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ASSOCIATION OF MENTAL TOUGHNESS WITH COMPETITIVE SUCCESS OF YOUNG FEMALE BASKETBALL PLAYERS

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Aim. The aim of this study was to investigate the association between mental toughness and competitive performance of young female basketball players. **Materials and methods.** The sample of 38 female basketball players who were under 16 years old and played for the four best-ranked basketball clubs in the highest league of Serbia was recruited. Their mental toughness was evaluated via mental toughness questionnaire (MTQ48) and their performance index rating was evaluated by their season statistics obtained from the official web page of the Serbian Basketball Association. **Results.** Correlation analysis revealed a significant association of performance index rating with mental toughness and its constituents such as control and confidence. **Conclusion.** Regression analysis reinforced the notion of association of performance index rating and mental toughness, further reflecting in significant differences in mental toughness between those who performed low, medium and high in performance index rating.

Keywords*: basketball, mental toughness, game-statistics, female athletes.*

Introduction. Professional sport is not just fun but rather it is economically oriented business towards maximization of profit, which is why performing on the highest levels requires investments in various aspects. Therefore, the goal is development of an athlete that will be capable of responding to tasks and challenges as well as coping with responsibilities and consequences that come along. For this reason, performance analysis as well as performance prediction are among the main pillars of the process towards success in sport. Defining the factors that may have significant impact on performance of high level athletes provides information that team leaders and coaches could use in talent acquisition and selection process as well as in planning and programing the training process [8, 9, 28].

How the business will develop largely depends on the requirements of the market and in that sense, basketball has been among the most popular sports, which could be attributed to creativity, dynamics, and competitiveness [12]. It is an Olympic sport with well-developed systems of national, continental, and inter-continental (i. e., world cup) competitions. This caused selection and training processes to be improved over time, especially with technological development and involvement of statics applied in analysis of relations between specific basketball performance and other factors in order to define the ones that may positively improve the performance [1, 11, 27, 29, 30]. In general, competitive success in basketball depends on optimal combination of technical skill, tactical knowledge, and physical preparedness [28, 29, 31].

However, psychological attributes were also found to be associated with performance in competitive athletes [3, 18, 19, 20, 23, 26]. Mental toughness was shown to be an attribute of the elite athletes [13, 14], which was found to be asso-

ciated with success in sport [22]. Moreover, the results of empirical research [24] lead to the conclusion that it is the necessary pre-condition for success in sport. The results from studies on mental toughness of basketball players are conflicting considering the differences between sexes [7, 16, 17, 21], while significant differences were observed between age categories [7]. Several studies investigated the association of mental toughness with other personality characteristics such as emotional intelligence [2], precompetition anxiety [17], aggression [16], and concentration [7]. Based on these associations authors argued possible effects on basketball performance.

Based on the notion that mental toughness is personality characteristic that in a large measure defines how people react to challenge, stress and pressure [5], the question arises whether mental toughness is directly associated with the competitive basketball performance. This bears importance in talent acquisition and selection that are multidimensional processes and their precision and accuracy may decide who wins, especially in games when the teams are at the similar level of tactical, technical, and physical preparedness. Bearing in mind that the category of cadets corresponds to age when players' growth and maturation are pronounced and their social role is becoming more responsible, this is also the time when talent gets to its maximum [15, 18]. Moreover, this is the first category when the competition system is in the form of league that corresponds to that one of seniors and fallowing the propositions of international basketball association (FIBA) (http://www.fiba.basketball). Therefore, the aim of this study was to investigate the association of mental toughness with competitive basketball performance of female cadets, and whether those who performed higher were mentally tougher compared to those who performed lower. It was hypothesized that mental toughness would be associated with competitive basketball performance and that players who performed better scored higher in mental toughness.

Materials and Methods

Participants

A stratified sample of convenience was used for the study so the effects of tactical, technical and physical characteristics could be minimized. Therefore, the sample included 38 female basketball players from the four best-ranked clubs in the strongest Serbian league for cadets (age = = 16 ± 1 years). Moreover, only players who belonged to the highest 33.3 percentile of players who spent the most of the time playing during the season. There were 175 players registered for the first female basketball league for cadets, thus the sample corresponds to 20 % of this population. The structure of the sample consisted of eight point guards, 11 shooting guards, eight small forwards, six power forwards, and five centers. The average basketball experience was 5.8 ± 2.0 years, in the season 2019/2020 they played in average 12.73 ± 2.80 games out of 16 games, and in average spent 19.17 ± 8.11 minutes playing per game. Nineteen participants (50 %) were the active members of the Serbian national basketball U16 team, while others were not in the national team but they played in the same league and the same four clubs as those who were selected for the national team. Participants were informed about the aim of the study and their data were acquisitioned only after they consented to it. The study is conducted in accordance with the Helsinki declaration regarding the ethical principles for medical research involving human subjects (Williams, 2008). The study design was approved by the Ethical Board (number 484-2) of the Faculty of Sport and Physical Education, University of Belgrade.

