

# Basic psychic personality structure as a precondition for reaching endurance performance limits using triathlon as an example

Lenka Kovářová<sup>1</sup>, Kateřina Nováková<sup>1</sup>, Karel Kovář<sup>2</sup>, David Pánek<sup>3</sup>

<sup>1</sup> *Laboratory of Sport Motor Activities, Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic*

<sup>2</sup> *Department of Pedagogy, Psychology and Didactics of sport, Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic*

<sup>3</sup> *Department of Physiotherapy, Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic*

## ABSTRACT

*The aim of this paper was to explore the differences in the basic psychic personality structure between elite level and hobby triathletes. The total of 63 triathletes (44 men and 19 women) participated in the research. We used the SPARO personality questionnaire from the Diaros psychodiagnostic testing battery. The unpaired t - test was used for data analysis in SPSS. The results of this study confirmed some differences in the basic psychic personality structure between top performance and hobby male and female triathletes. Statistically significant differences in men ( $p \leq 0,05$ , or  $p \leq 0,01$  respectively) are mainly found in the dimension of integration, then in self-assertion ( $p \leq 0,05$ ) and correctiveness. In women, it is the dimension of normality ( $p \leq 0,05$ ) and also self-assertion ( $p \leq 0,1$ ); here, however, the relationship between the surveyed groups is reverse. There is a weaker tendency towards self-assertion among top performance female triathletes.*

## KEY WORDS

*personality structure, short triathlon, talent assesment, Diaros, SPARO*

## SOUHRN

*Cílem této práce bylo zjistit rozdíly v bazální psychické osobnostní struktuře mezi vrcholovými a výkonnostními triatlonisty. Výzkumu se zúčastnilo celkem 63 triatlonistů (44 mužů a 19 žen). Pro analýzu byl použit osobnostní dotazník SPARO z testovací baterie Diaros. Pro analýzu dat byl použit nepárový t - test a statistický software SPSS. Studie odhalila některé rozdíly v oblasti bazální psychické osobnostní struktuře mezi vrcholovými a hobby triatlonisty a triatlonistkami. Statisticky výzkumné rozdíly u mužů ( $p \leq 0,05$ , resp.  $p \leq 0,01$ ) nacházíme zejména v dimenzi integrovanosti, dále pak v oblasti sebeprosazování ( $p \leq 0,05$ ) a korektivnosti. U žen je to dimenze normality ( $p \leq 0,05$ ) a rovněž oblast sebeprosazování ( $p \leq 0,1$ ), zde je však vztah mezi sledovanými skupinami opačný. Reprezentantky mají menší tendenci se prosazovat.*

## KLÍČOVÁ SLOVA

*osobnostní struktura, krátký triatlon, výběr talentů, Diaros, SPARO*

## INTRODUCTION

The word talent in sport refers to an individual equipped with a set of inborn predispositions (morphological, physiological, motor, psychic and others) whose structure corresponds to the set of requirements for specific sports performances thus creating a complex

of preconditions necessary for the athlete's high-level performance in a given type of sports performance (Choutka & Dovalil, 1991). In the 1990's, physiological, psychological and social factors gradually started to be implemented to various extent in the trends of the identification of sports talent (Ko et al., 2003).

Triathlon is characterised by the combination of three sports (swimming, cycling, running) with extreme demands for the endurance and, at the same time, for perfect technical-tactical mastery of individual disciplines (Neumann, Pfützner, & Hottnerott, 2004). Triathlon practised on so-called Olympic (short) tracks is the combination of three endurance disciplines, swimming (1500 m), cycling (40 km) and running (10 km). Numerous sports enthusiasts consider triathlon not only a hobby, but an activity that principally moulds their life styles, thus creating, in a way, a special social group. Due to the necessary number of training hours and the time coordination of training in three different disciplines, triathlon must be integrated into everyday routine. Regular training sessions are considered an obvious and indispensable part of values accepted by triathletes affecting in a principal way their life priorities and behaviour. Conditions for training require the formation of a special social environment, as this activity may hardly be practised without the understanding or the same enthusiasm on the part of the people closest to them. Due to the fact that young triathletes embark on regular training at the age of around fifteen, the effect of this sport on their socialisation is often crucial (Kovářová, 2012).

Both sports and clinical psychologists have been engaged in the analysis of psychic predispositions for endurance sports for several decades. One of the pioneers investigating psychological predispositions in endurance performances in the Soviet Union in as early as the 1960's was e.g. Rudik (1961), who saw the basic predisposition in internal morality and willpower. He also studied attention performances of athletes at different levels where he identified the basic relationships between sports performance and attention. From selected later studies performed on multi-sport endurance athletes and endurance athletes in general (Hátlová, 2000; Nideffer, 1995; Nideffer, 2000; Nideffer & Bond, 1989; Weinberg & Gould, 2003 and others), it follows that one of the most important psychological preconditions for the maximum performance is the ability to focus attention. This psychic predisposition is also considered indispensable as it minimises the risks of injuries during training and in competitions (Morgan & Pollock, 1977; Nideffer, 1993). Therefore, the main focus of our previous study (Zemanová & Kovář, 2009) was the identification of the ability to focus attention. Based on a test profile composed of four tests oriented towards the evaluation of attention concentration (Jirásek's

