

Psychological factors of students training Olympic taekwondo at various level of sports advancement

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Summary

Introduction. The aim of the present investigations was to evaluate selected motor and psychological factors characterising students training Olympic taekwondo at various level of sports advancement.

Material and methods. Forty students of the Universities from Zamość representing Olympic taekwondo took part in the research. The type and structure of personality were measure by Questionnaire of Personality of ZKKO Zuckerman-Kuhlman and International Committee on the Standardisation of Physical Fitness Tests (ICSPFT) were measure level of physical fitness.

Results. The research proved that personality features under investigation, i.e. Imp-SS, N-Anx., Agg-Host, Act. fall into the range of medium results. The group of subjects demonstrating high levels of sports advancement Imp-SS and N-Anx fall into the range of low results. The other features, i.e. Agg-Host, Act. and Soc. are at the level of medium results. As far as the group of subjects with medium levels is concerned, all personality traits fall into the range of medium results.

Conclusion. It was observed that competitors with higher levels of physical fitness manifest higher levels of Imp-SS, N-Anx and Agg-Host, whereas those with higher levels of sports advancement demonstrate lower intensity levels of those features.

Introduction

The knowledge concerning motor abilities and the psyche of a human is a fundamental issue in sport sciences. The application of mental skills in sports is linked with the development and maintenance of expert performance in sport. The best results in contemporary sports are achieved only by those highly talented, optimal body build and highly fit technically, tactically, psycho-emotionally and teoretically [1,2]. A very broad spectrum of conditions of manifesting psychomotor abilities in ontogenesis generates the demand for such research in various age and social groups significant from the viewpoint of health and economies of all countries [3-6].

In the constantly changing world youth and students from universities often receive many contradictory data and proposals both in the sphere of life philosophy as well as in lifestyle. In many books and a number of journals we can find research concerning of physical activity e.g. recreational and sport of different kind social groups. Student is a special social category of society [7]. Sport training is a complex

process and its efficiency depends on a lot of factors, the knowledge of whose forms the basis of the whole training process. In many kind of combat sports is a highly demanding sport with respect to body build [8-12], physical fitness [13], coordination motor abilities and technique [14-18] and optimal psychological features e.g. personality [19-25]. Research into personality in psychology of sport has been done for a long time yet a lot of conclusions drawn from the research are contradictory [26]. Athletes' personalities more often become the subject of psychologists' researches, because they help to solve many problems connected with efficiency of trainings and success in sports competition. Moreover, it has been difficult to find out which personality components are closely connected with success in sports and life after sport career. The aim of the present investigations was the evaluation chosen psychological factors characterizing students training Olympic taekwondo.

Material and methods

The investigation included 40 students of the Universities from Lublin and Zamość engaged Olympic taekwondo in sections, aged=19,2±1,22. The training experience was 4-7 years. In the investigations was used Questionnaire of Personality of ZKKO Zuckerman-Kuhlman to measure of type and structure of personality consist with 5 scale, alternative to "big five" Coste'a and McCrea and International Committee on the Standardisation of Physical Fitness Tests (ICSPFT) were measure level of physical fitness.

Results

The research revealed that not all olympic taekwondo competitors demonstrated high levels of physical fitness in tests assessing particular motor features according to the

norms of ICSPFT (Table 1) [27]. Only slightly more than a half of the subjects (52.5%) achieved high results. Therefore, the subjects were assigned to two groups according to their levels of physical fitness.

One group included those demonstrating medium levels, while the other one consisted of the subjects manifesting high levels of physical fitness.

The research proved that personality features under investigation, i.e. Imp-SS, N-Anx., Agg-Host. Act., fall into the range of medium results, which means that taekwondo competitors are emotionally stable; they are able to control their emotions and behave adequately to a situation, particularly in conditions of a fight on a mat during a sports competition. In turn, the subjects with high levels of physical fitness demonstrate higher levels of Imp-SS, Agg-Host and lower levels of Soc., while N-Anx. is comparable in both groups.

Table 1. The of level physical fitness olympic taekwondo competitors (n=40)

Statistics (scores)	50 m dash	Standing board jumping	1000m run	Hand grip	Bent arm hang	Shuttle run	Sit ups	Bend trunk
Mean	58,4	61,3	62	47,85	56,55	59,1	52,15	52,75
SD	4,89	7,26	5,45	14,46	18,17	4,35	6,39	9,48
V (%)	8,37	11,84	8,79	18,81	32,13	7,36	12,25	17,97

*[motoric level taken together]

Table 2. Personality structure of taekwondo competitors measured with the use of ZKKO test taking into consideration their levels of physical fitness (n=40)