Procedures

The research was conducted at the end of the season 2019/2020 for cadets. Each participant answered the questionnaire consisting of sociodemographic questions, sports experience, playing position, whether they played for the national team of Serbia or any other country, and the 48-question questionnaire for evaluation of mental toughness (MTQ48). Competitive basketball performance was evaluated for each participant using match performance analysis from the players' statistics that were available at the Serbian Basketball Federation web page (http://www.kss.rs). Participants were allocated into three groups based on their performance index rating. The association of mental toughness and performance index rating was evaluated as well as the difference in mental toughness between the players of different performance.

The MTQ48 evaluates the capability of a person to deal with the pressure under different circumstances and in different tasks by evaluating four dimensions: control, challenge, commitment, and confidence [6]. The control further consists of life and emotional control, commitment of achievement and goal orientation, challenge of risk and learning orientation, and confidence

of inter-personal and confidence in abilities. The MTQ48 metrics were empirically confirmed elsewhere [4, 10] and it has been extensively used in athletes [5, 24]. The instrument includes 48 questions where participants express the level of agreement on a 5-level Likert scale with each of the questions, whereby 1 was the least agreement (i. e., I totally disagree) and 5 was the highest agreement (i. e., I totally agree). For the purpose of the study, the scores were averaged into overall mental toughness score and for each dimension of mental toughness.

Match performance was analyzed using the procedure explained in Zarić et al. [29]. Authors developed performance index rating (PIR) using following formula: PIR = [(number of 3-point shots scored × 3 + number of 2-point shots scored × 2 + number of free-throw shots scored + number of assists + number of rebounds + number of 'steals' + number of personal fouls made on the player + number of blocks) – (number of 3-point shots missed + number of 2-point shots missed + number of free-throw shots missed + number of personal fouls + number of technical fouls + number of turnovers + number of shots by the player blocked by an opponent)] ÷ number of games ÷ average time (min) of all games. The sample of participants was divided by performance index rating in three groups corresponding to the lowest 33.3 percentile (low performers), middle 33.3 percentile (medium performers), and the highest 33.3 percentile (high performers).

Statistical analysis

The statistical analysis was performed in statistical package for social sciences (IBM, SPSS 20) and Microsoft Excel. All data were analyzed descriptively for mean, standard deviation, coefficient of variation, minimum, maximum, skewness and kurtosis. Pearson correlation and multiple regression analyses were used to determine the association between the indicators of mental toughness and performance index rating. Analysis of variance with Bonferroni pairwise comparison determined if low, medium and high performers differed in indicators of mental toughness. The significance level was set at $p < 0.05$. The Cohen's effect sizes (*d*) were calculated for the magnitude of differences (Sullivan, & Feinn, 2012) between the groups using the formula: (M2−M1)/SD, where M1 and M2 were the means of the groups, while SD was a pooled standard deviation of compared groups. The magnitudes of differences were defined as small = 0.2–0.5, moderate = 0.5–0.8, and large ≥ 0.8.

Results. Descriptive statistics for performance index rating, mental toughness, control, challenge, commitment, and confidence is shown in Table 1. The variation in performance index rating was the largest, while variations in mental toughness and its subscales were similar.

Table 1

Descriptive statistics for the whole sample

Variables	Mean	SD	CV%	Min	Max	Skewness	Kurtosis
Performance index rating	0.33	0.18	54.66	0.03	0.70	0.132	–0.993
Mental toughness	3.71	0.38	10.20	2.98	4.35	–0.241	–0.604
Control	3.31	0.35	10.54	2.50	4.00	–0.151	–0.039
Challenge	3.95	0.49	12.48	2.63	4.88	–0.369	0.238
Commitment	4.04	0.54	13.40	2.82	4.82	–0.588	–0.371
Confidence	3.73	0.46	12.27	2.73	4.40	–0.280	–0.779

Correlation analysis determined significant correlations between performance index rating and mental toughness, control, and confidence (Table 2). Challenge and commitment did not correlate significantly with performance index rating.