Numeric Square (before and after performance), Numeric Rectangle, Bourdon's Test and Disjunctive Reaction Time II), we found out that the ability to focus attention was statistically significantly higher in the better performance level group of triathletes who performed better in all the used tests. The differences identified in all surveyed diagnostic tools were statistically significant (Jirásek's Test before performance  $t = -2.92$ ;  $p = 0,005$ ;  $\omega^2 = 0,14$ , Jirásek's Test after performance  $t = -2.98$ ;  $p = 0,004$ ;  $\omega^2 = 0,12$ , Numeric Rectangle  $t = 2.20$ ;  $p = 0,032$ ;  $\omega^2 = 0,06$ , Bourdon's Test  $t = 6.20$ ;  $p = 0,000$ ;  $\omega^2 = 0,40$ , Disjunctive Test  $t = 4.95$ ;  $p = 0,000$ ;  $\omega^2 = 0,29$ ). Kovářová (2012) further states that a triathlete should have a very low level of the nervous system's instability which will allow them to cope with psychologically demanding situations. Due to the nature of the competition and training, the tendency towards introversion is proving more beneficial. It, therefore, seems that endurance athletes present certain differences in their psychological characteristics.

A personality with its individually typical qualities is the product of the active interaction between a subject and social conditions of his/her existence. In a triathlete's personality, this primarily entails the interaction of such qualities which are significantly manifested and which participate in a sports activity (such as ambition, fighting spirit, willpower), particularly in the conditions of competitions and related unpredictable situations.

There are numerous definitions of a personality at hand, e.g. Watson (1924) defines a personality as the final product of our system of habits. In the classical definition by G. W. Allport (1937), a personality is understood as the internal dynamic organisation of psychophysical systems which determine the unique adjustments of an individual in his/her environment. Cattell (1965) defines a personality as that which determines the behaviour in a defined situation and in a defined setting. In psychology, a personality appears as a hypothetical construct, i.e. as a concept that expresses and explains the fact that mental life of humans shows some internal organisation, unity and dynamics which is outwardly demonstrated by behaviour and which functions, on the one hand, in relation to changes in the subject's organism, and, on the other hand, to changes in the subject's living environment (Nakonečný, 1997). The concept of a personality structure in psychology expresses the organisation of dispositions forming a personality, or the internal organisation of the whole mental life

of man. "By the structure we understand a subdivided and relatively self-contained disposition whole" (Krueger & Reckless, 1931). A similar definition was formulated by Tardy in 1965: "A personality structure is something dispositional, something that differently updates according to situations" (Nakonečný, 1997).

By standardizing the questionnaire analyzing the structure of personality in recent years engaged for example García, Escorial, García, Blanch & Aluja (2012). In other sports we find a description of personality structure such as karate (Litwiniuk, Sadowski, Wilczewski, & Saczuk (2007) or scuba diving (Coetzee, 2010).

The decisive aspect in a triathlete's personality is whether an individual is integrated around the values related to sports life, if the triathlete is oriented towards the competition atmosphere, a desire to compare with others or to win, if relationships, capabilities and targets for a sports activity have been created and to what extent an individual is able to manifest and enforce this orientation in competition conditions, i.e. in more critical situations, resist emotiogenous effects for a longer period of time.

A triathlete's personality develops during the career through the maturation of certain physical structures (such as agility, speed, power abilities and long-term endurance) and through the social learning process, i.e. through the effect of experience obtained primarily due to social interactions among opponents, colleagues, with the trainer. For a young contestant, the major aspect is mainly the effect of experience obtained during training sessions and competitions that leads to the fixation of certain qualities or to their changes.

The starting point for the identification of a personality structure is the analysis of predispositions and tendencies to cope with the types of situations which set specific demands for the psyche. The demands set for capabilities are, above all, demands for performance, problem situations, obstacles to reaching targets, conflict and stress situations. Of key importance are the abilities which decide about which situations are manageable for a person and which are beyond them. These are particularly the abilities to orient in a situation, psychic resistance, adaptation ability, ability to actively and creatively familiarize, decision-making ability in ambiguous situations, ability to regulate one's own internal and external activity. This description implies the four principal parts – components of the basic psychic integration that we are going to deal with, i.e. cognitive, emotional, regulatory and adjustment variability.

Cognitive variability applies to cognitive functions, the grasping and handling of a complex of situational variables. Marked variability is characterised by a tendency towards a change, towards high quantity, dynamics and variability of stimuli in their complex grasping and handling, while invariability is a trend towards more stable interactions with the environment, cognitively poor or with a low cognitive capacity for dynamic grasping and handling of situational variables.

Emotional variability applies to experiencing interactions with the environment and situational changes. Here, the dynamics of emotions and its consequences in the cognitive and behavioural area are assessed (particularly in terms of emotional and rational aspects in the subject's interaction with the environment, with conditions and circumstances of life and activity). On the plus pole there is high excitability, an inclination towards experiencing situational stress, tension and euphoria, while on the minus pole there is emotional stability, reduced emotionality (or even scarcity of experiences).

