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PERSONALITY TRAITS OF COMPETITIVE ATHLETES ACCORDING TO TYPE OF PRESSURE EXERTED ON OPPONENTS

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ABSTRACT

This study attempted to create the psychological profiles of the personality of athletes practising individual and team disciplines, according to the type of pressure exerted on the opponent in a competitive situation. The selected criterion for division into the types of pressure exerted on the opponent was physical contact with the opponent during a competition. Polish competitive male athletes (n=120) were purposefully selected for the study from four sport disciplines: bodybuilding (n=30), WKF karate (n=30), volleyball (n=30) and football (n=30). Their age ranged between 20 and 29 years. The personality tests were performed using the NEO-FFi method. There are differences between the sport disciplines where pressure is exerted indirectly on the opponent and those practising disciplines with pressure exerted directly on the rivals in the neuroticism and conscientiousness scales. The groups studied, except for the comparison of volleyball players and footballers, differ among each other in the neuroticism scale, while volleyball players are less agreeable and conscientious than other athletes. The results show the personality of the athletes depend on the type of pressure exerted on the opponent in relation to individual and team disciplines. This approach allows building profiles of the personality of successful players.

Keywords: Sport psychology; Personality; Exerting pressure; Competitive sport.

INTRODUCTION

There are many different theories of personality. However, in the field of sport psychology, the basic theory in the area of research on personality in sport is a factor-based model known as the trait theory (Cattell 1965; Eysenck, 1966; Eysenck *et al*., 1983; Eysenck & Keane, 1995; Jarvis, 1999). The trait theory may prove very useful in diagnosing the psychological profile of individual athletes. It makes it possible to construct the psychological model of athletes from a given discipline to create an overview of both the weaknesses and strengths of athletes. Such information is particularly valuable for a coach, who will then be able to manage such an athlete in the most appropriate manner.

The existing research on personality in sport indicates that there are differences between athletes and non-athletes in the extraversion and conscientiousness scales. Extraversion refers to the quality and quantity of social interactions and levels of activity, energy and the ability to experience positive emotions, while conscientiousness represents the degree of organisation, perseverance, and motivation of an individual in goal-oriented activities. Athletes have been

found to be more sociable and consistent than non-athletes (Schurr *et al*., 1977; Highlen & Bennett, 1979; Rychta, 1979; Gould *et al*., 1981; McGill *et al*., 1986; Clingman & Hiliard, 1987; Garland & Barry, 1990; Rychta, 1992; Chirivella & Martinez, 1994; Bleidorn *et al*., 2010).

Considerable discrepancies have also been discovered between athletes engaging in team and individual sport disciplines. Team sport players exhibit a higher level of neuroticism (prone to experiencing negative emotions: fear, confusion, anger, guilt and vulnerability to psychological stress) and extraversion, than athletes practising individual disciplines (Taylor & Doria 1981; Piedmont *et al*., 1999; Busato *et al*., 2000; Bernatek *et al*., 2006; Shrivastaval *et al*., 2010; Ilyasi & Salehian, 2011; Singh & Manoj, 2012). In addition, it has been reported that the personality profiles of athletes from the same discipline representing different sport levels do not significantly differ from one another (Rychta, 1998; Piedmont *et al*., 1999; Backmand *et al*., 2003; McKelvie *et al*., 2003; Aidman & Schofield, 2004; Krawczyński, 2004; Bara Filho *et al*,. 2005; Robbins & Judge, 2008; Anghel *et al*., 2009; Brewer, 2009; Litwiniuk *et al*., 2009; Allen *et al*., 2011; Tok, 2011; Binboga *et al*., 2012; Allen *et al*., 2013; Mirzaei *et al*., 2013; Tomczak *et al*., 2013; Allen & Laborde, 2014; Piepiora *et al*., 2016).

PURPOSE OF RESEARCH

Another important issue is a description of athletes' personalities according to the type of pressure exerted on the opponent during a competitive situation. An analysis of literature on the subject shows that no research has ever been done in this area. Therefore, the purpose of this study was to attempt to create the psychological profiles of the personality of athletes practising individual and team disciplines according to the type of pressure exerted on the opponent in a competitive situation. The criterion chosen was the type of physical contact with the opponent during a sport encounter. Two categories of sport disciplines, as described below, were distinguished.