Table 2

Correlation coefficients for performance index rating and indicators of mental toughness

Variables	Performance index rating	
	r	p
Mental toughness	**0.365***	**0.024**
Control	**0.477****	**0.002**
Challenge	0.163	0.329
Commitment	0.222	0.180
Confidence	**0.341***	**0.036**

* Significant at $p < 0.05$, ** Significant at $p < 0.01$.

Multiple regression analysis established significant model of prediction of performance index rating from mental toughness indicators ($R^2 = 0.260$, Std. Error of the Estimate – 0.167, $F = 2.872$, $p = 0.038$). However, when controlled for each subscale individually, only control was significant predictor (Table 3).

Table 3

Coefficient analysis of multiple regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	–0.461	0.287		–1.608	0.117
Control	0.238	0.099	0.454	2.398	0.022*
Challenge	–0.068	0.081	–0.182	–0.837	0.409
Commitment	–0.032	0.072	–0.095	–0.443	0.661
Confidence	0.109	0.100	0.271	1.090	0.284

Dependent variable: Performance index rating.

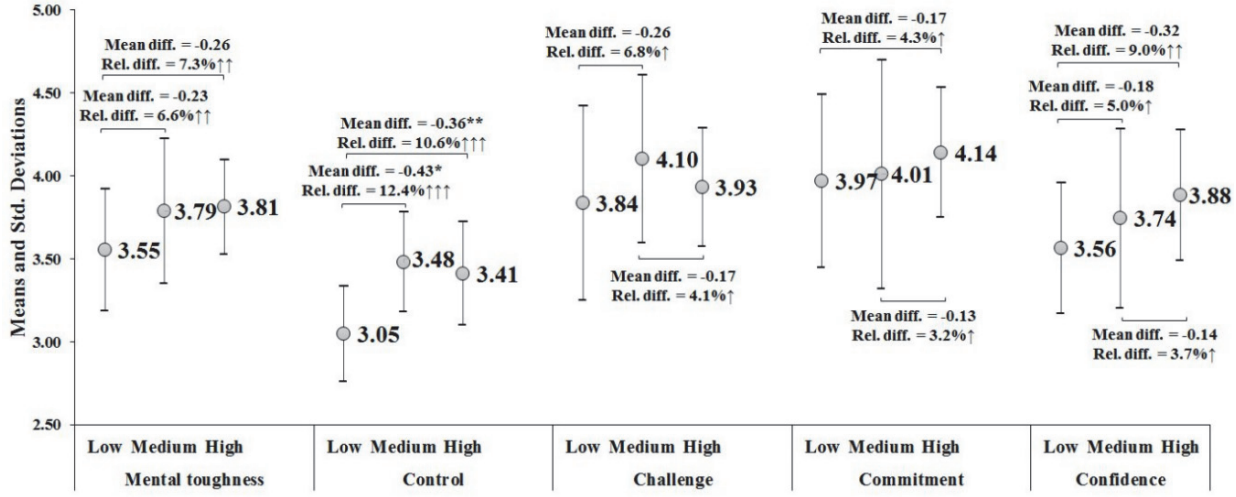

Fig. 1. Means and standard deviations of low, medium and high performers along with absolute (Mean diff.) and relative (Rel. diff.) differences, and effect sizes: * Significant at p < 0.05, ** Significant at p < 0.01; ↑ – small effect size, ↑↑ – moderate effect size, ↑↑↑ – large effect size

Analysis of variance revealed that the low performers had significantly lower control than the medium and high performers, while medium and high performers had similar mean control (Fig. 1). The magnitudes of differences were large. Although similar trends could be observed in mental toughness, challenge, confidence commitment, these differences were not statistically different.

Discussion. The main findings of this study revealed that mental toughness and its constituents were significantly associated with performance index rating of young female basketball players, whereby the control was the best predictor of performance index rating. Moreover, significant differences occurred in control between the players who had different performance index rating, with those performing better having reporting higher control. Therefore, the first and the second hypotheses were partially true, meaning that some but not all indicators of mental toughness played a significant role in competitive basketball performance of young female basketball players.

Considering the descriptive statistics, mean values of mental toughness of the investigated sample were one scale point above the average, which was higher than obtained in previous studies [13, 14, 22, 24]. The highest mean value occurred in commitment, while the lowest was in control, which could be attributed to the stage of growth that participants were in at the moment of the data collection and that all players belong to the highest percentiles of successful young basketball players in Serbia. The emotions and confidence during the adolescence could often be unstable, especially among girls, while their maturation and full potential could be expected after the adolescent crisis [18]. However, even though unstable, the adolescence is characterized by passionate dedication to the game and competition, which may reflect in higher level of commitment.