Regulatory variability applies to regulatory or rectifying functions of behavioural modality, self-regulation quality, self-directedness and control over activities. High variability is characterised by low self-control, low consideration of potential consequences of triggered off interaction activities, reduced self-regulation of behaviour, while invariability by continuous inclusion of a future potential effect in decision-making processes, activities, behaviour systems (so-called anticipation regulation of acts and behaviour).

Adjustment variability refers to familiarization with new conditions. High variability is characterized by a tendency to respond both to the inertness and the dynamics of the effects of situational variables by adjustment activities (either by effective familiarization with them or by using compliance principles). The opposite pole (inertness, invariability) can be described as adjustment rigidity: an individual manifests a tendency to invariably adhere to one's own approaches, activities, behaviour patterns (i.e. a tendency not to adapt themselves, but to adapt to themselves).

When assessing the personality structure we also deal with more basic scales of general variability: a general level of mental (internal) excitability, spontaneity, behaviourally manifested as an inclination to dynamic interactions associated with intensive psychic energization, or as high situational excitability (in the sense of "arousal"), and motor (or external) liveliness and its regulation. At high values, it is

manifested by a search for changes with minor regulatory restraints and high emotional and adjustment rigidity, while at minus values there is a tendency to search (situational as well as action) peace with high emotional arousal, regulation and adaptability (Mikšík, 2001).

The personality structure of triathletes and its differences between the sexes are described in the study by Kovářová, Marková & Panek (2013). Triathletes exhibit features of variant B, which describes a personality as an excitable or spontaneous type, characterized by internal psychic excitation (PE +). There is an inclination to dynamic interactions associated with intensive psychic energization, high situational arousal (Mikšík, 2001).

In men, features of variant D3 (with a coefficient - 0,21) are present. This is a self-assertive type with a tendency to seek and exploit suggested possibilities to satisfy aspirations, a desire for excellence and self-fulfilment by promoting their own “self”, while in women, on the contrary, features of variant B4 (with a coefficient - 0,21) appear. This is an unsteadily impulsive personality type, manifested - due to its low ability to grasp and adequately handle acting situational variables of more dynamic nature with strong emotional experiencing and inclination to an immediate release of tension - by a tendency to select shortcut escape schemes from situational pressures and confusing situations. Indications of manifested femininity are present (showing “womanhood”).

In men, significant cognitive variability KO + ( $p \leq 0,01$ ) is manifested, characterized by a tendency towards a change, high quantity, dynamics

and variability of stimuli in their complex grasping and handling, while, in women, on the contrary, there is significant ( $p \leq 0,01$ ) emotional variability EM + manifested as high excitability, a tendency towards experiencing situational stress, tension and euphoria.

## OBJECTIVE

The objective of the study was to find out whether there are differences in the personality structure between elite and hobby male and female triathletes and whether elite level triathletes share some common traits in their personality structure which distinguish them from lower performance triathletes and thus contribute to the identification of the predispositions for reaching endurance performance limits.

## METHODS

### RESEARCH SAMPLE

The total of 63 triathletes (44 men and 19 women) participated in the survey, of them 23 athletes (16 men and 7 women) of the hobby level and 40 elite athletes, national representatives (28 men and 12 women) aged 21 – 39 years. The condition for inclusion in the group of hobby triathletes was participation in a competition on a district level in triathlon, while the condition for inclusion in the elite athletes group was the nomination to represent the Czech Republic in triathlon and related participation in competitions of the European Cup, the European Championship or the World Championship series (Table 1).

Table 1 Basic characteristics of the surveyed group

Groups by performance	Number	Men	Women	Classification criteria
A hobby	23	16	7	Participation in TT competitions at district level
B elite athletes	40	28	12	Front position in Czech Cup, Czech representation, participation in EC, ECH, WCH series competitions
Total	63	44	19	

## USED TOOLS

The analysis of the personality structure was made using the standardized SPARO questionnaire (Mikšík, 2004), which is part of the Diaros diagnostic testing battery. Statistical processing was performed using the Diaros computer programme,

where the mean average, the standard deviation and the t-test of the significance of the differences of the mean average values between the analysed groups is computed for each individual scale. The following indicators were identified in the analysis (Table 2).