Disciplines where pressure is exerted on the opponent indirectly are non-contact sports. These include disciplines with no physical contact with the opponent or where such contact is strictly defined by the applicable rules. The motor activities performed are relatively independent of the opponent or forced by him.

Disciplines, where pressure is exerted on the opponent directly, are contact sports. Such disciplines involve, as a rule, direct physical contact with the opponent, which is, however, limited by strict regulations. They are intensely stimulating and result in a high psychological and physical burden on an athlete (Rychta, 1998).

METHODOLOGY

The participants in this study included 120 Polish athletes (men) purposefully selected. Non-target selection was made for test samples. It consisted of taking samples from the population into samples that met the criteria of the research question. A proportionate number of individual populations in the samples were assayed. The study covered four sport disciplines, namely two individual and two team sports involving indirect and direct pressure exerted on the opponent.

Table 1. **DESCRIPTIVE STATISTICS OF NEO-FFi VARIABLES FOR GROUPS**

	Bodybuilding Group **(n=30)**										
NEO-FFi variables	**Mean**	**Median**	**Min**	**Max**	**Lower quartile**	**Upper quartile**	**Range**	**Interquar-tile range**	**SD**	**COV**	**Skewness**
Neuroticism	18.40	17.00	4.00	43.00	14.00	22.00	39.00	8.00	9.02	49.04	1.29
Extraversion	32.17	31.50	21.00	42.00	27.00	38.00	21.00	11.00	6.53	20.30	-0.28
Open to experience	25.67	25.00	16.00	38.00	23.00	28.00	22.00	5.00	5.13	20.01	0.70
Agreeableness	29.67	31.00	18.00	45.00	25.00	33.00	27.00	8.00	6.14	20.71	0.25
Conscientiousness	35.77	35.50	24.00	45.00	33.00	40.00	21.00	7.00	5.28	14.77	-0.20
	WKF Karate Group **(n=30)**										
NEO-FFi variables	**Mean**	**Median**	**Min**	**Max**	**Lower quartile**	**Upper quartile**	**Range**	**Interquar-tile range**	**SD**	**COV**	**Skewness**
Neuroticism	8.93	8.50	3.00	15.00	7.00	10.00	12.00	3.00	2.60	29.09	0.52
Extraversion	32.60	32.00	26.00	42.00	30.00	34.00	16.00	4.000	3.84	11.77	0.65
Open to experience	26.60	29.00	15.00	38.00	22.00	31.00	23.00	9.00	6.36	23.91	-0.23
Agreeableness	29.30	29.50	14.00	46.00	27.00	31.00	32.00	4.00	5.69	19.41	0.25
Conscientiousness	37.30	37.00	29.00	47.00	34.00	40.00	18.00	6.00	4.34	11.64	0.15
	Volleyball Group **(n=30)**										
NEO-FFi variables	**Mean**	**Median**	**Min**	**Max**	**Lower quartile**	**Upper quartile**	**Range**	**Interquar-tile range**	**SD**	**COV**	**Skewness**
Neuroticism	13.90	13.50	7.00	22.00	10.00	18.00	15.00	8.00	4.26	30.66	0.09
Extraversion	33.30	33.00	24.00	41.00	30.000	37.00	17.00	7.00	4.26	12.79	-0.10
Open to experience	27.03	27.00	19.00	34.00	26.00	29.00	15.00	3.00	3.30	12.19	-0.09
Agreeableness	25.17	25.00	18.00	33.00	23.00	27.00	15.00	4.00	3.71	14.76	0.11
Conscientiousness	32.77	33.00	19.00	41.00	29.00	38.00	22.00	9.00	5.84	17.83	-0.58

Min=Minimum Max=Maximum SD=Standard deviation COV= Coefficient of Variation ***(Continued)***

Table 1. **DESCRIPTIVE STATISTICS OF NEO-FFi VARIABLES FOR GROUPS (*cont.*)**

NEO-FFi variables	*Football Group* (n=30)										
	Mean	**Median**	**Min**	**Max**	**Lower quartile**	**Upper quartile**	**Range**	**Interquar-tile range**	**SD**	**COV**	**Skewness**
Neuroticism	11.90	10.00	6.00	26.00	9.00	14.00	20.00	5.00	4.78	40.17	1.51
Extraversion	34.27	34.00	29.00	42.00	31.00	36.00	13.00	5.00	3.59	10.48	0.48
Open to experience	25.13	24.50	15.00	40.00	21.00	28.00	25.00	7.00	5.64	22.45	0.53
Agreeableness	28.70	28.50	22.00	39.00	25.00	32.00	17.00	7.00	4.77	16.63	0.30
Conscientiousness	36.67	36.00	30.00	47.00	32.00	41.00	17.00	9.00	5.17	14.10	0.30

