construct validity of chosen body composition indexes.
H_4 – There will be a significant causal relationship between body composition characteristics and individual physical ability.

5. RESEARCH METHODS

The research was organized as a longitudinal cross-sectional research in which combination of laboratory and field-testing methods was used.

5.1. Sample characteristics

The research included three separate samples of police officers of both sexes from two different police agencies (Serbia and United Arab Emirates), with age range of 22 to 52 years.

5.2. Testing procedures

All measurements and assessments were conducted in accordance to standardized testing procedures of physical abilities that are implemented in policy of Serbian and Abu Dhabi police.

In continuation of the Dissertation, the candidate explained in details procedure of body composition assessment (5.2.1. Body composition) and procedures of assessment of physical abilities (5.2.2. Physical abilities). The precise explanations were given for assessments of muscular force and strength (5.2.2.1. Muscular force and strength), muscular power (5.2.2.2. Muscular power), muscular endurance (5.2.2.3. Muscular endurance), anaerobic power and aerobic endurance (5.2.2.4. Anaerobic power and aerobic endurance), and change of direction speed (5.2.2.5. Change of direction speed).

5.3. Variables

For the purposes of this research, the candidate used 36 variables, whereby 10 were from the space of body composition (5.3.1. Body composition variables) and 26 were from the space of physical performance (5.3.2. Physical performance variables). All variables were punctually defined.

5.4 Statistical procedures

For all variables, the following descriptive statistics used: mean, standard deviation, coefficient of variation, minimum, maximum, Skewness, Kurtosis and Kolmogorov-Smirnov test. The differences between the subjects with different body composition relative to sex were analyzed using an independent sample t-test. Similarities between the subjects related to body composition and physical abilities were investigated using a correlation analyses. For defining the structure of the model of the investigated space and for developing multifactorial variables, the factorial analysis was utilized. The prediction between the criteria and predictor was calculated by linear and multiple regression analysis. All statistical procedures were conducted in specialized software for statistical analysis *IBM SPSS, version 20* for *Windows and Mac*, whereby the criterion for the statistical significance was set to 95% or $p < 0.05$.

6. RESULTS

The candidate presented the results according to the aforementioned statistical procedures. The descriptive statistics for four analyzed group were presented in Tables 3-6. The candidate presented the indicators of central tendency (mean) and indicators of data dispersion such as minimum, maximum, coefficient of variation (%), Skewness and Kurtosis. The normality of data distribution candidate evaluated using the Kolmogorov-Smirnov test of normality.

Associations between the body composition parameters and indicators of physical performance candidate tested presented in Tables 7 and 9, while differences between female police officers and female police cadets were presented in Table 8. The correlation analyses revealed significant positive association between the indicators muscularity and physical performance and negative associations between fat indicators and performance. The candidate used the analysis of differences to show that female officers were having higher amounts of fat and lower relative amount of muscle mass than female cadets and they were also slower in performing Illinois agility test.

Using the multiple regression analyses, the candidate established causal relationships between the biological value of body composition and individual physical abilities, but also the relationship with physical performance of various tasks (Tables 10-15). Furthermore, the candidate presented results followed by the unstandardized coefficients, standard error, and significance level. The precision was presented by defining the lower and upper limits of 95% confidence interval. All predication plots were graphically presented with the 95% confidence interval, controlling for the outliers (Figures 3-15).

7. DISCUSSION

The candidate logically divided discussion to follow the table of content from the theoretical foundations to results of the. He thoroughly elaborated the relationships between all investigated variables of body composition and individual physical ability and to more complex physical performance. Afterwards he determined and explained models of prediction and the last he commented on internal and construct validity. Thus, the candidate divided the discussion into three main subheadings: 7.1 Association between body composition and physical performance, 7.2. Determining models of prediction, and 7.3. Internal and construct validity.

The first part of the discussion, the candidate further divided into six smaller subheadings: 7.1.1. Correlations between body composition and muscular force and strength, 7.1.2. Correlations between body composition and muscular power, 7.1.3. Correlations

between body composition and muscular endurance, 7.1.4. Correlations between body composition and anaerobic and aerobic endurance, 7.1.5. Correlations between body composition and change of direction speed, and 7.1.6. Correlation between body composition and multidimensional performance indexes. All correlations were commented in accordance to established theoretical models and published papers in strong scientific journals. The correlations were explained in terms of what does it mean theoretically, and how it relates to practice.

The second part of the discussion precisely defined 13 prediction models, with explaining exactly what each of the performance variables means and how much of the variance in performance share the same variance with the body composition (Table 16). Moreover, the candidate defined the variables within the body composition indexes and what is the biological value of these indexes. These explanations candidate than used to comment on possible meanings of causal relationships between body composition and physical performance. Finally, the calculations for all prediction models were written down at the end of this part of the discussion, making practical usability of results easier for the readers.

The candidate used the third part of the discussion to define the internal and construct validity of the results. The candidate used this part of dissertation to clearly explain validity and objectively set the boundaries of the results. He gave a tabular representation of internal and construct validity (Table 17), making it easy to understand and apply in practice.

8. CONCLUSION

The candidate summarized the most important findings of the dissertation and defined if the hypotheses were proved. He additionally explained what were the scientific and practical values of his dissertation and how to apply this approach in practice. Answering the hypotheses, general and supporting hypotheses were true with only third supporting hypothesis being partially true.