Table 2 The list of variables analysed in the personality structure according to SPARO

<b>Principal components of basic psychic integration</b>	
KO: cognitive variability (refers to cognitive functions, grasping and handling a complex of situational variables).	
KO+ tendency towards a change, towards high quantity, dynamics and variability of stimuli in their complex grasping and handling	KO- trend towards interactions with a more stable environment, cognitively poorer or with a low cognitive capacity for dynamic grasping and handling of situational variables
EM: emotional variability (refers to experiencing interactions with the environment and situational changes).	
EM+ high excitability, inclination towards experiencing situational stress, tension and euphoria	EM – emotional stability, reduced emotionality (or even scarcity of experiences)
RE: regulatory variability (refers to regulatory or rectifying functions of behavioural modality, self-regulation quality, self-directedness and control over activities).	
RE+ typically low self control, low consideration or potential consequences of triggered off interaction activities, reduced self-regulation of behaviour	RE – continuous inclusion of a potential future effect in decision-making processes, in activities, behaviour systems (so-called anticipation regulation of acts and behaviour)
AD: adjustment variability (refers to familiarization with new conditions and circumstances of life and activity).	
AD+ tendency to respond to both inertness and dynamics of the effect of situational variables by adjustment activities (either by efficient familiarization or by using compliance principles)	AD- inertness, invariability – adjustment rigidity, an individual shows a tendency to invariably adhere to their own approaches, activities, behaviour patterns (i.e. tendency not to adapt themselves but to adapt to themselves).
<b>More basic scales of general variability</b>	
PE: general level of psychic (internal) excitability, spontaneity: internal agility, dynamics, energization.	
PE+ tendency to incline to dynamic interactions connected with intensive psychic energization, or high situational excitability	PE- low situational excitability
ML: motor (external) liveliness and its regulation	
ML+ searching for changes with low regulatory restraints and high emotional and adjustment rigidity	ML – tendency to search for (situational and action) peace with high emotional excitability, regulation and adaptability

The combination of individual components listed above produces the characteristics of four basic personality profiles labelled as:

- Variant A: calm (composed) type, characterised by lower psychic excitability (PE-). It combines emotional stability (EM-) with regulation (RE-).
- Variant B: excitable or spontaneous type characterised by internal psychic excitability (PE+). It is based on the combination of high emotional energization (EM+) with non-regulation, spontaneous situational reagency (RE+). All modifica-

tions may be characterised as some antitheses of modifications of variant A.

- Variant C: is described as an experiencing or subdued type characterised by reduced motor liveliness, response (ML-). The most typical common feature is the combination of high emotional sensitivity (variability = EM+) with anticipation regulation of behaviour or hindered action response in general (RE-).
- Variant D: is described as a reactive (or dynamic) type of a given personality structure (with motor liveliness coming to the forefront = ML+), it is a

sort of antithesis to variant C. It is based on the combination of emotional stability (or low emotional excitability = EM-) with non-regulation (motor liveliness, immediate action response to arising or acting situational variables = RE+).

A deeper insight into the basic personality self-regulation specificities may be obtained by applying other tested personality traits integrated into more general 7 dimensions: personality normality, optimum stimulation level, individual tendency to risk,

efficient personality integration, interpersonal links and relations, internal correction, regulation of interactions and self-assertion).

## RESULTS

Table 3 presents taxometric coefficients for the group of hobby and elite male and female triathletes. Table 4 presents the results by individual variables (components, factors) in the personality structure of athletes, and Table 5 successively gives the results by individual personality traits integrated into seven dimensions.

Table 3 Taxometric coefficients of male and female triathletes

Men elite	A1 - B4	A2 - <b>B3</b>	A3 - B3	A4 - B1	C1 - D4	C2 - <b>D3</b>	C3 - D2	C4 - D1
	0,00	<b>-0,21</b>	0,08	-0,12	0,00	<b>-0,20</b>	0,09	-0,12
Men hobby	A1 - B4	A2 - <b>B3</b>	A3 - B3	A4 - B1	C1 - D4	C2 - D3	<b>C3 - D2</b>	C4 - D1
	-0,16	<b>-0,37</b>	0,11	-0,10	-0,01	-0,22	<b>0,26</b>	0,05
Women Elite	A1 - <b>B4</b>	A2 - <b>B3</b>	A3 - B3	A4 - B1	C1 - D4	C2 - <b>D3</b>	C3 - D2	C4 - D1
	<b>-0,27</b>	<b>-0,33</b>	-0,09	-0,15	-0,02	-0,07	0,16	0,10
Women	A1 - <b>B4</b>	A2 - B3	A3 - B3	A4 - B1	C1 - D4	C2 - D3	C3 - D2	C4 - D1
	<b>-0,11</b>	-0,06	0,02	0,08	-0,01	0,04	0,12	0,18

Note: Statistically significant differences between surveyed groups are printed in bold

bold: statistically significant difference (0,1)

\* statistically significant difference (0,05)

\*\* statistically significant difference (0,01)

Table 4 Components and factors in the personality structure of athletes

Scale	TT elite men		TT hobby men		t - test	TT elite women		TT hobby women		t - test
	M	SD	M	SD		M	SD	M	SD	
COMPONENTS										
KO	12,8	3,5	12,9	3,3	-0,1	11,1	3,5	9,7	3,3	0,8
EM	5,2	3,8	7,1	4,9	<b>-1,4</b>	9,9	3,9	7,7	2,8	<b>1,2</b>
RE	7,3	3,8	7,2	3,3	0,1	7,8	3,6	5,7	4,2	<b>1,1</b>
AD	13,9	2,8	12,4	3,4	<b>1,5</b>	12,7	3,0	13,0	2,7	-0,2
FACTORS										
PE	6,1	2,9	5,8	3,3	0,3	5,8	3,1	4,4	1,9	1,0
ML	7,7	2,8	7,7	2,2	0,0	5,8	2,1	7,0	1,5	<b>-1,3</b>

