

INTERVENTION OF AUTOGENOUS TRAINING TECHNIQUES FOR PSYCHOLOGICAL PREPAREDNESS OF SPORTS SCHOOL STUDENTS

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Abstract. *Athletes' success in sports is linked not only to good physical, technical and tactical preparedness, but also to psychological fitness. In sports psychology there are two basic types of psychological preparation, namely general psychological preparation and special psychological preparation. Just as comprehensive physical preparation is the basis for an athlete's special, technical, tactical fitness, so comprehensive psychological preparation is the basis for an athlete's mental toughness both during the training and competing. Regardless of the stressors, the athletes with higher levels of mental toughness can overcome more easily the negative effects of stress. In order to gain mental toughness skills, it is necessary to develop basic psychological skills at the same time as starting sports activities, and this process should continue in parallel with the entire training process. The aim of the study: to explore the intervention benefits of autogenous training (AT) techniques for improving the psychological skills of young women volleyball players. Research method: a survey was employed for obtaining the athletes' feedback. Results: Statistically significant changes were found in the self-assessment of athletes' well-being after autogenous training. The self-assessment results show that athletes reach different AT acquisition levels as the result of a two-month AT intervention: 7.7% of athletes do not have difficulty with AT techniques, for 30.8% AT come easy, but not always, 53.8% of athletes sometimes manage to feel warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, but for 7.7% of athletes the acquisition results of AT techniques are poor.*

Keywords: *autogenous training techniques, psychological preparation, athletes*

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Introduction

The athletes' success in sports is linked not only to good physical, technical and tactical preparedness, but also to psychological fitness. The aim of the athlete's psychological preparation is to help the athletes achieve optimal development, experience, and performance, while the coaches must not only be the process managers of the respective sport, but also provide the athletes with psychological support (Vealey, 2007).

Exploring the recommendations and methodical materials elaborated by Volleyball Federation (FIVB, n.d.), in the section on the required qualities of volleyball players, the following indicators can be identified: mental states required for the players to learn volleyball techniques and tactics; mental states and qualities related to winning or losing competitions. The athlete qualities, such as self-confidence, positive thinking, willpower or determination, the ability to think and make decisions independently are also important.

There are two types of psychological preparation: general and special. General psychological preparation is characterized by focusing on formation and development of universal (comprehensive, versatile, multipurpose) psychological skills, which, being important in sports, are valued in many other areas of human activity and form the basis for psychological preparedness. In turn, special psychological preparation means focusing on the formation and development of athletes' mental abilities and personality traits, promoting success in specific conditions of sports activity (Ahatov & Rabotin, 2008).

The aim of the general psychological preparation is to improve the athlete's psychological skills, including the acquisition of stress management strategies, and it is a multifaceted process (Weinberg & Gould, 2019). Just as general physical preparedness is the basis for an athlete's specific, technical and tactical fitness, so the general psychological preparedness is the basis for athlete's mental toughness both during the training process and during competing. Regardless of the stress factors, the athletes with greater mental resilience can overcome more easily the negative effects of stress. In order to achieve such psychological resilience, for an athlete it is necessary to develop basic psychological skills at the same time as starting sports activities, and this process should continue in parallel with the entire training process (Kaiseler et al., 2009).

The process of acquiring psychological skills is linked to systematic and consistent practice of psychological skills in order to improve the athlete's performance, increase well-being or achieve greater satisfaction from participation in sports and physical activity (Weinberg & Gould, 2019). The experience of sports psychology specialists shows that athletes sometimes have to wait a long time before the positive effects of the learned stress management techniques appear, and sometimes it can even lead to a decrease in the athlete's initial performance. Better results appear when psychological preparation tools and strategies are integrated and have become an athlete's natural way of thinking, feeling and behaving (Uneståhl, n.d; Bunszen & Uneståhl, 1997). Traditionally, the most commonly used methods for improving psychological skills in sports are guided imagination, relaxation, goal setting, inner self-talk, biofeedback learning, performance profiling and behavioural management techniques, of which four methods are used most frequently: guided imagination, goal setting, thought management, and relaxation/arousal regulation (Vealey, 2007).

A study by Kaiseler et al. (2009) shows that athletes with higher mental toughness more easily overcome the negative effects of stress. In order to achieve such psychological toughness it is necessary to develop basic psychological skills throughout the entire training process. Molina et al. (2018), studying the emotional reactions of young athletes during competitions, conclude that it is necessary to teach athletes from an early age to reinterpret cognitively situations, because uncontrolled emotional reactions divert attention and concentration during competitions. Therefore, the athletes must learn to manage regularly the intensity of emotional reactions from the first years of competing, as well as to understand their emotional states, because, as the research data indicates, the young athletes often suppress emotions during the competition. By blocking emotional reactions, the opposite results are observed, increasing tension and anxiety.