The candidate made the following conclusions:

- Thirteen significant models of prediction of physical fitness were defined using body composition characteristics,
- Significant association occurred between the characteristics of body muscularity, expressed as indexed calculation and multiple indicators of physical performance,
- Significant association occurred between the characteristics of body fatness, expressed as indexed calculation and multiple indicators of physical performance.
- Although significant internal and construct validity of chosen body composition indexes occurred the validity was lower when predicting the whole body mobility,
- Significant causal relationships occurred between body composition characteristics and individual physical abilities.

The candidate was concluding according to the results that reflected used statistical procedures.

9. PRACTICAL APPLICATION

Practical application of this dissertation could be perceived through defining a novel quick and non-invasive procedure of screening the body composition in the function of development of a novel method of estimation of physical fitness level of police officers. This way, a permanent control of movement potential and the status of physical performance of police officers, which are closely related to the amount and type of physical activity, nutrition and lifestyle.

10. REFERENCES

The overview of the used literature showed that the candidate used 135 referent units, wherein 106 (78.5 %) are from international sources (mainly from Anglo-Saxon sources), and 29 (21.5 %) are from domestic bibliographic units. From the total number of references, Filip Kukić was involved in production of 12 (8.9 %) bibliographic units, among which 11 are directly connected to the problem of the research planned for the dissertation. Based on this, it could be concluded that the candidate thoroughly studied the literature that is mainly production of international knowledge, and that the candidate is fully competent in relation to the field of the dissertation.

CONCLUSION AND THE PROPOSAL OF THE PANEL OF EXPERTS

Candidate FILIP KUKIĆ has fulfilled all conditions defined by the Law for acquiring the right to produce the doctoral dissertation. His scientific and research results and professional engagements within the system of physical education and sport, together with professional employment in Abu Dhabi Police recommend him as an adequate candidate in relation to the proposed research area. Within the field of technology of physical education, the candidate has decided for further professional development in the area of evaluation, measurement and testing of different populations, with focus given to population of police officers. According to the decision of Academic-Scientific Council of Faculty of Sport and Physical Education that was brought on 18th meeting held on 03. September 2019 (02-No. 2560/18-10), the panel of experts for the review and evaluation of the PhD dissertation has been formed.

The panel of experts is unanimous in decision that this PhD dissertation has a significant contribution relative to research that have been investigating the area of body composition and physical abilities. This dissertation ultimately contributes the improvement in technology of control of applied training in physical education. With this dissertation, candidate Filip Kukić stepped as serious researcher and person that in a large measure mastered the theoretical but also practical skills necessary for the successful scientific research in the field of physical activity and sport.

According to the decision of the Academic-Scientific Council of the Faculty of Sport and Physical Education that was brought on the 03. 09. 2019 (02-No. 2560/18-10) in accordance with Act. 29 and 30 of the Rules on Doctoral Academic Studies - consolidated text 02-No. 681 of April 9, 2015 and Section 41-43. of the Statute of the University of Belgrade - Faculty of Sport and Physical Education 02-No. 934 / 18-2 of June 6, 2018, at the proposal of the Academic Doctoral Council, a decision was made about forming the committee for reviewing and evaluating of this Doctoral dissertation.

The committee agrees that this Doctoral dissertation is original scientific research and that it is the sole work of the author. The dissertation has scientific contribution relative to the research work that investigate training technology of sport and physical activity. Moreover, it is has relevant contribution regarding the testing procedures, sport metrology and practical application. This dissertation is innovative compared to the existing knowledge in use body composition for predicting physical performance of police officers. Furthermore, it ensures the continuity of research in this field and the results could contribute improvement of screening of physical fitness in large agencies.

This dissertation ultimately contributes the improvement in technology of control of applied training in physical education. With this project, candidate Filip Kukić stepped out as serious researcher and person that in a large measure mastered the theoretical but also practical skills necessary for conducting original scientific work independently.

According to summarized qualitative and quantitative analysis of professional, scientific and practical work, the Committee is unanimous in decision that candidate Filip Kukić fulfilled all legal and scientific requirements that he was supposed to complete in order to defend doctoral dissertation. Therefore, the Committee is proposing to the teaching-scientific committee of the Faculty to accept this report about positively evaluated Doctoral dissertation titled **"USE OF BODY COMPOSITION CHARACTERISTICS IN DEVELOPING A SCREENING MODEL FOR GENERAL PHYSICAL FITNESS OF POLICE OFFICERS"**and to forward it into the further legal procedures, which would be submitting it to the Scientific Committee of socio-humanistic sciences of the University of Belgrade for the review and adoption.

In Belgrade, 23.09.2019. Panel of experts:

1. Full Prof. PhD Milivoj Dopsaj
   Faculty of Sport and Physical Education
   University of Belgrade

2. Assoc. Prof. PhD Zoran Pajić
   Faculty of Sport and Physical Education
   University of Belgrade

3. Assoc. Prof. PhD Nenad Koropanovski
   University of Criminal Investigation and Police Studies, Belgrade

4. Assist. Prof. PhD Jay Dawes
   Faculty and the Department of Health and Human Performance
   Oklahoma State University