Min=Minimum Max=Maximum SD=Standard deviation COV= Coefficient of Variation

The sports disciplines were:

- Bodybuilding – Individual discipline with indirect pressure exerted on the opponent (n=30);
- WKF karate – Individual discipline with direct pressure exerted on the opponent (n=30);
- Volleyball – Team discipline with indirect pressure exerted on the opponent (n=30);
- Football – Team discipline with direct pressure exerted on the opponent (n=30).

The subjects studied were athletes engaging in their disciplines on a competitive level. They included former and current members of Polish national teams, pursuing degree programmes in Sport at Wroclaw's University of Physical Education. Their age ranged between 20 and 29 years. All respondents agreed to participate in the study according to the ethics of good practice in science. Their personalities were tested using the NEO-FFi method, known as the "big five" (Wiggins, 1996; McCrae & Costa, 2003), which measures the personality on the following five scales: neuroticism, extraversion, openness to experience (indicating the tendency to positive evaluation of life experiences, tolerance for novelty and cognitive curiosity), agreeableness (describing attitudes to other people: positive versus negative) and conscientiousness.

NEO-FFi method poses 60 assertive claims, whose truthfulness is assessed on a five-point scale by the testimony of one's own person (Costa & McCrae, 2007). They are assumed to be real and, as such, relevant to the adaptation of the individual to the environment. The claims are invariable, universal (independent of race, gender or culture), and biologically conditioned (characterised by a high degree of inheritance) (John *et al*., 2008; Soto *et al*., 2008). The testing was conducted at the University of Physical Education in Wrocław in January 2016. The statistical analysis was performed using the "Statistica 12" package. One-way analysis of variance and post-hoc tests were used as leading methods. Table 1 presents the basic descriptive statistics of variables (mean, median, minimum, maximum, lower quartile, upper quartile, range, interquartile range, standard deviation, coefficient of variation, skewness) per sport discipline.

RESULTS

First, a comparison was made for all the four groups of athletes studied (individual and team, involving indirect and direct pressure exerted on the opponent) in the five scales using post-hoc tests. The results are specified in Table 2.

Table 2. **NEO-FFi MEAN SCALE SCORES FOR GROUPS**

NEO-FFi scales	Body-building	WKF karate	Volley-ball	Football
Neuroticism	18.400	8.9333	13.900	11.900
Extraversion	32.167	32.600	33.300	34.267
Openness to experience	25.667	26.600	27.033	25.133
Agreeableness	29.667	29.300	25.167	28.700
Conscientiousness	35.767	37.300	32.767	36.667

Table 3. **SIGNIFICANCE (p-Values) FOR DIFFERENCES BETWEEN GROUPS FOR NEO-FFi SCALES**

	Neuroticism Scale			
Group	**Bodybuilding**	**WKF karate**	**Volleyball**	**Football**
Bodybuilding		–	–	–
WKF karate	**0.000000****		–	–
Volleyball	**0.002693****	**0.000973****		–
Football	**0.000021****	**0.045501***	0.175525	
	Extraversion Scale			
Group	**Bodybuilding**	**WKF karate**	**Volleyball**	**Football**
Bodybuilding		–	–	–
WKF karate	0.721735		–	–
Volleyball	0.352392	0.565257		–
Football	0.086270	0.172368	0.427426	
	Openness to Experience Scale			
Group	**Bodybuilding**	**WKF karate**	**Volleyball**	**Football**
Bodybuilding		–	–	–
WKF karate	0.491073		–	–
Volleyball	0.313871	0.748994		–
Football	0.693759	0.279934	0.162318	
	Agreeableness Scale			
Group	**Bodybuilding**	**WKF karate**	**Volleyball**	**Football**
Bodybuilding		–	–	–
WKF karate	0.783809		–	–
Volleyball	**0.001005****	**0.002430****		–
Football	0.469919	0.653555	**0.009173****	
	Conscientiousness Scale			
Group	**Bodybuilding**	**WKF karate**	**Volleyball**	**Football**
Bodybuilding		–	–	–
WKF karate	0.254512		–	–
Volleyball	**0.026965****	**0.000970****		–
Football	0.502830	0.637110	**0.004300****	

