

# THE ROLE PLAYED BY PSYCHODIAGNOSIS AND PSYCHOLOGICAL TRAINING IN PROFESSIONAL SPORTS

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**Abstract:** *The activity of professional athletes involves many intercorrelated aspects, which, when covered, lead to performances of a certain level, according to the athletes' function and experience. From the physical training and maintaining it to functional parameters, to the strategic and tactical training, then the psychological training and up to the participation in competitions - all of these involve a permanent effort, from the coaches and especially from the athletes.*

**Key words:** *personality profile, psychological training, self-esteem, locus of control, self-efficacy, centering on negative emotions.*

## 1. Introduction

Practicing a professional sport at a top level involves the identification and cultivation of skills in a certain field of physical and/or mental activities, the permanent motivation for developing strategies and techniques involved in the practice of a sport, the training of these strategies and techniques, but especially the psychological training, which ensures one of the key resources, for the general training and especially for the participation in competitions. Considering the high stakes of the competitions (especially for more experienced athletes), they represent a permanent demand for the athletes that, through its intrinsic nature, involves giving

the athletes all the skills required for adaptation. Both the success and the failure are stimuli for the athletes' emotions and motivation, because they make them continuously adjust their goals and expectations in order for them to keep and/or increase the quality of their performances or to correct the deficiencies that have led to failure.

Physical training and sports specialists [9] have emphasized multiple times the importance of maintaining the psychological training or of accelerating it, according to what the athletes have learned, as well to the stakes of the sports competitions.

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## 2. The purpose

The purpose of this research and practical intervention consists in *the diagnosis of the individual characteristics of the professional athletes competing for the Iaşi Politehnica Club, characteristics that constitute potential resources for personal and professional change and development, completed through a training program that aimed to make the athletes in the target group more aware of their own psycho-emotional resources, their self-image, providing them with the skills involved in the control of dysfunctional thoughts and emotions caused by the confrontation and competition anxiety.*

*The objectives* of the research envisaged:

- the knowledge of the dispositional particularities of the athletes' personalities in the target group in order to anticipate the course of their involvement in the activities of the training program and the individual resources that could be used;

- the identification of the problems that the athletes in the target group deal with and the training needs that are born from them and that have traced the psychological domains on which it was insisted during the psychological training program;

- the operational definition of the variables corresponding to the domains, special attention being granted to their differentiation from a conceptual point of view, in order to know what exactly one needs to measure;

- the identification of certain instruments to measure the needed variables, with psychometric qualities recognized among the experts, practitioners and academics;

- the identification of the structured activities founded on a conceptual and working model that is coherent and relevant for the purpose of personal development of professional athletes;

- conducting the training;

- the systematization of the results in order to estimate, quantitatively and qualitatively the impact of the psychological training program.

## 3. Working Hypotheses

It was expected that at the end of the psychological training program the professional athletes would record:

- *significantly higher scores for the style of adaptation to stressful situations, implying an active confrontation with them, compared to the scores recorded before the program;*

- *significantly lower scores for the adaptation styles that involve centering on negative emotions, avoiding confrontation with stressful situations, compared to the scores recorded before the program;*

- *significantly higher scores in regards to perceived self-efficacy, compared compared to the scores recorded before the program;*

- *significantly lower scores in regards to locus of control (externalism), which is an equivalent to a predominant orientation toward internalism;*

- *significantly higher scores for the overall self-esteem, compared to the scores recorded before the program.*

## 4. Material and Methods

*Characteristics of the Professional Athletes Participating in the Study and in the Psychological Training Program*

For the quantitative investigation and the psychological training intervention, 88 athletes were approached, competing for the Iași Politehnica Club.

The age of the subjects in the pre-training stage was between 18 and 34 ( $m = 21.26$  years old;  $s = 3.23$ ), half of them with ages equal to or smaller than 20. Thirty-seven of the professional athletes were practicing an individual sport, while 51 - a team sport. In regards to their level of education, the situation was the following: vocational school - 1, high-school (graduated or just finished) - 61, post-high school studies - 4, university - 22.

#### **4.1. Operational Definitions of the Variables**

The individual characteristics of the athletes in the target group, who constituted the object of the measurements conducted before, immediately after, and three months after the psychological training, envisaged: a) the cognitive domain - perceived self-efficacy, locus of control, and self-esteem; b) the emotional domain - centering on negative emotions when confronting stressful situations; c) behavioral domain - orientation toward active confrontation with stressful situation and avoidance, as a stress management strategy; d) the cognitive, emotional, and behavioral domains, condensed into five personality traits - energy (extroversion), friendliness (agreeableness), emotional stability, conscientiousness, and openness.