That is why it is so important to start the psychological preparation of young athletes in a timely manner, promoting the athlete's psychological resilience, as it is a dynamic process characterized by a positive adaptation pace in the context of significant difficulties (Fletcher & Sarkar, 2012).

For the psychological preparation of athletes, one of the well-tested training methods is autogenous training (AT). AT was first mentioned in 1932 by German psychiatrist Johannes Heinrich Schultz. It consists of structured self-inspiration techniques and positive inner self-talk formulas. The term "autogenous" is derived from the Greek words "autos" and "genos" and can be translated as "self-exercising" or "self-induction therapy". AT is a conceptually designed system that has a physiological basis, and self-hypnotic (self-suggestive) recommendations are woven in the form of an intervention that connects the "mind" and the "body" (Linden, 2007).

Autogenous training is a psychophysiological technique of self-control, which aims at physical and mental relaxation and consists of automated verbal suggestions by which individuals learn how to change certain psychophysiological functions, initially with minimal

intervention of another person, but when the technique is mastered – without any intervention of another person (Gunter, 1996).

Thus, AT is a comprehensive system with a broad philosophical basis, and its assumptions and goals are shared by other methods of relaxation and meditative practice. Meditative experience and concentration are rooted not only in psychology but also in neuroscience and neurobiology. It affects not only the level of functional activity of the brain, but also affects structural changes in the grey and white matter, especially in the areas of the brain and networks related to attention and memory, interoception and sensory processing, as well as self-regulation and automatic regulation. These areas of central nervous system activity include the regulation of emotions and stress, which, in addition to the integration of the central autonomous regions, includes the limbic system, endogenous motivation and reward centres, thus reducing anxiety and ‘stress sensitivity’ as well as improving the ability to learn and remember (Schlamann et al., 2010; Esch, 2013). Already in 1986, Lindemanis (1986) writes that with the help of AT, the athletes can overcome the pre-start fever and tension during competitions, the tension caused by inferiority complex and expectations of approaching competition, general nervousness and develop the ability to use all their resources to improve the performance and mobilize unused resources. According to Ortigosa-Márquez, Carranque-Chávez & Mendo (2015), the AT technique positively modulates an athlete's pre-competition self-confidence and subjective vitality level, while research of Mohammadi, Ziabari & Treur (2019) indicates the effectiveness of autogenic training in regulating an individual's tension and emotions.

The main possibilities of using AT in sports can be combined in three sets of exercises: a "mobilizing set" for pre-start apathy and fatigue; a "calming set" for reducing increased pre-start anxiety, as well as anxiety after competing; and a "somnolent set" used in cases of increased negative tension and sleep disorders. These modifications focus on self-regulation of respiratory and cardiac functions, as well as neuromuscular apparatus and ideomotor training (Reshetnikov, 2018), which helps to effectively implement the psychological preparation process of athletes to improve the performance in competitions (Bidzan-Bluma, Pielak, & Budnik-Przybylska, 2017).

The aim of this study is to explore the benefits of AT interventions to improve the psychological skills of young volleyball players.

Methodology

The research was carried out according to ethical rules, and a research group – volleyball players of the School of Sports Games, 16-18 years young women ($n = 13$), was established. The parents of the young athletes were informed about the participation in the study in accordance with the provisions of the data protection law. All athletes had not previously practiced autogenous trainings, as well as they had not previously undergone psychological training sessions. A total of eight autogenous training sessions were designed and conducted, which included seven AT exercises, and the sessions took place once a week during the two-month period.

The research method – survey was employed for obtaining athletes' feedback. The survey consists of four questions that reveal the athletes' self-assessment of the acquisition quality of AT techniques and acquired skills for the improvement of their psychological preparedness. Additional two questions describe the athlete's well-being on a scale from 1-10 before and after acquisition of AT techniques (Cronbach's Alpha $\alpha = 0.924$), but T-test is used for a comparative analysis of the results and determines the differences in the related samples. There are also two open-ended self-assessment questions for the evaluation of performance quality of AT exercises: “Which exercises were successful?” and “Which exercises caused

you difficulty?”. The performance of AT techniques was assessed on a scale from 1-10, based on the following criteria: very high acquisition level (10 – "outstanding", 9 – "excellent"); high acquisition level (8 – "very good", 7 – "good"); medium acquisition level (6 – "almost good", 5 – "mediocre", 4 – "almost mediocre"); low acquisition level (3 – "weak", 2 – "very weak", 1 – "very, very weak"). The athletes completed the survey in writing immediately after the AT sessions.