Bold values=Significant p<0.05* or p<0.01**

Statistically significant differences (Table 3) were recorded in the neuroticism scale between individual groups, except for the comparison between volleyball players and footballers. No statistically significant differences were recorded in the extraversion and openness to experience scales. Differences did appear in the agreeableness and conscientiousness scales between volleyball players and bodybuilders, volleyball players and WKF karatekas and volleyball players and footballers. The above findings are illustrated in Figure 1.

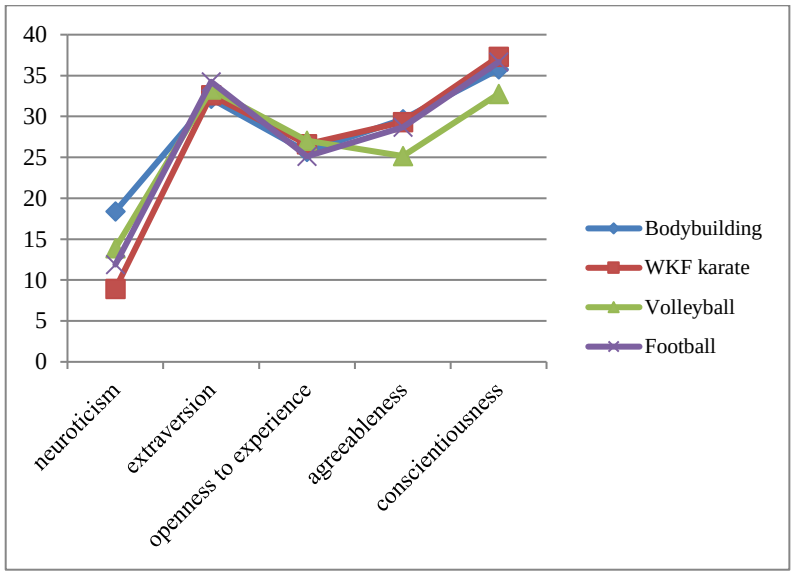

Figure 1. **MEAN SCORES OF GROUPS ON NEO-FFi SCALES**

Next, individual and team athletes were grouped together, while the division into the types of pressure exerted on the opponent was maintained. The sample of athletes with indirect pressure exerted on the opponent consisted of bodybuilders and volleyball players (Group 1) and the sample of athletes practising disciplines where direct pressure is exerted on the opponent were the WKF karatekas and footballers (Group 2). The data are presented in Table 4.

Table 4. **COMPARISON OF TYPE OF PRESSURE EXERTED FOR NEO-FFi SCALES**

NEO-FFi scales	Indirect pressure exerted	Direct pressure exerted	Significance p-Value
Neuroticism scale	16.150	10.417	0.000001**
Extraversion scale	32.733	33.433	0.417868
Openness to experience scale	26.350	25.867	0.614164
Agreeableness scale	27.417	29.000	0.108984
Conscientiousness scale	34.267	36.983	0.005463**

Statistically significant differences were recorded in the neuroticism and conscientiousness scales between athletes practising disciplines with indirect pressure exerted on the opponent and those from disciplines where direct pressure is exerted. No statistically significant differences were recorded in the extraversion, openness to experience and agreeableness scales. The findings are presented in Figure 2. It should be noted that the researched groups were

internally selected according to the criterion of sport activity and the pressure exerted on the opponent. In addition, they are homogeneous groups in terms of gender. Thus, it can be expected that athletic conditioning will not be universal, but depends on sports discipline.