The first three domains were measured three times (pre-, post-training, and three months after the program has ended), while the dispositional personality traits were measured once, before the training, starting from the premise that they can offer extra information about the resources

of the athletes in the target group that can be used during activities.

The variables covered by this research were: *self-efficacy perceived* (Bandura, 1977), *locus of control* [13], *self-esteem* (M. Rosenberg cf. Chelcea, 2008. S. Coopersmith 1984), *centering on negative emotions when confronting stressful situations* (8); Rășcanu, 2001) and *personality traits*, according to the questionnaire Alter-Ego [2]. The questionnaire allows the measurement of five personality traits: Energy, Friendliness, Conscientiousness, Emotional Stability, and Openness, each of them being described by two sub-scales.

#### **4.2. The Standardized Tests Used to Measure the Variables:**

- *the Big Five Questionnaire* [2];
- *the Coping Inventory fo Stressful Situations* (CISS; [8]);
- *the Nowicki-Strickland Locus of Control Scale* [4];
- *the Self-Efficacy Scale* (the scale was taken from Corcoran & Fischer, 1987);
- *the Rosenberg Self-Esteem Scale* (RSES- the translated Romanian version of the scale can be found in [10].

### **5. Results**

#### **5.1. The Personality Profile of the Athletes Participating in the Psychological Training Program**

One of the objectives of the preliminary investigations on the professional athletes, in order to prepare them for the psychological training program was getting to know the dispositional particularities of their personality (traits), starting from the

premise that they can constitute useful resources for the following intervention.

To establish their personality traits, the Big Five Questionnaire was used. The results are presented as the personality traits, showing that the subjects tended to record lower scores ( $m = 76.20$ ) for *Energy*, referring to the dynamic aspect of interpersonal relationships and social and personal activities of the athletes (rhythm of activities, enthusiastic attitude, activism in social relationships, easiness in establishing interpersonal contacts, etc.), as well as their orientation toward dominance in interpersonal relationships (tendency to impose their point of view without hurting the other people's interests, rights and image, the ability to influence the conduct of other people, orientation toward equitable competition, generating resources for personal development). It must be said that in other models of conceptualization and evaluation of personality based on the five personality traits, the trait *Energy* is called *Extroversion*, synthesizing multiple abilities interconnected and relevant for the functioning of the human being socially. Especially in the case of team sports that involve tactical and strategic cooperation (football, volleyball, handball), dominance and dynamism, as well as the energy tone of the involvement in the competition tasks constitute key resources for success. For example, a team leader focused on the cultivation of positive interpersonal relationships, stimulating cooperation and activity in the team members, as well as motivation for sustained effort, will have more chances to lead his or her team toward notable results, in comparison to a conflictual leader.

Also, the subjects have manifested the tendency to record moderate to low scores

( $m = 78.66$ ) for *Openness*, which includes traits referring to one's desire to be informed about various fields, to gain general knowledge, to direct oneself toward the identification of opportunities for varied experiences and for challenges that would open one's horizon cognitively and emotionally. The result is justified by the nature of the investigated population, in the sense that the athletes tend to be motivated by practical activities, based on concrete goals, directed toward top performance in a certain sport, and less toward intellectual activities, this without excluding necessarily the motivation to get informed, reflect, and enlarge their cognitive-intellectual horizon.

On the other hand, the subjects have manifested the tendency to record moderate to low scores ( $m = 74.72$ ) for *Friendliness* - a trait that includes understanding of others and active support, collaboration and orientation toward team objectives, trust and openness toward other people's needs. This trait can be critical in the case of team sports, just like the *Energy* one.

The subjects have registered, however, moderate to high scores ( $m = 92.09$ ) for the trait *Conscientiousness*, which includes traits referring to scrupulousness (the sense of order, the attention to details during various activities), and perseverance (engagement and persistence in completing certain tasks, as well as clarity of the goals that direct one's involvement in activities from various fields). The results recorded by the subjects for this trait were considered to be one of the resources of the target group, in the sense that there is a potential here to work with mobilizing effects for participants in regards to the counterproductive behaviors for personal development and top athletic performance.

The subjects have recorded also a high score ( $m = 85.44$ ) for *Emotional Stability*, referring to the control of negative emotions (anxiety, depression, anger), vulnerability under stress, as well as the impulse control during potentially dangerous situations for personal balance or during conflict situations. The obvious lead of the *Emotional Stability* values, compared to the *Energy*, *Friendliness*, and *Openness* values, recorded by the subjects could be explained, in the absence of any previous personal development training program, by their desire to make a good impression.

