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METACOGNITIVE SELF AS AN IMPORTANT ATTRIBUTE OF AN ATHLETE

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A. Study design/planning
B. Data collection/entry
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D. Data interpretation
E. Preparation of manuscript
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Abstract:

Introduction. The Metacognitive Self is a psychological construct that allows for an accurate diagnosis of adaptive psychological characteristics in behaviour.

Aim. The aim of the study was to control level of the Metacognitive Self in kickboxing elite athletes.

Research Material and Methods. The study comprised 60 adult men who had been training kickboxing for at least 5 years. All the subjects actively participated in championship competitions.

Results. The results indicate that the participants obtained above average results in the Metacognitive Self.

Conclusions. The obtained results encourage the exploration of the subject of the Metacognitive Self in the field of sports psychology.

Introduction

Sports training is a consist of motor, technical, tactical and psychological preparation. Its specificity depends on a given sport discipline and an individual's needs. The co-operation of a psychologist with athletes should be standard practice from the first years of training. Appropriate use of the potential with which the competitor begins the training process is possible only in the case of an accurate diagnosis of his/her predispositions and selection of an intervention tailored to the needs of the training. Taking this knowledge into account, the results of Rutkowska's (2012) research on Judo players seem surprising [1]. The mentioned author has demonstrated that the majority tested athletes had never participated in a psychological intervention. Additionally, the respondents did not know what sports psychologists do or how they could help them. During the analysis of the psychological competences of these athletes, significant deficiencies in the ability to cope with stress and symptoms foreshadowing burnout were revealed.

In such reports, tangible deficiencies are indicated in the use of mental training at sports clubs and a low level of awareness of the purpose of this type of interaction. At the same time, in numerous studies, significant improvement has been noted in sports performance after introducing psychological interventions to the training process [2,3]. Properly selected actions in the area of mental training significantly support the hard work done by the athletes, help them achieve their goals and deal with emotions. In literature on the subject, it is indicated that coaches are becoming more aware of the importance of an athlete's psychological preparation [4] and the willingness to use psychological research in coaching practice, among others, to improve communication with the athlete and to improve the mental aspects of preparation for the start [5].

Sports psychology uses knowledge about the mechanisms of human functioning and, on this basis, constructs specialised tools for working with an athlete. One of the key topics in this field is the psychology of individual differences. It is a vast area dealing with inter-in-

dividual variability and its determinants. This subject has been popular among psychologists since the 19th century [6] (Strelau, 2002). The main aspects determining the occurrence of individual differences are: temperament, cognitive styles and intelligence. The key psychological properties for athletes, showing inter-individual variability, are: motivation, volitional features, self-confidence, concentration of attention, recovery of concentration after disturbance, resistance to starting stress, the ability to relax, the ability to visualise, focus on the competition and satisfaction with training [7]. Assessment of the level of these constructs among the competitor allows the psychologist to direct further co-operation.

After examining numerous representatives of various sports disciplines, it can be concluded that they are characterised by separate and specific (for the sport they practice) patterns in terms of individual differences [8,9]. Malesza and Unrug (2012) explored the characteristic temperamental and personality traits of athletes practicing martial arts [10]. It turned out that people with longer experience in sports and those more successful were characterised by a higher level of sensory sensitivity and extraversion than amateurs. This result may suggest that people professionally involved in this sport discipline have the ability to effectively respond to stimuli with a low stimulus value, which allows them to perceive even minimal signals from the opponent during a fight. Considering that a large part of the training of these athletes takes place in pairs, the high index of extraversion seems to be an equally intuitive feature for this group of competitors. In other studies, it has also been shown that fighters involved in martial arts and sports are able to regulate their emotions better than respondents who do not practice these disciplines [11].

Taking into account the above-mentioned results concerning specific individual differences within basic structures, it seems of interest to examine the characteristics of more complex psychological constructs. One of such processes that can be extremely important in sport is metacognition. According to the concept proposed by Flavell (1979), it is assumed that these are thought processes of a higher order needed for conscious control over the course of action regarding basic cognitive structures [12]. Two components of this ability can be distinguished: metacognitive knowledge and metacognitive monitoring [13]. Metacognitive processes described by Brycz and Krasiewicz (2011) as Metacognitive Self enable an accurate diagnosis of adaptive psychological properties in behaviour [14]. Analysis of literature on the subject allows to indicate that metacognition plays an extremely important role in cognitive [15], education [16] and clinical psychology [17]. Research conducted in these areas also prompts the exploration of this phenomenon in the field of sports psychology. Taking into account the specificity of metacognition, the diagnosis of the level of this process among people training martial arts seems interesting. This sport requires athletes to develop the skills of cognitive movement analysis and dynamic response to changes in the external environment (quick response to an opponent's movements). It appears, therefore, that the level of Metacognitive Self in competitors representing this sport discipline will be significantly developed.