Correlation analysis revealed significant relationship between performance index rating and mental toughness, which was similar to results obtained by other authors as well [13, 14, 21, 22, 24]. The competitive success seems to depend to

some degree on overall mental toughness that shared about 36.5% of the same variance with performance index rating. More precisely, specific aspects of mental toughness such as control and confidence seem to be significant driving factors of young female basketball players as they explained 47.7% and 34.1% of the variance in performance index rating. Although control and confidence are not typical for adolescence [18], obtained mean values were lower than those obtained in commitment and challenge. However, significant amount of shared variance indicate their importance for the success in competitive basketball. The higher are control and confidence, the higher was performance index rating. This was partialy confirmed by the regression analysis as mental toughness explained 26 % of variation in performance index rating, but only control was a significant among individual predictors, which was similar to results obtained by Dereceli [7].

Considering this, the analysis of variance showed that control was the only indicator of mental toughness that was significantly lower in low performers comparing to medium and high performers. However, the effect sizes suggest trends in challenge, commitment, and confidence that are similar to those obtained in control, resulting in moderate differences in overall mental toughness. Therefore, it seems that inner strength and outer orientation, as well as resilience and positivity may need to be higher for better performance in competitive basketball of young female layers. Although the differences were significant only in control, Cohen's calculation of effect size suggest that differences may exist, which may need to be considered, given the size of each subsample [6, 25]. Moreover, the whole sample consisted of participants specifically selected by the same parameters, which makes it less likely for differences to be significant (i. e., occur in more than 95% of the small homogenous sample). However, the obtained consistency in trends seems to provide an insight into psychological construct of successful female basketball players, thus potentially adding to the precision of talent acquisition and selection process.

According to results, it could be argued that young female basketball players whose commitment and challenge are higher are more likely to work on attaining ambitiously set goals. Moreover, on the way to the goal, they are likely to perceive the obstacles as challenges and chances to progress rather than the risk, while in return their confidence may rise as they complete the challenges. It is of note that the sample included only players from the highest 33.3 percentiles of the first four clubs of the highest basketball league for cadets, among which 50% were the members of the national team. These could be the most talented young female basketball players from Serbia, whose commitment to this sport could be higher than of those from lower percentiles. This could be observed in mean values of all investigated indicators of mental toughness in each group that are well above the mid-point of 5-level Likert scale. Considering this, it could be concluded that a well-developed control (i. e., emotional and life control) and confidence in abilities, through commitment to overcome challenges and achieve the goals are the features that characterize young female high performers in competitive basketball. Although mental toughness contributed moderately to performance index rating, it seems to be a consistent mechanism that contributes to talent expression. Therefore, coaches and talent acquisition specialists should take this space of competitive performance into account when taking decisions and MTQ48 could be a convenient, easily attainable way to do so.

Limitations. Few limitations should be pointed out before bringing the conclusion. The structure of the sample could include players from the lower percentiles and leagues for higher validity and precision of analysis. Moreover, it would provide the evidence to whether cut-off values for top performers for indicators of mental toughness could be defined. The data on mental toughness could be collected on different categories such as juniors and seniors. The data on population of non-athlete young females of the same age could be compared to this data. It would provide the evidence to whether the best players in Serbia are different from normal population of girls of the same age. The sample of boys of the same age should be investigated for wider external validity of this construct.

Conclusion. The results of this study suggest that mental toughness of young female basketball players played a significant role in performance index rating. Overall mental toughness was associated with competitive performance, whereby control, including life and emotional control, was the strongest predictor among other constituents of mental toughness. The differences between the groups further suggested that commitment, challenge, and confidence also tend to be higher among those players who performed higher.

Therefore, mental toughness should be considered on the level of individual constituents as well as on the general level of overall mental toughness. This could be easily assessed by the MTQ48 that is convenient and easily understandable for players of this age. In that regard, this study indicate that the assessment of mental toughness could be included as part of a multilevel process of talent acquisition and player selection.