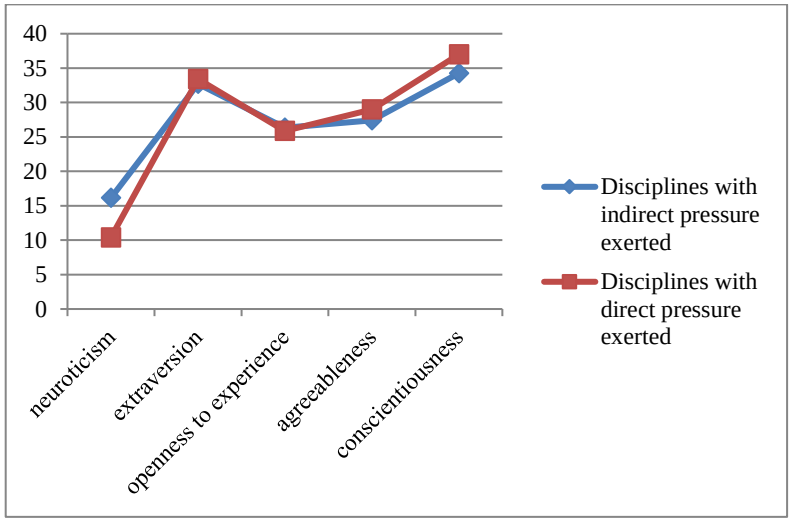

Figure 2. **MEAN SCORES FOR PRESSURE EXERTED FOR NEO-FFi SCALES**

DISCUSSION

The results obtained determine quite clearly the psychological profiles of athletes according to the type of pressure exerted on opponents for the NEO-FFi personality test. Differences were present in the neuroticism and conscientiousness scales.

More specifically, those athletes practising sport disciplines with direct pressure exerted on opponents exhibited a lower level of neuroticism than those from disciplines where indirect pressure is exerted. This means that contact sport athletes have a lower tendency to experience negative emotions and feel fear, embarrassment, anger and a sense of guilt, as well as a lower proneness to psychological stress than those from non-contact disciplines. This may be due to the essential feature of contact sports, namely that persons practising them take into account direct physical contact and aggressiveness, which is an inherent part of contact disciplines. Contact sports are intensely stimulating and result in a high mental and physical burden on an athlete. Direct physical contact with the opponent, often allowing for tactical brutality and involving a higher risk of pain and injury, requires a high level of mental and physical resilience and fast reactions in situation with changing tasks. A proper mental attitude to sport combat in such disciplines is the prerequisite for top level performance (Rychta, 1998).

On the other hand, an opposite relationship was found in the conscientiousness scale, namely athletes practising disciplines with direct pressure exerted on the opponent exhibited a higher level of conscientiousness than those from disciplines where indirect pressure is exerted on opponents. Thus, athletes practising contact disciplines are characterised by a higher degree of

organisation, persistence and motivation than those from non-contact disciplines. Generally however, that result, when converted into sten scores, produces the same outcome in both of the cases studied, namely a high level of conscientiousness.

In the case of the division of disciplines according to the type of pressure exerted into individual and team ones, what is noteworthy is the level of neuroticism in the samples studied. WKF karatekas exhibited the lowest level of neuroticism, followed by footballers and volleyball players, while bodybuilders proved to be the most neurotic group. Interestingly enough, the differences did not occur only among athletes from team disciplines. Such a result of those studied may be due to the specific nature of the sport disciplines practised.

WKF karate involves direct contact with the opponent, with an attack on the opponent's body being the purpose of combat, hence the lowest level of neuroticism appears for that group. In bodybuilding, rivalry consists in posing (assuming successive pre-determined poses). It involves an indirect pressure exerted on the opponent, with no physical contact whatsoever. That explains the highest level of neuroticism among the groups studied. The lack of differences in neuroticism between volleyball players and footballers is due to the specific nature of team sport disciplines. The responsibility for the outcome of a game is placed on the whole team, therefore, the mental burdens will be similar in both disciplines. It is presumed that the differentiation outlined is due to the specifics of the behaviour of athletes practising these sports disciplines. However, one cannot deny hypothesis-seeking sources of differentiation in the characteristics of players' personalities (Rychta, 1998; Krawczyński, 2004; Litwiniuk *et al*., 2009; Tomczak *et al*., 2013; Allen & Laborde, 2014; Piepiora *et al*., 2016).

What is also important, however, is the fact that volleyball players scored the lowest in both the agreeableness and the conscientiousness scale. More specifically, the conduct of volleyball players manifesting itself in altruism, as well as such traits as organisation, persistence and motivation, are on the lowest level among the groups studied. Since the same or similar markers did not appear in the agreeableness and conscientiousness scales among footballers, those results must be treated as specific to volleyball players, thus distinguishing that group of athletes, regardless of the divisions determined by the type of pressure exerted on opponents.