For holistic and comprehensive development of the athlete's personality, the classical exercises of AT techniques were summarized according to J.H. Schultz (Linden, 2007). When working on the cognitive or educational component, it is taken into account that these young women athletes previously did not have any information about AT, and when compiling the set of AT techniques, an explanatory part – a mini-lecture was included, as well as explanatory and educational work was performed at each AT session.

The assessment of performance quality of AT techniques also includes the personality development component, which generally reflects the person's worldviews and attitudes that leads a person to action. In this case, the determining factors are the attitude and the ability to assess one's activities.

By perfecting the emotional and willpower components, the acquisition of AT techniques, like any other new exercise, requires willpower, patience and emotional return. Psychophysiological components – AT techniques include exercises, during which one can get a feeling of heaviness and warmth in the limbs, regular deep breathing, a feeling of warmth in the area of solar plexus, a feeling of coolness in the area of the forehead.

Summarizing the set of AT techniques, the recommendations of Reshetnikov (Reshetnikov, 2018) on the components of psychomuscular part of AT in sports were taken into account: the ability to relax muscles; the ability to visualize the content of AT formulas as vividly as possible with a strong power of imagination but without mental strain; the ability to maintain attention to the chosen object; the ability to influence oneself with an appropriate verbal formula. This approach is intended for actualizing such psychological skills necessary for the athletes as concentration, self-control, relaxation, visualization, positive self-talk, self-esteem and self-confidence, and self-regulation of emotional manifestations caused by stress.

The principle of gradualness was applied to acquisition of AT techniques. Therefore, when planning AT sessions, a new element was gradually added to each AT session; and in addition to the traditional two AT parts – calming and activating, an introductory part was added with the task of breathing observation (10 breathing cycles), followed by the first exercise (invoking the feeling of heaviness and warmth in the limbs and solar plexus area). In the first three sessions, the classic AT techniques were included (except for “the heart beats calmly and regularly”), a total of five exercises, and one exercise for exiting the state of relaxation. The given AT techniques develop and perfect the athletes' bodily sensations, concentration abilities, attention retention and relaxation skills, and starting with the fourth session, another exercise was added – the target formula for the improvement of positive self-talk, self-confidence and self-belief.

Research results and discussion

Prior to the execution of AT techniques, the average self-assessment scores of the athletes' well-being on a scale from 1-10 are $M= 7.3$; $SD = 0.5$, and $M= 7.8$; $SD =0.6$ after the execution of AT techniques. The analysis of the data obtained from the athletes' well-being self-assessment before and after the intervention of AT techniques show reliable ($p<0.05$) results – the well-being of the athletes improves after the execution of AT techniques (see Figure 1).

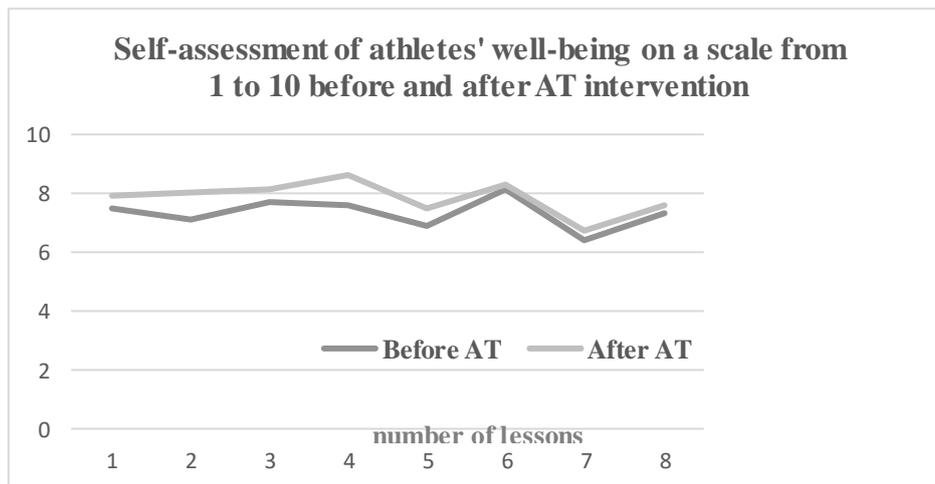


Figure 1 Self-assessment of athletes' well-being on a scale from 1 to 10 before and after AT intervention (n=13) (created by the authors)

Analysing and summarizing the participants' reflection on the acquisition process of AT techniques, the obtained results indicate that the athletes managed to relax and feel the warmth in some part of the body. In turn, the difficulties were experienced with invocation of warm sensations in certain specific parts of the body, feeling coolness in the forehead and with concentration on repeating the target formula.