References

1. Basketball Federation of Serbia. Retrieved from http://www.kss.rs.

2. Boroujeni S.T., Mirheydari S.B.G., Kaviri Z., Shahhosseini S. The Survey of Relationship and Comparison: Emotional Intelligence, Competitive Anxiety and Mental Toughness Female Super League Basketball Players. *Procedia – Social and Behavioral Sciences*, 2012, vol. 46, pp. 1440–1444. DOI: 10.1016/j.sbspro.2012.05.317

3. Cherepov E.A., Kalugina G.K., Khafizova A.S. Creating Favorable Emotional Climates in University Volleyball Teams. *Journal of Physical Education and Sport*, *2018*, iss. 1, art. 55, pp. 397–400. DOI: 10.7752/jpes.2018.s155

4. Clough P., Earle K., Sewell D. Mental Toughness: the Concept and Its Measurement. In I. Cockerill (Ed.). *Solutions in Sports Psychology*, 2002, pp. 32–43.

5. Clough P., Strycharczyk D. Developing Mental Toughness: Improving Performance, Wellbeing and Positive Behaviour in Others. London: Kogan Page Publishers, 2012.

6. Cohen J. A Power Primer. *Psychological Bulletin*, 1992, vol. 112, no. 1, pp. 155–159. DOI: 10.1037/0033-2909.112.1.155

7. Dereceli Ç. An Examination of Concentration and Mental Toughness in Professional Basketball Players. *Journal of Education and Training Studies*, 2019, vol. 7, no. 1, pp. 17–22. DOI: 10.11114/jets.v7i1.3841

8. Erlikh V.V., Shibkova D.Z., Baiguzhin P.A. Digitalization of Operational Diagnostics of Functional Reserves and Assessment of Athletics Fitness. *Human. Sport. Medicine*, 2020, vol. 20, no. 1, pp. 52–66. DOI: 10.14529/hsm200107

9. Fort-Vanmeerhaeghe A., Montalvo A., Latinjak A., Unnithan V. Physical Characteristics of Elite Adolescent Female Basketball Players and Their Relationship to Match Performance. *Journal of Human Kinetics*, 2016, vol. 53, pp. 167–178. DOI: 10.1515/hukin-2016-0020

10. Horsburgh V., Schermer J., Veselka L., Vernon P. A Behavioural Genetic Study of Mental Toughness and Personality. *Personality and Individual Differences*, 2009, vol. 46, pp. 100–105. DOI: 10.1016/j.paid.2008.09.009

11. International Basketball Federation. Retrieved from http://www.fiba.basketball.

12. Jakovljevic S., Macura M., Radivoj M. et al. Biological Maturity Status and Motor Performance in Fourteen-Year-Old Basketball Players. *International Journal of Morphology*, 2016, vol. 34, no. 2, pp. 637–643. DOI: 10.4067/S0717-95022016000200035

13. Jones G., Hanton S., Connaughton D. A Framework of Mental Toughness in the World's Best Performers. *The Sport Psychologist*, 2007, vol. 21, pp. 243–264. DOI: 10.1123/tsp.21.2.243

14. Jones G., Hanton S., Connaughton D. What is this thing Called Mental Toughness? An Investigation of Elite Sport Performers. *Journal of Applied Sport Psychology*, 2002, vol. 14, pp. 205–218. DOI: 10.1080/10413200290103509

15. Kalek N., Gerber M., Brand S. et al. During Early to Mid Adolescence, Moderate to Vigorous Physical Activity is Associated with Restoring Sleep, Psychological Functioning, Mental Toughness and Male Gender. *Jornal of Sport Sciences*, 2017, vol. 35, pp. 426–434. DOI: 10.1080/02640414.2016.1167936

16. Khan Z., Ali A., Ahmed N. Aggression and Mental Toughness Among Indian Universities Basketball Players: Acomparative Study. *Journal of Physical Education Research*, 2015, vol. 2, no. 3, pp. 53–61.

17. Kumar A. A Study on Mental Toughness and Sports Competition Anxiety for Male and Female Basketball Players. *International Journal of Physical Education, Sports and Health*, 2016, vol. 3, no. 2, pp. 379–381.

18. Milošević M., Čolović M. Development and Pedagogical Psychology with Application in Sports and Physical Education. Beograd: Univerzitet Singidunum, 2019.

19. Milošević M., Milošević M. *Special Physical Education Textbook on the Management of the Construction of the Physical Integrity and Capacity of Police Officers*. Saarbrücken: Lambert Academic Publishing, 2014.

20. Milošević M., Mudrić M., Mudrić R., Milošević M. Using the Mind in Reprogramming the Limits of Muscle Force in the Process of Creating Champions. *Sport Science & Practice*, 2012, vol. 2, no. 5, pp. 39–58.