Note: Statistically significant differences between surveyed groups are printed in bold

bold: statistically significant difference (0,1)

\* statistically significant difference (0,05)

\*\* statistically significant difference (0,01)

Table 5 Results of individual personality traits integrated into seven dimensions

Scale	TT elite men		TT hobby men		t - test	TT elite women		TT hobby women		t - test
	M	SD	M	SD		M	SD	M	SD	
NORMALITY										
TO	5,3	2,0	5,9	2,2	-0,8	6,7	2,4	4,0	2,5	<b>2,3*</b>
PI	12,7	3,5	11,2	4,5	<b>1,2</b>	7,9	4,2	10,4	2,5	<b>-1,4</b>
AN	0,7	2,4	1,8	2,7	-1,3	2,0	2,2	1,8	2,3	0,1
EX	4,0	2,3	3,9	2,0	0,0	4,8	1,3	4,7	1,6	0,2
STIMULATION										
SI	9,5	3,3	10,4	3,2	-0,9	9,6	2,5	8,9	3,3	0,5
IE	9,5	3,6	9,4	4,1	0,0	9,5	3,7	8	3,3	0,8
MR	12,3	3,8	12,0	2,8	0,3	9,2	3,9	8,7	2,6	0,3
DI	9,6	2,8	9,8	2,9	-0,2	9,3	2,8	8,4	4,0	0,6
SD	8,7	3,0	8,2	3,2	0,5	7,9	3,5	7,0	2,7	-0,6
GS	11,8	3,3	11,8	3,7	0,0	11,7	3,8	12,6	3,8	-0,5
RISKS										
AS	11,0	2,5	10,4	2,6	0,8	9,8	3,5	8,4	2,2	0,9
AC	10,0	3,2	11,3	2,6	-1,3	9,3	3,2	10,1	4,2	-0,4
TC	7,5	4,7	5,8	3,0	1,3	6,7	3,7	6,0	3,8	0,4
SE	12,2	3,4	10,4	3,8	1,6	10,8	4,7	9,0	3,3	0,8
GR	6,6	2,8	5,9	2,1	0,8	4,8	3,2	5,0	3,1	-0,2
INTEGRATION										
AX	7,3	4,1	8,3	3,1	-0,9	11,9	4,8	9,9	2,1	0,1
ET	7,0	3,5	8,7	3,8	-1,5	10,4	3,4	8,7	2,4	1,1
EI	14,1	3,2	11,4	4,2	2,3*	12,4	2,8	11,1	5,0	0,7
RD	15,1	2,1	12,4	2,5	3,8**	13,4	3,7	13,0	3,6	0,2
PI	15,3	3,0	12,7	3,8	2,4*	11,8	3,1	12,7	2,9	0,6
RELATIONS										
CT	7,1	4,0	6,3	2,8	0,8	5,8	4,1	3,4	2,3	1,3
BE	9,3	1,7	8,7	2,1	1,0	8,9	2,2	9,1	1,1	0,2
CN	9,4	3,3	9,4	3,7	0,0	10,3	3,6	9,0	2,9	0,8
IN	11,6	2,0	10,9	3,5	0,8	11,4	2,6	10,3	3,4	0,8
CORRECTIVENESS										
RF	12,6	3,1	10,6	2,8	2,1	10,4	3,1	11,4	2,2	-0,6
FR	11,8	3,3	11,8	3,7	0,0	11,7	3,8	12,6	3,8	-0,5
ES	9,0	3,3	10,2	2,9	-1,2	12,2	3,2	13,3	2,8	-0,7
FS	8,9	2,6	7,9	2,7	1,1	8,8	3,4	7,4	2,7	0,8
CI	4,8	2,6	6,4	2,9	-1,9	6,1	2,8	5,6	2,2	0,4
SELF-ASSERTION										
US	14,5	3,1	12,9	3,9	1,5	11,1	3,0	12,7	4,0	-1,0
MO	10,0	2,3	8,8	2,2	1,7	7,3	2,5	8,3	2,8	-0,8

Scale	TT elite men		TT hobby men		t - test	TT elite women		TT hobby women		t - test
	M	SD	M	SD		M	SD	M	SD	
ER	12,9	3,0	11,9	2,0	1,2	8,2	3,9	11,0	2,2	-1,7
IS	10,9	2,2	8,9	2,6	2,6*	10,3	2,5	8,6	2,1	1,4
FM	13,2	3,2	12,1	3,3	1,1	8,3	3,1	9,9	2,3	-1,1

Note: Statistically significant differences between surveyed groups are printed in bold

bold: statistically significant difference (0,1)

\* statistically significant difference (0,05)

\*\* statistically significant difference (0,01)