The athletes' self-reflections show that the same techniques that came easy in one session, can bring some struggles in another session. This suggests that learning AT techniques requires more systematic practice and it would be advisable to motivate the athletes to practice them independently on a daily basis in order to strengthen the skills acquired in the training sessions.

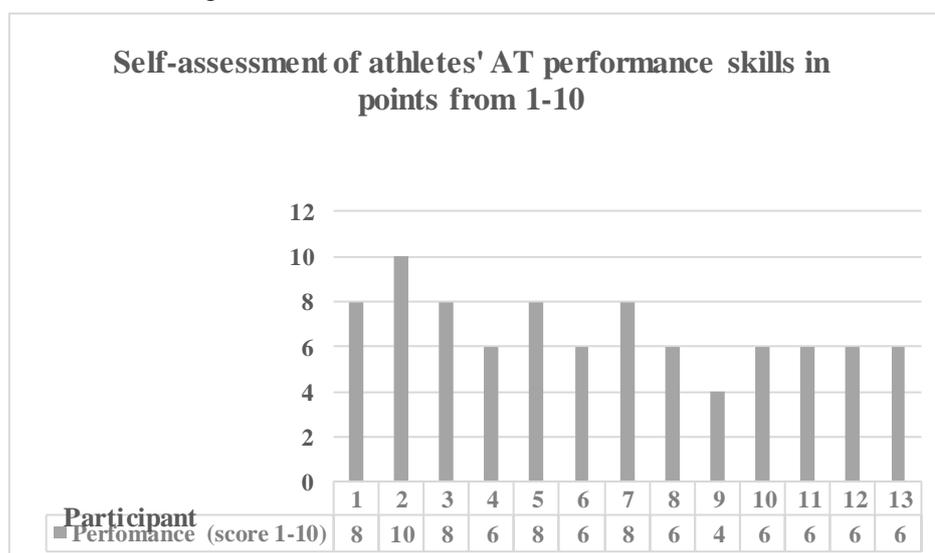


Figure 2 Scoring of athletes' AT skills based on athletes' self-assessment (n=13) (created by the authors)

When analysing the self-assessment of acquisition of AT techniques, it can be assumed that AT techniques do not cause difficulties for 7.7% of athletes as they assessed them with 10 points. For 30.8% of respondents the AT techniques came easy but not always as rated with 8 points. 53.8% of athletes succeed sometimes when performing the exercises and feel

warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, and assessed it with 6 points. In turn, 7.7% of athletes have a poor AT technique acquisition score, rated with 4 points (see Figure 2).

The analysis of the research data undoubtedly indicates that the implementation of psychological skills programmes makes a significant contribution to the performance of the athletes in competitions and to the development of athletes' personalities (Dehghani & Ebrahimi, 2017; Razali et al., 2017; Vesković et al., 2019). At the same time, studies also indicate that short-term intervention does not provide reliable results, however, the acquired knowledge on the benefits of psychological skills programmes and the positive experience gained in the process of acquiring various mental techniques provide athletes with additional motivation for further development of psychological skills (Kudlackova, 2011; Bryant, 2017; Mohebi et al., 2022).

Conclusions

The self-assessments of athletes' well-being indicate that the athletes' well-being improved after performing of AT techniques, and these changes are statistically reliable ($p < 0.05$).

The self-assessment results show that athletes reach a different AT acquisition level as a result of the two-month long autogenous training intervention: 7.7% of athletes do not have difficulty with AT techniques, for 30.8% AT come easy, but not always, 53.8% of athletes sometimes manage to feel warmth in different parts of the body, relax, concentrate, focus attention on breathing and repetition of the target formulas, but for 7.7% of athletes the acquisition results of AT techniques are poor.

Athletes should continue to develop concentration, relaxation and visualization skills in order to acquire persistent psychological skills and the ability to apply them in different situations.

The results of this study show positive trends in the well-being self-assessment of the respondents after repeated use of AT techniques, but due to the small number of respondents, the results cannot be generalized. Preferably, the research study should be repeated including a larger number of respondents.

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