21. Newlanda A., Newtona M., Finchb L. et al. Moderating Variables in the Relationship Between Mental Toughness and Performance in Basketball. *Journal of Sport and Health*

Science, 2013, vol. 2, no. 3, pp. 184–192. DOI: 10.1016/j.jshs.2012.09.002

22. Nicholls A.R., Polman R.C.J., Levy A.R., Backhouse S.H. Mental Toughness in Sport: Achievement Level, Gender, Age, Experience, and Sport Type Differences. *Personality and Individual Differences*, 2009, vol. 47, no. 1, pp. 73–75. DOI: 10.1016/j.paid.2009.02.006

23. Pic M., Lavega-Burgués P., Muñoz-Arroyave V. et al. Predictive Variables of Emotional Intensity and Motivational Orientation in the Sports Initiation of Basketball. *Cuadernos de Psicologia del Deporte*, 2019, vol. 19, no. 9, pp. 241–251. DOI: 10.6018/cpd.343901

24. Sheard M. *Mental Toughness: the Mindset Behind Sporting Achievement*. London: Routledge, 2010. DOI: 10.4324/9780203872109

25. Sullivan G.M., Feinn R. Using Effect Size – or why the P Value is not Enough. *Journal of Graduate Medical Education*, 2012, vol. 4, no. 3, pp. 279–282. DOI: 10.4300/JGME-D-12-00156.1

26. Vesković A., Koropanovski N., Dopsaj M., Jovanović S. Effects of a Psychological Skill Training Program on Anxiety Levels in Top Karate Athletes. *Revista Brasileira de Medicina do Esporte*, 2019, vol. 25, no. 5, pp. 418–422. DOI: 10.1590/1517-869220192505173969

27. Williams J.R. The Declaration of Helsinki and Public Health. *Bulletin of the World Health Organization*, 2008, vol. 86, pp. 650–652. DOI: 10.2471/BLT.08.050955

28. Zarić I., Dopsaj M., Marković M. et al. Body Composition Characteristics Measured by Multichannel Bioimpedance in Young Female Basketball Players: Relation with Match Performance. *International Journal of Morphology*, 2020, vol. 38, no. 2, pp. 328–335. DOI: 10.4067/S0717-95022020000200328

29. Zarić I., Dopsaj M., Marković M. Match Performance in Young Female Basketball Players: Relationship with Laboratory and Field Tests. *International Journal of Performance Analysis in Sport*, 2018, vol. 18, no. 1, pp. 90–103. DOI: 10.1080/24748668.2018.1452109

30. Zarić I., Kukić F., Jovićević N. et al. Body Height of Elite Basketball Players: do Taller Basketball Teams Rank Better at the FIBA World Cup? *International Journal of Environmental Research and Public Health*, 2020, vol. 17, pp. 31–41. DOI: 10.3390/ijerph17093141

31. Ziv G., Lidor R. Physical Attributes, Physiological Characteristics, On-Court Performances and Nutritional Strategies of Female and Male Basketball Players. *Sport Medicine*, 2009, vol. 39, pp. 547–568. DOI: 10.2165/00007256-200939070-00003

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СВЯЗЬ ПСИХОЛОГИЧЕСКОЙ УСТОЙЧИВОСТИ С СОРЕВНОВАТЕЛЬНЫМИ УСПЕХАМИ МОЛОДЫХ ЖЕНЩИН-БАСКЕТБОЛИСТОК

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Цель: изучить взаимосвязь между психологической устойчивостью и конкурентоспособностью молодых баскетболисток. **Материалы и методы.** Выборка исследования состояла из 38 баскетболисток в возрасте до 16 лет, которые играли за четыре лучших баскетбольных клуба в высшей лиге Сербии. Их психологическая устойчивость оценивалась с помощью опросника психологической устойчивости (MTQ48), а рейтинг результатов оценивался на основе сезонных статистических данных, полученных с официальной вебстраницы Сербской баскетбольной ассоциации. **Результаты.** Корреляционный анализ

выявил значительную связь результативности с психологической устойчивостью и ее составляющими, такими как контроль и уверенность. **Заключение.** Регрессионный анализ укрепил представление о связи спортивной результативности и психологической устойчивости, что отразилось на значительных различиях в психологической устойчивости между теми, кто показал низкий, средний и высокий индексы результативности.

Ключевые слова: *баскетбол, психологическая устойчивость, игра-статистика, спортсменки.*

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