Legend: TO – Touchiness, suspiciousness; PI – Psychic instability; AN – Personality anomaly; EX – extremity; SI – Sensory impression; IE – Intensity of inner experiencing (self-stimulation); MR – Motion restlessness; DI – Dynamic interaction with the environment; SD – Social disinhibition; GS – General stimulation level; AS – Aspiration level; AC – Anticipation level; TC – Tendency to rely on chance; SE – Social exhibitionism; GR – General acceptance (or rejection) level of risky activities; AX – Anxiety; ET – Emotionality; EI – Efficient intellectual capacity; RD – Resistance level to disturbing stimuli; PI – Dimension of efficient personality integration; CT – Reservedness versus contactiveness; BE – Benevolence level; CN – Conformity; IN – Tendency towards independence; RF – Rigidity versus flexibility; FR – Frivolity versus responsibility; ES – Exuberance versus being settled down; FS – Frustration versus self-directedness; CI – Correctness versus impulsiveness; US – Suppressed versus high self-confidence; MO – Melancholy versus optimism; ER – Experiencing versus reactive approach to reality of life; IS – Inconspicuousness versus self-assertion; FM – Feminine versus masculine type of interaction

#### COMPARISON OF PERSONALITY STRUCTURE OF TRIATHLETES (ELITE X HOBBY)

Triathletes commonly incline towards variant B3 i.e. an excitable, or situationally disinhibited type involving searching, experiencing and an immediate interaction response to situational dynamics with a dominating trend towards the enforcement of one's updated approaches and motivation. Besides, elite triathletes show ( $p \leq 0,1$ ) features of variant D3 of the self-assertive type where the high level of cognitive variability (KO+) in this combination acts in the direction of a tendency to seek and exploit suggested possibilities to satisfy aspirations, a desire for excellence and self-fulfilment by promoting their own "self". On the contrary, hobby triathletes incline ( $p \leq 0,1$ ) towards variant C3, which is an anxious type. Some differences ( $p \leq 0,1$ ) may be found in the emotional component referring to experiencing interactions with the environment and situational changes. Elite triathletes are emotionally more stable than hobby triathletes, who rather manifest the prevalence of higher excitability and situational stress.

Elite athletes are also more able to respond to both the inertness and the dynamics of the effect of situational variables through adjustment activities. They are able to more efficiently familiarize with new situations, contrary to more steady approaches identified in the group of hobby triathletes. This is confirmed by the AD component and also by PI and AN features.

In risky situations, the group of elite triathletes, as compared to hobby triathletes, is more capable ( $p \leq 0,1$ ) of seeking and solving activities connected with

the hazard of a failure or undesirable losses, it shows a greater tendency towards risky choices or even reliance on chance, which is manifested mainly in risky situations of "hope" (scale AC, TC, SE).

There are noticeable differences in the integration dimension: elite athletes experience more intensively, they are more sensitive to situations, this intensity and dynamics are typical of experiencing joy and sorrow, fear and anger, love and hatred. They also possess a higher efficient intellectual capacity, adequate decision-making processes and interaction activities under emotionally critical as well as non-critical conditions ( $p \leq 0,05$ ). A high difference is manifested at the level of resistance to disturbing stimuli ( $p \leq 0,01$ ).

Elite triathletes better ( $p \leq 0,1$ ) implement previously accepted target behaviour and behavioural structures on a subjectively characteristic integrated level under newly arising emotiogenous circumstances. They are more resistant – more immune to updated threats of potential consequences of continuing their target activity. In this respect, they show higher willpower qualities. In contrast, hobby triathletes rather incline to low self-control and self-regulation. The level of benevolence and tolerance is slightly higher among professionals and elite triathletes. They are able to better understand and sympathize with others. Hobby triathletes show less ability to adapt, they cling to their personal attitudes and opinions. They are also more cautious or even conservative. The group of elite triathletes is slightly more focused, more motivated. They more actively familiarize with real-life situations with a principled and decisive approach to the regula-

tion of interaction activities, their behaviour is more self-controlled (scale RF, ES, FS, CI).

Noticeable differences between the two groups may also be found in the dimension of self-assertion. Elite athletes have a higher confidence in their power and abilities, showing feelings of self-sufficiency, coping with difficulties which they encounter in life. Generally, they are subject to greater situational optimism, zest for life, the prevailing state of contentment and overall life satisfaction. They usually have a higher tendency to deal with arising situations, are characterized by a more active approach to activities. Compared to hobby triathletes, they have greater self-consciousness, self-assertion, greater ambition, aspiration and personal prestige ( $p \leq 0,05$ ). In interaction, they assert themselves by greater manifested masculinity (preferring the “male role”).

#### **COMPARISON OF PERSONALITY STRUCTURE OF FEMALE TRIATHELETES (ELITE X HOBBY)**

Comparing the differences between female triathletes fewer differences are found than in men. Female triathletes commonly incline towards variant B4 i.e. unsteadily impulsive personality type, which due to its low ability to grasp and adequately handle acting situational variables of more dynamic nature with strong emotional experiencing and inclination to an immediate release of tension is manifested by a tendency to select shortcut escape schemes from situational pressures and confusing situations. Elite athletes also exhibit features of variant B3 ( $p \leq 0,1$ ), which is a quick-tempered or situationally disinhibited type characterised by searching, experiencing and an immediate interaction response to situational dynamics with the dominating trend of promoting one's own updated approaches and motivation. In women practising triathlon at a hobby level, we can also find features of variants C3 and C4, which describe an anxious type (where cognitive dynamics (KO +) results in the perception of various aspects, contexts and their potential impacts and implications, the orientation of a change and their thinking through leading even to anticipation tensions and confabulations), and a depressive type (inclined rather to a more stable living environment and showing less ability to grasp all situational variables and adequately handle them (KO), which opens more space to the tendency towards depressive experiences and approaches).