Volleyball is characterised by the ability to cooperate (teamwork because there is no individual actions outside of the game) and limiting the number of ball passes to three that makes the team forced to master this skill so that the tactical intention can be effectively realised at that time). Non-contact players in the game have no clashes, so characteristic of the fight for the ball or disc as in other sports games, so that each of the fighters do not encounter obstacles from the counterparties, and the fluency and effectiveness of the combination depends only on precision and opportunities, abilities and training of players.

A unique way to earn points, which is obtained both in the game itself and in the opponent's play and each error causes a loss of points which indirectly affects the undefined/unplayable game time. From the end of the action to the game, the ball is dead, resulting in two major consequences, namely volleyball is a fragmentary game, the battle lasts from the whistle that commences the action in the game and ending the game with the whistle. Play in or the opponent making a mistake, Volleyball is a repeat game and reflects the same or similar

circumstances in which teams compete for a point and to win. The team that making fewer mistakes increases their chances of a positive final result. Volleyball is characterised by so-called 'rotation' (that is, the change of position of all players by one place/zone). This is done after getting the right to perform the service. This forces each player to play in different zones and positions, both in attack and defence, so every competitor should be well skilled in each position on the court. During the game, every participant directly participates in the action (acceptance, play) and the indirect way being the assurance of action (pledge, attack).

Volleyball, due to its specificity, places very high demands on both players and the whole team in terms of technical skills. It is a technical game because, it is characterised by a specific way of bouncing the ball (the ball cannot be held thus short contact with the ball). The technique determines the accuracy of the rebound and the effect of the game. There is a close connection between motor and the technology, which is based on the principle of feedback. Motivation results in qualitative beneficial changes in the technique, and the technician raises the level of motility. Volley ball is characterised by non-standard, dynamic acyclic movements, performed in constantly changing external conditions with long and intense interval effort. Co-ordination capabilities, such as the ability to control and regulate movement, play a very important role in volleyball, such as fitness, technical and tactical skills. A great deal of time should be spent in teaching and improving the game.

Nowadays, there is a very turbulent and dynamic development and special interest of the masses of society in the game of volleyball. Undoubtedly, it contributes to creating an incredible setting during the league and international matches. The treatment that accompanies sports events is subordinate to the promotion and dissemination of this discipline. Its general accessibility makes volleyball increasingly popular in society to become an active supporter and, more importantly, to try to play the game itself. Broad promotion of the game at national, European and world level affects mobilising young people who regularly participate in organised training groups and very willing to participate in volleyball physical education classes. The nicest thing about it is that it organises itself by practicing volleyball in bizarre places where it is possible (school playgrounds, backyard playgrounds, parks, etc.).

The broad promotion of the game at national, European and world level affects mobilising young people to participate regularly in organised training groups and to participate willingly in volleyball physical education classes.

PRACTICAL APPLICATION

The study provided interesting cognitive data. These results enrich our existing knowledge of the relationships between personality traits and sport disciplines. They can also provide the basis for working out appropriate practical directives, important in the training of high-level athletes. The results show that the dimensions of pressure, sports disciplines with some personality traits are commensurate. This proportionality is logical and coherent internally. Demonstration of these relationships is an important cognitive effect of this study. Further analysis of more participants and other sport disciplines will allow for a more accurate definition of the role of personality factors in the athletes' behavioural intentions in a competitive pressure situation.

CONCLUSIONS

1. The athletes practising sport disciplines where indirect pressure is exerted on opponents were more neurotic and less conscientious than those from disciplines with direct pressure exerted on opponents.
2. Regarding the division of sport disciplines into individual and team sports according to the type of pressure exerted on the opponent, the findings from the present studies indicated that:
   - Bodybuilders were more neurotic than the athletes from the other types of sports;
   - WKF karatekas were found to be less neurotic than athletes from the other types of sports,
   - Volleyball players and footballers exhibited a lower level of neuroticism than bodybuilders and higher than that of WKF karatekas;
   - Volleyball players exhibited a lower level of agreeableness and conscientiousness than the other athletes included from other sporting codes.
3. The results showed that the personality of the athletes, depending on the type of pressure exerted on the opponent in relation to individual and team sport disciplines, could be determined. This analysis allows you to build profiles of successful players' personalities. The variation in level of personality characteristics should be related to the specificity of the sport competition in the studied sports disciplines and the different psychological requirements they place on the athletes.

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