Feature of Personality	Level of physical fitness		t	p
	High (n=21)	Middle (n=19)		
	Mean±SD	Mean±SD		
Impulsive Sensation Seeking (Imp-SS)	8,05±1,9	6,6±1,5	2,192	0,034*
Neurotism (N-Anx.)	6,3±2,1	6,2±2,1	0,206	0,836
Aggression – Hostility (Agg-Host.)	7,7±1,8	7,0±1,4	1,176	0,245
Activity (Act.)	9,8±2,3	10,2±1,0	-0,582	0,556
Sociability (Soc.)	8,5±2,1	9,8±1,1	-2,054	0,046*
Inf.	2,3±0,4	2,1±0,3	1,113	0,323

* Statistically significant at the level of <0,05

Table 3. Personality structure of olympic taekwondo competitors measured with the use of ZKKO test taking into consideration their levels of sports advancement (n=40)

Feature of Personality	Level of sport advancement		T	p
	High (n=20)	Middle (n=20)		
	Mean±SD	Mean±SD		
Impulsive Sensation Seeking (Imp-SS)	6,9±2,1	7,7±2,1	-1,119	0,269
Neurotism (N-Anx)	5,1±1,8	7,4±2,1	-3,795	0,001*
Aggression – Hostility (Agg-Host)	7,0±2,2	7,8±1,7	-1,343	0,187
Activity (Act.)	10,5±2,6	9,5±2,0	1,412	0,165
Sociability (Soc.)	9,2±2,7	9,1±1,5	0,072	0,943

* Statistically significant at the level of <0,05

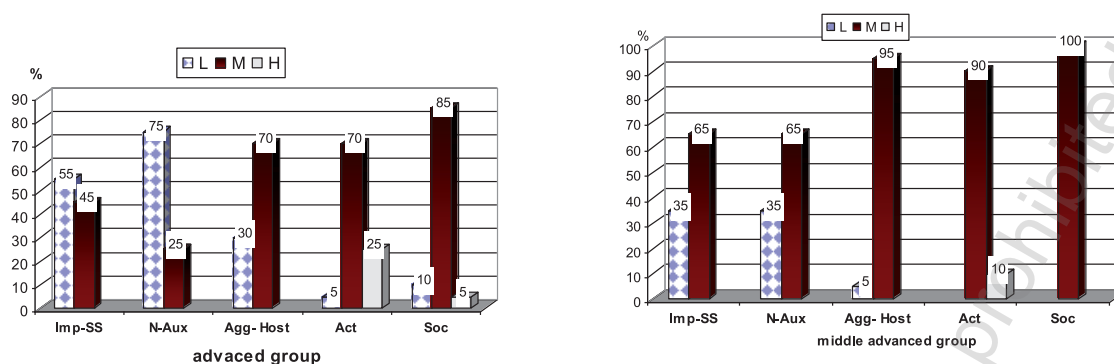


Fig. 1. Personality structure of taekwondo competitors measured with the use of ZKKO test taking into consideration their levels of sports advancement (n=40)

Table 4. Dependencies between personality traits of olympic taekwondo competitors taking into consideration their levels of physical fitness and advancement (n=40)

Feature of Personality	Value of correlation coefficients	
	Level of physical fitness	Level of sports advancement
Impulsive Sensation Seeking (Imp-SS)	0,51**	0,46*
Neurotism (N-Anx)	0,46*	0,43*
Aggression – Hostility (Agg-Host)	-0,44*	0,20
Activity (Act.)	0,32*	-0,31*
Sociability (Soc.)	-0,25	-0,53**

*Correlation coefficients $p < 0,05$

** Correlation coefficients $p < 0,01$

Furthermore, it was observed that in the group of subjects demonstrating high levels of sports advancement Imp-SS and N-Anx fall into the range of low results. The other features, i.e. Agg-Host, Act. and Soc. are at the level of medium results. As far as the group of subjects with medium levels is concerned, all personality traits fall into the range of medium results.

Taekwondo competitors from both groups (medium and high levels of sports advancement) differ in the levels of personality traits under examination. As for the group at a high level of sports advancement, there are more people demonstrating low levels of Imp N-Anx and Agg-Host and high levels of Act. than in the group at a medium level of sports advancement.

A connection between Imp-SS, N-Anx and Agg-Host and levels of physical fitness was observed. Higher levels of Imp-SS, N-Anx and Agg-Host are connected with higher levels of physical fitness. In turn, higher levels of Act. are linked with lower levels of physical fitness. A connection between levels of sports advancement, technical skills, training experience and neuroticism was found. In competitors with longer training experience and higher levels of technical skills there occur lower levels of N-Anx, while in the case of Act. and Soc. it is the other way round.