Like in men, noticeable differences ( $p \leq 0,1$ ) may also be seen in the emotional component referring to the experiencing of interactions with the environment and situational changes. On the contrary, however, elite female triathletes are emotionally more unstab-

le (PI) than hobby athletes. Higher excitability and situational stress also prevails in them.

Elite female athletes are characterised by greater touchiness, suspiciousness ( $p \leq 0,05$ ) as well. Also, they manifest a slightly higher ( $p \leq 0,1$ ) intensity of experiences and a higher situational sensitivity than hobby female triathletes (ET). In the dimension of relations, there appears ( $p \leq 0,1$ ) easier, faster and more flexible searching, establishing and breaking contacts with other people (CT).

Like in men, there are noticeable differences in the dimension of self-assertion. Surprisingly, however, hobby female triathletes are characterised by higher self-feeling and by the enforcement of greater manifested masculinity (preferring the “male role”) than elite female athletes.

The latter, on the contrary, together with men, show greater ambition, aspiration and personal prestige ( $p \leq 0,1$ ).

#### **DISCUSSION**

The triathlete's personality structure shows substantially more statistically significant differences against general population (Kovářová, Marková & Pánek, 2013) than are the differences identified between the groups of elite and hobby male and female triathletes analysed in this study.

It is, therefore, apparent that the triathlete's personality structure is in its numerous aspects independent of their performance level; at the same time, however, we would like to point out the very differences which were identified between the groups and were statistically significant ( $p \leq 0,05$ ).

Analysing the personality structure of male triathletes noticeable differences are identified in the integration dimension: elite athletes experience more intensively, they are more situational sensitive. The question remains whether this is an advantage rather than a disadvantage. The issues of coping with pre-start states, the acceptance of defeat or the psychic reaction to e.g. an injury or illness may make such states even more complicated.

This dimension is apparently compensated by the possession of a higher efficient intellectual capacity, adequate decision-making processes and interaction activities under emotionally critical as well as non-critical conditions ( $p \leq 0,05$ ), which contributes to the possibility of a rational explanation of the athlete's emotional states and reactions.

A high difference is manifested in the area of resistance to disturbing stimuli ( $p \leq 0,01$ ). Here, however, these features may act counterproductively. Nideffer (2000) revealed that the most probable cause of mis-

takes made by athletes manifesting long-term high performance is their excessive concentration and being wrapped up in themselves; this affects them more likely than the effects of external factors or internal overload. He adds saying that a high ability of self-perception and self-reflection causes greater realisation of their own hesitation during the top performance, which in its consequence deepens it even more.

Unlike hobby triathletes, elite triathletes are characterised by greater self-feeling, self-assertion, greater ambition, aspiration and personal prestige ( $p \leq 0,05$ ), which does not confirm the results of the study by Hátlová (2000), who found higher values of the submission trend in elite triathletes. She, however, adds that the fulfilment of required demands rather implies the willingness of cooperation, which does not stem from the tendency to submit, but from one's own decision.

Contrary to the results of the study by Hátlová (2000), the differences in anxious experiencing in men and women who had managed to succeed in an international competition were not confirmed in our study either.

Evaluating the differences between the personality structure of elite and hobby female triathletes we identified differences on the normality scale. Elite athletes suffer from higher touchiness and suspiciousness ( $p \leq 0,05$ ). They also manifest a somewhat greater ( $p \leq 0,1$ ) intensity of experiences and higher situational sensitivity than hobby female triathletes (ET). The differences between the sexes in this respect are also pointed out by Nideffer, (1989). He claims that unlike men, women make mistakes due to their excessive interest in external stimuli (what the opponents are doing). Many trainers in his research also confirmed that the future result is substantially more difficult to estimate from the behaviour of women than of men. They add saying that in the case of the occurrence of any problem during the competition, men are more able to find the right way

out. The underlying cause of this difference may be hormonal differences between the sexes and hormonal changes during the menstrual cycle in women when women show increased emotionality and distracted attention mainly in the premenstrual phase.

## CONCLUSION

The study revealed some differences in the basic psychic personality structure between elite and hobby male and female triathletes. Statistically significant differences in men ( $p \leq 0,05$ , or  $p \leq 0,01$  respectively) are primarily found in the dimension of integration, then in self-assertion ( $p \leq 0,05$ ) and correctness. Differences in women were identified in the dimension of normality ( $p \leq 0,05$ ) and also in self-assertion ( $p \leq 0,1$ ), where, however, the relation between the surveyed groups is reverse.