To summarize, the athletes included in the program for training certain skills involved in achieving top athletic performance have recorded a balanced enough profile of personality traits, in which the dominants were emotional stability and conscientiousness, with a high score, and energy (extroversion), which recorded a lower score. Such a profile suggested the need to work with the athletes also in the direction of stimulating their motivation and enthusiasm for participating in competitions, and their skills involved in establishing and maintaining constructive interpersonal relationships.

## 5.2. The Impact of the Psychological Training Program

The way in which this study and the activities during the psychological training program were designed has allowed the evaluation of the impact that the program had through two categories of indices (quantitative and qualitative). The indices in the first category refer to the values of

the score distributions that the subjects have recorded before starting the activities (baseline measurement), to the variables of interest (strategies for adaptation to stressful situations, self-efficacy, locus of control, self-esteem), then the post-training stage, and the measurement conducted three months after the end of the program (follow-up).

The indices in the second category envisage the themes laid out from the answers given by the subjects to the questionnaire administered in the last session, regarding the benefits of one of the psychological training program, consisting in writing every day 4-5 sentences referring to various fields of personal functioning: being aware of your own cognition, emotions and behavior that were less productive for the performance during daily life and professional tasks; trusting your own abilities and having self-esteem; accepting unconditionally your own person; having initiatives and performing activities, starting from setting certain clear goals and continuous assuming responsibility and personal engagement.

*Quantitative indices. Analysis of the CISS, N-SLCS, SES and RSES scores recorded by the athletes during the pre-, post-training, and follow-up measurement stages*

*A. Averages and deviations for the variables measured during the three stages of the research-intervention process*

Table 1 presents the averages and standard deviations for the variables measured before, right after the psychological training program and during the follow-up stage.

Table 1

*Averages and standard deviations for the variables measured before, right after the psychological training program and during the follow-up stage*

Measured variables	Pre-training		Post-training		Follow-up	
	m	s	m	s	m	s
1. Confronting stressful situations	61.79	9.25	63.24	8.01	62.13	8.18
2. Centering on negative emotions during stressful situations	46.88	10.50	43.79	8.71	44.63	8.97
3. Avoiding the confrontation of stressful situations	52.54	11.32	49.66	9.64	49.78	9.70
4. Perceived self-efficacy	83.03	9.38	89.61	8.63	89.38	8.69
5. Locus of control	12.68	4.81	12.22	4.79	11.97	4.73
6. Self esteem (overall)	31.87	3.85	32.50	3.38	32.86	3.71

In relation to the possible score variation (between 16 and 80), during the measurement conducted before the psychological training, the athletes have manifested the tendency to record a high score for *Confronting stressful situations*, a moderate score for *Avoiding the confrontation of stressful situations*, and a moderate score for *Centering on negative emotions during stressful situations*. The subjects have also recorded a moderate to high score for their perceived *Self-efficacy*, a tendency toward internalism (low score at the N-SLCS questionnaire), and a high score for Self-esteem. The measurement conducted at the end of the psychological training program showed a tendency of the scores to be higher for *Confronting stressful situations*, *Perceived self-efficacy*, and *Self-esteem*, and to be lower for *Centering on negative emotions during stressful situations*, *Avoiding the confrontation of stressful situations*, and *Locus of control*. The measurement

conducted three months after the program, to estimate the impact of the training, did not show any major fluctuations of the variables of interest, which recorded either a low score or a slightly higher one than the score recorded during the post-training measurement.

#### **B. Data analysis for Confronting stressful situations**

Table 2 presents the main data resulting from testing the difference between the average scores for *Confronting stressful situations* that the athletes have recorded during the three stages of the research. The results indicate that the psychological training program had a significant impact on the athletes' self-perception in regards to their own orientation toward confronting directly and actively stressful situations [ $F(1.43; 107.38) = 14.57$ ;  $p < 0.001$ ;  $\eta^2 = 0.16$ ], the statistical impact being low, however.

Table 2

*The quantitative assessment of the impact of the psychological training program on the level of the scores for “Confronting stressful situations”*

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparisons /Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended ( <i>follow-up</i> measurement)
Before the program	14.57 ***	0.16	-	- 5.33 ***	- 0.97
Right after the program			-	5.78 ***	

\*\*\* p < 0.001

However, after the psychological training the athletes recorded significantly higher scores for *Confronting stressful situations* (t-Bonferroni = -5.33; p < 0.001). Three months after the training program ended, its effect in regards to active confrontation of stressful situations was not significant, in the sense that even if the subjects have recorded a higher average score (m = 62.13) compared to the average score recorded at the beginning of the program (m = 61.79), the difference was statistically insignificant. More than that, the average score recorded during the follow-up measurement was significantly lower than the post-training average

(t-Bonferroni = 5.78; p < 0.001), even though the difference between the average was slightly above one point.