Discussion

Obtaining the highest results in combat sports is currently impossible without a thorough multi-aspectual consideration of the achievements of contemporary science [28]. The process of developing sports advancement in combat sports is extremely complex and relatively long compared to other sports, particularly those with a simple structure of movements and a dominant role of one coordination ability, e.g. long-distance running or cycling. In combat sports, including taekwondo, apart from possessing utmost morphofunctional capabilities that are to a large extent genetically conditioned, versatile fitness preparation involving both conditioning and coordination aspects as well as adequate motivational, volitional and personality features is required. In the previous research concerning not only combat sports basic manifestations of a human personality were examined. These works [29-30] are convergent with the results of our research although some differ significantly [31-35]. However, it was difficult to define precisely their meaning for the achievement of high sports results and the connection with training experience and sports advancement. The majority of research Zuckerman [36, 37] confirms that people looking for experiences prefer activities and situations which are new and strongly stim-

ulating, connected with high risk as well as fulfilling hedonistic needs whether they are socially accepted or not. As far as looking for experiences is concerned, there are more alcoholics, drug addicts, criminals and psychopaths among people achieving high positions than among people holding low positions in this field. However, Craig Fisher [38] suggests a new course of research in sports personology. He criticises a factor model of personality research in sport and suggests an interactive model in which personality and environment are co-dependent since personality influences behaviour and behaviour influences personality, which is compliant with our course of research.

Conclusions

1. Both groups of taekwondo competitors (at a medium and high level of sports advancement) do not differ in a statistically significant way in the levels of physical fitness and

sports advancement. The level of physical fitness is linked with biological features of an organism, while the final sports result is also conditioned to a large extent by mental features of a competitor.

2. High levels of the aforementioned traits are not always conducive to achieving high sports results as in a sports competition high emotional tension brings about problems with concentration and movement precision and impedes making proper decisions from the viewpoint of tactics and strategy, thus rendering a competitor less effective in a sports fight.
3. Students who training combat sports characterising higher level of physical fitness and more stable of structure of personality than non training student. Systematic combat sport training prepare to pro health lifestyle and more effective work in the future.