The inclinations towards self-assertion, greater ambition, aspiration and personal prestige, together with the predisposition for a higher efficient intellectual capacity, adequate decision-making processes and interaction activities are considered excellent preconditions for long-term top endurance performance allowing the athlete to resist, in a long term, unfavourable effects that may occur both during the training process and in a competition. The personality structure of a female triathlete seems more complicated in terms of the predispositions for reaching the performance limit.

At the same time, it must be mentioned that this small sample of triathletes may only sporadically reflect the connection between success in triathlon and the personality structure.

## ACKNOWLEDGEMENTS

This article was written with support from the grant project GAČR 13-07776P, VZ MSM 0021620864 and in the framework of the scientific branch development programme UK FTVS n. 39 Social-Sciences Aspects of Human Movement Studies.

---

## REFERENCES

1. Allport, G. W. (1937). *Personality: A psychological interpretation*. New York: Holt.
2. Cattell, R., B. (1965). *The general relations of changes in personality and interest to changes in school performance*. Champaign, IL: Laboratory of Personality Assessment and Group Behavior; Dept. of Psychology, University of Illinois.
3. García, L. F., Escorial, S., García, Ó., Blanch, A., & Aluja, A. (2012). Structural Analysis of the Facets and Domains of the Zuckerman–Kuhlman–Aluja Personality Questionnaire (ZKA–PQ) and the NEO PI–R. *Journal Of Personality Assessment*, 94(2), 156-163.
4. Choutka, M., & Dovalil, J. (1991). *Sportovní trénink*. Praha: Olympia.

5. Coetzee, N. N. (2010). Personality profiles of recreational scuba divers. *African Journal For Physical, Health Education, Recreation & Dance*, 16(4), 568-579.
6. Hátlová, B. (2000). *Zpráva ze vstupního psychologického vyšetření triatlonistů za období 1997–2000*. Praha: UK FTVS.
7. Ko, B.G., Gu, H.M., Park, D. H, Back, J.H., Yun, S.W., Lee, M.CH., Lee, J.G., Chang, D.S., & Shin, S.Y. (2003). The Construction of Sports Talent Identification Model. *International Journal of Applied Sports Sciences* 15(2), 64 – 84.
8. Kovářová, L. (2012). *K identifikaci předpokladů v triatlonu*. Praha: Karolinum.
9. Kovářová, L., Marková, K., & Pánek, D. (2013). Osobnostní předpoklady pro dosažení limitního vytrvalostního výkonu na příkladu triatlonu. *Česká kinantropologie*, 17(4).
10. Krueger, E. T. & Reckless, W. C. (1931). *Social psychology*. Longmans' social science series. New York, NY, US: Longmans.
11. Litwiniuk, A., Sadowski, J., Wilczewski, A., & Saczuk, J. (2007). Motoric and Personality Variables of Karate Competitors. *Research Yearbook*, 13(1), 135-138.
12. Mikšík O. (2001). *Psychologická charakteristika osobností*. Praha: Karolinum
13. Mikšík O. (2004). *Dotazník SPARO, Příručka. Manuál pro ruční zpracování a hodnocení dat*. Praha: Psychodiagnostika.
14. Morgan, W. P., & Pollock, M. C. (1977). Psychological characterization of the elite distance runner. *Annals of the New York Academy of Science*, 301, 382–405.
15. Nakonečný M. (1997). *Encyklopedie obecné psychologie*. Praha: Academie.
16. Neumann, G., Pfützner, A., & Hottnerott, K. (2004). *Das grosse Buch vom Triathlon*. Aachen: Meyer and Meyer Vellag.
17. Nideffer, R. M. (1993). Concentration and attention control training. In Williams, J., *Applied sport psychology* (pp. 243-262). Palo Alto: Mayfield.
18. Nideffer, R. M. & Bond, J. A. (1989). *A Cross Cultural Examination of the Concentration Skills of Elite Level Athletes*. Retrieved 24. 10., 2009, from Enhanced Performance Systems: [www.epstais.com/articles/aussie.php](http://www.epstais.com/articles/aussie.php).
19. Nideffer, R. M. (1995). *Test of Attentional and Interpersonal Style - Revised*. New Berlin, WI: Assessment Systems International.
20. Nideffer, R. M. (2000). *Building A Psychological Profile of Olympic Medalists and World Champions*. Retrieved 24. 10., 2009, from Enhanced Performance Systems: <http://www.epstais.com/articles/building.php>.
21. Rudik, P. A. (1961). *Psychologičeskaja podgotovka sportsmena*. Moskva: Fizkul'tura i sport.
22. Watson, J., B. (1924). *Behavioris*. New York: People's Institute.
23. Weinberg, R. S., & Gould, D. (2003). *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics.
24. Zemanová, L., & Kovář, K. (2009). Koncentrace pozornosti jako předpoklad výkonu v triatlonu. *Česká kinantropologie*, 13(3), 75 - 85.

**CONTACT:**

Mgr. Lenka Kovářová, Ph.D., MBA  
 FTVS UK, José Martího 31, 162 52 Praha 6  
 E-mail: [lkovarova@ftvs.cuni.cz](mailto:lkovarova@ftvs.cuni.cz)