**C. Data analysis for Centering on negative emotions during stressful situations**

Table 3 presents the values of the ANOVA, taking as independent variable the time when the variable was measured, and as dependent variable the scores recorded by the athletes for *Centering on negative emotions during stressful situations*.

Table 3

*The quantitative assessment of the impact of the psychological training program on the level of the scores for “Centering on negative emotions during stressful situations”*

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparisons/Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended ( <i>follow-up</i> measurement)
Before the program	34.61 ***	0.31	-	7.72 ***	4.68 ***
Right after the program			-	- 4.66 ***	

\*\*\* p < 0.001

The training program had a significant impact on Centering on negative emotions during stressful situations [F (1.22; 91.75)

= 34.61; p < 0.001;  $\eta^2$  = 0.31], the statistical effect being, in this case, moderate to high. At the end of the program, the scores recorded for this trait

had a significant drop (t-Bonferroni = 7.72;  $p < 0.001$ ), from  $m = 46.88$  to  $m = 43.79$ . Also, three months after the program had ended the athletes have recorded an average score ( $m=44.63$ ) significantly lower than the pre-training average (t-Bonferroni = 4.68;  $p < 0.001$ ), but not lower than the post – training average (t-Bonferroni = -4.66;  $p < 0.001$ ).

#### D. Data analysis for Avoiding the confrontation of stressful situations

The following table systematizes the data recorded after comparing the average values recorded by the subjects for the third strategy of adaptation to stressful situations - avoidance.

Table 4

*Evaluation of the impact the athletes' psychological training program had on the scores for "Avoiding the confrontation of stressful situations"*

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparison/Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended ( <i>follow-up</i> measurement)
Before the program	41.00 ***	0.35	-	7.38 ***	6.00 ***
Right after the program				-	-0.73

\*\*\*  $p < 0.001$

As expected, at the end of the training program, the subjects have recorded a significant drop (t-Bonferroni = 7.38;  $p < 0.001$ ) of their average score for Avoiding the confrontation of stressful situations ( $m_{\text{post-training}} = 49.66$  compared to  $m_{\text{pre-training}} = 52.54$ ). Overall, the time when the variable was measured had a significant effect on value fluctuation [ $F(1.14; 84.86) = 41.00$ ;  $p < 0.001$ ;  $\eta^2 = 0.35$ ]. Three months after the end of the program, the scores for *Avoiding the confrontation of stressful situations* recorded a slight increase (from  $m_{\text{post-training}} = 49.66$  to  $m_{\text{follow-up}} = 49.78$ ), but statistically insignificant (t-Bonferroni = -0.73;  $p > 0.05$ ).

#### E. Data analysis for Perceived self-efficacy

Table 5 systematizes the data recorded after the ANOVA calculation, with repeated measurements for the variable *Perceived self-efficacy*. This variable

recorded the strongest impact from the training program, the statistical effect being high [ $F(1.08; 81.24) = 108.79$ ;  $p < 0.001$ ;  $\eta^2 = 0.63$ ]. At the end of the program, the subjects recorded a significantly higher average score for Perceived self-efficacy (t-Bonferroni = -12.16;  $p < 0.001$ ), the absolute value of the difference between the pre-training and the post-training average scores being over six and a half points. Also, three months after the training had ended, the average score for self-efficacy remained at a value ( $m = 89.38$ ) close to the value recorded right after the end of the program ( $m = 89.61$ ), the difference being statistically insignificant (t-Bonferroni = 1.53;  $p > 0.05$ ). The significant and high results recorded in the case of Perceived self-efficacy can be explained by the fact that a major component of the training program envisaged the self conception, especially the component referring to being aware of one's own resources and the one referring

to self image and self-esteem. The self-efficacy feeling designates a preponderantly cognitive variable (Bandura, 1977), referring to one's perception about one's own competences in a certain field. As the training program involved tasks simulating preponderantly the cognitive factor (group discussions, self-analysis and Jacobson-type ideomotor relaxation), it seemed plausible that the general representations of athletes about their own competences in solving daily life and professional tasks to be the strongest influenced ones.