References

1. Ulatowski T. Teoria sportu [In Polish] [Theory of Sport]. Warszawa: Trening; 1992.
2. Raczek J. Antropomotoryka [In Polish] [Antropomotorik]. PZWL; 2010.
3. Wilczewski A, Saczuk J, Wasiluk A, Litwiniuk A. Biological development and physical fitness the boys from north-eastern regions of Poland. *MedSportpress. Research Yearbook* 2006; 3(1): 127-30.
4. Litwiniuk A, Huk-Wieliczuk E, Cynarski WJ. Physical activity students of physical education on the background of other types of healthy. *Annales UMCS, Lublin, Sectio D Medicina*; 2004, LIX: 414-7.
5. Harasymowicz, J, Kalina RM. Training of psychomotor adaptation – a key factor in teaching self-defence. *Archives of Budo* 2006; 2: 25-32.
6. Sikorski W, Błach W. Judo for health. *Journal of Combat Sports and Martial Arts* 2010; 2: 123-4.
7. Zadarko E, Junger J, Barabas Z. Physical activity and health students from Carpathian Euroregion. PWSZ. Krosno: UR Rzeszów; 2010.
8. Claessens A, Beunen G, Lefevre J, Martens G, Wellens, R. Body Structure, Somatotype and Motor Fitness of Top-class Belgia Judoists and Karatekas: a comparative study. In: Reilly T, Watkins J, Borms J. London, Spon, *Kinanthropometry* 1986; III: 53-7.
9. Claessens A, Beunen G, Wellens R, Geldof, G. Somatotype and body structure of word top judoists. *The Journal of Sports Medicine and Physical Fitness* 1986; 27(1): 105-13.
10. Franchini E, Takito M, Bertuzzi RC. Morphological, physiological and technical variables in high-level college judoists. *Archives of Budo* 2005; 1: 1-7.
11. Jagiełło W, Kalina RM, Korobielnikow G. Morphological diversification of female judo athletes. *Archives of Budo* 2007; 3: 27-34.
12. Sterkowicz-Przybycień K. Age, training experience, the age of taking up training and morphological of top ju-jitsu contestants. *Archives of Budo* 2009; 5: 1-9.
13. Litwiniuk A, Cynarski WJ. Wybrane wskaźniki rozwoju i sprawności fizycznej osób trenujących judo i aikido [In Polish] [Chosen aspect of growth and physical fitness person training judo and aikido]. *Idō – Movement for Culture* 2006; 6: 176-80.
14. Litwiniuk A, Cynarski WJ, Kruszewski A. Coordination motor abilities vs. type of sport and sexual dimorphism. In: Sadowski J., Niżnikowski T. editors. *Coordination motor abilities in scientific research*. Biała Podlaska; 2008: 223-7.
15. Wąsik J. Performance of the twimyo nopi apchagi test. *Archives of Budo* 2006; 2: 15–8.
16. Wąsik J. Structure of movement of a turning technique used in the event of special techniques in Taekwon-do ITF. *Archives of Budo* 2009; 5: 111–5.
17. Wąsik J. The structure of the roundhouse kick on the example of a European Champion of taekwon-do. *Archives of Budo* 2010; 6: 211–6.
18. Wąsik J. Kinematics and Kinetics of Taekwon-do Side Kick. *Journal of Human Kinetics* 2011; 30: 13-20.
19. Nosanchuk TA, Lamarre B. Judo training and aggression: comment on Reynes and Lorant. *Percept. Mot. Skills* 2002; 94: 1057-8.
20. Morales-Negron H. Self-Efficacy and State Anxiety during Mandatory Combatives Training. *Archives of Budo* 2008; 4: 26-31.
21. Toros T. Training exercise performance questionnaire (TEPQ) – development study. A study on sportsmen from branches of Judo, Taekwondo, Karate *Archives of Budo* 2011; 11(2): 81-6.
22. Obmiński Z, Mroczkowska H, Kownacka I. State anxiety and perception of fatigue following rowing regatta. *Pol. J. Sports Med.* 2010; 26: 260-6.
23. Litwiniuk A, Daniluk A, Cynarski WJ, Jespersen E. Structure of personality of person training ju-jitsu and wrestling. *Archives of Budo* 2009; 5: 139-141.
24. Graczyk M, Hucinski T, Norkowski H, Pęczak-Graczyk A, Rozanowska A. The level of aggression syndrome and a type of practised combat sport. *Journal of Combat Sports and Martial Arts* 2010; 1(2): 1-14.
25. Rychta T. Osobowość a zachowanie celowe sportowców [In Polish] [Personality and intentional behavior of sportsman]. Warszawa; 1998.
26. Jarvis M. *Sport Psychology. A Student's Handbook*. Taylor & Francis; 2006.
27. Przewęda R, Dobosz J. Growth and physical fitness of Polish youth. *Studia i Monografie. J. Pilsudski Academy of Physical Education, Warsaw*; 2005. p. 103.
28. Kalina RM. Teoria sportów walki [In Polish] [Theory of combat sport]. Warszawa: COS; 2000.
29. Zuckerman M. Sensation Seeking: A comparative approach to a human trait. *Behavioral and Brain Sciences* 1984; 7: 413-71.
30. Sterkowicz S, Blecharz J, Sterkowicz-Przybycień K. Stress in sport situations experienced by people who practice karate. *Archives of Budo* 2012; 8(2): 65–77.
31. Schneider I. Poziom sportowy a wybrane cechy osobowości zawodników podnoszenia ciężarów W: Rychta T, red. *Osobowość a zachowanie celowe sportowców* [In Polish] In: Rychta T, editor. [Sport level and chosen class and feature of personality of weightlifting competitors]. Warszawa; 1998. p. 90-6.
32. Guszowska M. Wiek i poziom sportowy a cechy osobowości zawodników piłki ręcznej W: Rychta T, red. *Osobowość a zachowanie celowe* [In Polish] In: Rychta T, editor. [Age, sport level and feature of personality of handball competitors]. Warszawa; 1998. p. 77-89.
33. Rasle D, Coulomb G. Aggression in youth handball: Relationship between goal orientations and induced motivation context. *Social Behavior and Personality* 2003; 31 (1): 21-34.

34. Russell WG, Arms RL. False consensus effect physical aggression, anger and willingness to escalate a disturbance. *Aggressive Behavior* 1995; 2: 381-6.
35. Storch EA, Bagner DM, Bongilatti S, Werner NR, Storch JB. Psychosocial correlates of overt aggression in intercollegiate athletes 2005; 2 (1): 68-75.
36. Zuckerman M. In Sensation Seeking a Predisposing Trait for Alcoholism? In: Gotheil E, Druley KA, Pashkey S, Weinstein SP. editors. *Stress and Addiction*. New York: Brunner/Mazzel; 1987. p. 283-301.
37. Zuckerman M. Biotypes for Basic Personality Dimensions? "The Twilight Zone" Between Genotype and Social Phenotype. In: Strelau J, Angleitner A. editors. *Explorations in Temperament: International Perspectives on Theory and Measurement*. New York: Plenum Press; 1991. p. 129-46.
38. Fisher AC. New direction in sport personality research. In: Silva, RS, Weinberg C. *Psychological foundations of sport*. Human Kinetics; 1984. p. 70-80.

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