Research methodology

Objectives

The aim of the research was to broaden knowledge on the Metacognitive Self within the context of athletes' functioning. It seems important to check whether elite kick-boxers are characterised by a high level of the Metacognitive Self and whether the level of this construct depends on the sports level of these athletes.

Hypotheses

1. Elite kick-boxers demonstrate a higher level of the Metacognitive Self than the general population.
2. The higher the level of the sport performance an athlete achieves, the higher his/her level of Metacognitive Self.

Study participants

The study comprised 60 males who had been training kickboxing for at 5 years. All subjects actively participated in championship competitions and had a minimum 5th student rank of the Polish Kickboxing Association. The average age of the respondents was 24 years.

Tools

The *Metacognitive Self Scale* (MJ-40) by Hanna Brycz and Karol Karasiewicz (2011) was used to control the level of Metacognitive Self in athletes [14]. This scale contains 40 items, to which the respondents provided answers on a scale from 0-100%, where 0% means not applicable to me; to 100% denotes completely applicable to me. This questionnaire is an accurate and reliable tool that includes population norms.

Procedure

The study was totally voluntary and anonymous. All respondents provided their consent to participate in the study and were informed about the possibility of withdrawing from the study at any time during its duration. The participants were given questionnaires with instructions on how to fill them in appropriately. The examination lasted approximately 30 minutes.

Results

The athletes averaged 64.34 points. ± 7.08 points, ranking at an average level of about 8 stens on the *Metacognitive Self Scale*. The lowest score was 48.63 points, while the highest totalled 77.2 points, suggesting a result of 6 and 9 stens, respectively.

The presence of statistically significant relationships between the results obtained in the Metacognitive Self questionnaire and their age, professional experience, sports level or student level was not confirmed ($p > 0.05$).

Table 1. Result on the Metacognitive Self *Scale*

Result of questionnaire	Basic descriptive statistics							
	No.	Mean	Median	Minimum	Maximum	First quartile	Third quartile	Std. dev.
Points	28	64.34	62.99	48.63	77.20	60.26	69.63	7.08
Stens	28	7.96	8.00	6.00	9.00	7.00	9.00	0.84

Source: own research

Table 2. Results of the Metacognitive Self questionnaire and the characteristics of athletes

Variables	R	*p*
Questionnaire result and age	-0.21	0.282
Questionnaire result and competitive experience	-0.04	0.841
Questionnaire result and sports level	-0.01	0.953
Questionnaire result and student level	0.11	0.583

R – Spearman's signed rank correlation coefficient, *p* – test probability index

Source: own research

Discussion

The conducted research allows to conclude that kickboxers achieve a Metacognitive Self level above the average for the general population. This result is consistent with the assumptions of the first of the research hypotheses. The fact that elite athletes have a high level of Metacognitive Self means that they are characterised by a well-developed ability insight with regard to their own bias in action. They can accurately predict their own behaviour and consciously correct mistakes. The Metacognitive Self is a protective factor against the overload of cognitive [18], which makes it a seemly, particularly attractive resource for high-class athletes. A competitor with a high level of this construct is characterised by better self-control and greater freedom in making decisions concerning the direction of his/her attention [19,20]. In research conducted so far, a positive effect associated with the ability to metacognitive thinking is the lower tendency of athletes to experience negative beliefs about the future [21]. This allows athletes to better cope in stressful situations and achieve their goals more effectively [22].

In the conducted research, no differences were noted in metacognition between athletes representing different levels of sports. This result may be caused by the too small sample size, which is indicated by the author as a limitation of the study. The size of the research group resulted from the selection of an elite group of athletes.

Further research should be focused on exploring the Metacognitive Self factor in athletes performing other sports and checking the relationship between this construct and self-control. Expanding knowledge on this topic would be an important guide for coaches and psychologists working with athletes.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Ethics Committee

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