**F. Data analysis for Locus of control**

Table 6 shows that the training program had a significant impact in locus of control

[F (1.39; 104.67) = 35.61;  $p < 0.001$ ;  $\eta^2 = 0.32$ ], although not as strong as in the case of self-efficacy. At the end of the program, the scores recorded by the subjects for locus of control (externalism) have dropped by almost half a point (from  $m_{pre-training} = 12.68$  to  $m_{post-training} = 12.22$ ) which was statistically significant (t-Bonferroni = 5.75;  $p < 0.001$ ). The drop meant that the athletes have manifested the tendency to express a higher level of internalism. Also, three months after the program had ended, the subjects recorded a significant drop in their scores ( $m_{follow-up} = 11.97$ ) in comparison to both the post-training measurement (t-Bonferroni = 5.00;  $p < 0.001$ ), and the pre-training one (t-Bonferroni = 7.10;  $p < 0.001$ ).

Table 5

*Evaluation of the impact the athletes' psychological training program had on the scores for Perceived self-efficacy*

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparisons/ Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended ( <i>follow-up</i> measurement)
Before the program	108.79 ***	0.63	-	-12.16 ***	- 10.86 ***
Right after the program				-	1.53

\*\*\*  $p < 0.001$

Locus of control is another cognitive variable envisaging one's expectations and anticipations in regards to the events in one's life, as well as to the factors that can contribute to the success or failure of one's own actions and initiatives. If the internalists think that their own resources and efforts are the factors contributing the most to the success and/or failure in various activities, as well as in life, the externalists situate outside of them the causes for success/failure that contribute to the control of situations and life events.

The program produced a slight "accentuation" of internalism, an aspect that was considered as an expression of the positive impact the program had and which can be capitalized on during future programs that the professional athletes need to maintain high their competition spirit and their performances.

Table 6

Evaluation of the impact the athletes' psychological training program had on the scores for "Locus of control (externalism)"

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparisons /Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended
Before the program	35.61 ***	0.32	-	5.75 ***	7.10 ***
Right after the program			-	5.00 ***	

\*\*\*  $p < 0.001$

### G. Data analysis for Self-esteem

Table 7 presents the data obtained during the analysis of variance with repeated measures, which was applied to estimate the impact the psychological training had on the athletes' self-esteem.

The global analysis showed significant differences between the three-time moments in which the self-esteem was measured [ $F(1.10; 83.03) = 7.78$ ;  $p < 0.01$ ;  $\eta^2 = 0.09$ ], although the statistical effect was low. At the end of the training program, the subjects recorded a rise by over half of point in their self-esteem, but the difference was statistically insignificant (t-Bonferroni = -2.17;  $p > 0.05$ ). However, three months after the

program had ended, the rise was almost by a point (from  $m_{\text{pre-training}} = 31.87$  to  $m_{\text{follow-up}} = 32.86$ ), being also statistically significant (t-Bonferroni = -3.16;  $p < 0.01$ ). During the follow-up measurement, the athletes' self-esteem level was also significantly higher than the level recorded during the post-training measurement (t-Bonferroni = -4.37;  $p < 0.001$ ). Nevertheless, the fluctuations of the self-esteem level before and after the program did not have the same size as the one recorded for the fluctuations of the levels of other variables of interest.

Table 7

The impact the psychological training had on the athletes' self-esteem

Time when the variable was measured	F	$\eta^2$	Average differences ( <i>post hoc</i> comparisons /Bonferroni correction)		
			Before the program	Right after the program	3 months after the program has ended ( <i>follow-up</i> measurement)
Before the program	7.78 **	0.09	-	- 2.17	- 3.16 **
Right after the program			-	- 4.37 ***	

\*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

## 6. Conclusion

Comparisons between the average values recorded by the subjects for other personal traits, before and after the psychological

training program, have emphasized the following tendencies (which must be considered as quantitative indices for the impact the program had on the level of personal variables):

- a significantly higher level in regards to the athletes' orientation toward confronting stressful situations, a level that, however, has slightly dropped three months after the training ended;
- a significantly lower level of the subjects' orientation toward centering on negative emotions during stressful situations; after three months, the scores for this variable have slightly risen, but not going beyond the level recorded before the program;
- a significantly lower level of avoiding the confrontation of stressful situations, which remained constant during the follow-up measurement;
- a significantly higher level in regards to the subjects' perception of their self-efficacy; this level was maintained three months after the end of the program; the result can be explained by the fact that a major component of the training program envisaged the athletes' conception of self;
- a significantly lower level of externalism in the athletes; three months after, the level of this variable presented a drop (in the direction of internalism);
- a relatively constant level of self-esteem, from one measurement to another, although between the level recorded for this variable right after the psychological training and the one recorded three months after it, there was a statistically significant difference.

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