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Impact of Autogenic Training on Anxiety in 14-15 Y.O. Racing Skiers before Competitions

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Abstract--- *The article considers the significance of psychological training of athletes, in particular, on the eve of competitions. It presents the characteristic and significance of athletes' autogenic training. The research objective was to determine the efficiency of autogenic training impact on anxiety in 14-15 y.o. racing skiers before competitions. The authors consider the importance of psychological training in the overall system of athletes' training. Polling confirmed the topiclity of this issue in the said age group. The level of personal and situational anxiety in 14-15 y.o. racing skiers before competitions was determined. A complex of autogenic training was designed and evaluated for efficiency; practical recommendations were made. The researh methods included: analysis of literature; psychodiagnosis; polling (questioning); and pedagogical experiment. The results of studying the level of personal and situational anxiety in adolescent racing skiers before competitions are presented, studied with "Anxiety research test" by Ch. D. Spielberger. The polling results are described, confirming the presence of anxiety and stress before competitions. Based on the methods of autogenic training by I. G. Schultz, a complex of autogenic suggestons adapted for 14-15 y.o. racing skiers was designed. The designed complex and the sequence of training are presented. The average score of personal anxiety in skiers before the experiment was 37, which is moderate according to Spielberger's scale. The level of situational (before competitions) anxiety was 56, which is high. After the experiment, the average score of personal anxiety was 35 (moderate); the level of situational anxiety was 42 (moderate). The influence of autogenic training on anxiety level were analyzed by gender and sports qualification of athletes.The research confirmed the efficiency of autogenic training in achieving a stable psychological state in 14-15 y.o. racing skiers before competitions.*

Keywords--- *Autogenic Training, Psychological Testing, Psychological Training of Athletes, Races, Racing Skiers.*

I. INTRODUCTION

The constantly growing level of rivalry in sports leads to improving the basic elements of training: technique, methods of training, tactics of passing a distance (Gorbunov, 2012). Sportive character is one of the components necessary for decent performance at competitions, where it is fully revealed and strengthened. It is formed during training (Evseev, 2014). On the way to high achievements today, athletes have to daily endure serious and even exorbitant physical and emotional load. This fact determines the great significance of a psychological factor in sports training. More and more often athletes undergo nervous breakdowns during important competitions. Excessive anxiety bars them from demonstrating the results compliant with their level of preparedness. As was

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shown by researches, an athlete's result is a complex of three constituents: physical training, functional training, and psychological training (Gorbunov et al., 2010, pp. 39-42). Psychological training is essential for active implementation of physical, technical and tactical skills, abilities and competencies, as well as for the full-fledged exploitation of an athlete's reserves (Smolentseva et al., 2015).

Psychological condition is the key aspect in almost any activity, including sports. Often athletes cannot stand high psychological pressure and terminate their career. One of the possible reasons is insufficient mastering of self-regulation and self-restoration techniques. Repeatedly facing the situation of choosing variants of actions depending on the set goals and tasks, personal characteristics and capabilities of rivals, an athlete often occurs in the stress and uncertainty. S. V. Davydov noted: "as for psychological regulation, coping with the uncertainty is only possible by means of self-regulation. An athlete scrutinizes the situation, programs one's initiative, controls and corrects one's results" (Davydov, 2015, pp. 23-27).

For a skier, it is also crucial to use techniques restoring capacity after large loads. Elaboration of the necessary psychological techniques in the sphere of sports is topical and timely.

To this end, one may recommend the autogenic training technique, which is widely used in sports. In the recent years, it has gone beyond its medical applications and can be used as one of the means of psychological training of athletes.

The issue under study is especially important when training adolescent athletes. During adolescence, all emotional experiences are most significant. Under pubertal period, chronic diseases make their debut, often due to psychological reasons. That is why it is most important not only to support young athletes, but also to teach the adolescents to independently cope with psychological overload before competitions.

II. MATERIALS AND METHODS

The area of research is autogenic training during preparation of racing skiers for competitions. The research object is the impact of autogenic training on anxiety level during preparation of 14-15 y.o. racing skiers for competitions.

The research objective is to study the efficiency of the influence of autogenic training on anxiety level in 14-15 y.o. racing skiers before competitions. The research tasks are:

1. To reveal the role of psychological training in the overall system of athletes' preparation;
2. To design a questionnaire for 14-15 y.o. racing skiers and to conduct polling to confirm the topicality of this issue in the given age group;
3. To estimate the level of personal and situational anxiety in 14-15 y.o. racing skiers before competitions;
4. To design a complex of autogenic training for 14-15 y.o. racing skiers and to evaluate its efficiency;
5. To elaborate practical recommendations.

To solve the research tasks, the following methods were used: analysis of literature; psychodiagnosis; polling (questioning); and pedagogical experiment.

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III. RESULTS AND DISCUSSION

Research has shown that decent performance at competitions depends not only on the optimal degree of physical, technical and tactical preparedness of an athlete, but also on their psychological preparedness. The latter is essential for efficient implementation of the physical, technical and tactical capabilities, skills and competences, and for the full-fledged employment of an athlete's reserves.

The goal of psychological training of an athlete for competition is formation of a certain psychological state, which would allow them to comprehensively employ their physical and special preparedness to achieve high results, to cope with multiple situations before and during competitions negatively influencing or blocking their functions. The described state is considered to be the state of psychological preparedness for competitions. A skier may not be obliged to engage in psychological training; they may only be convinced to work in that direction. Hence, the first thing a coach should do is to try to convince an athlete that psychological training is effective. A skier should realize that psychological training may form that very state before competitions in which they will be able to show all their capabilities and achieve the optimal result (Granko, 2015, pp. 23-25).

At the initial stage of maturing, the psychological training of a young athlete is performed by a coach. Then parents are involved, then the athlete starts playing the leading role, as he/she gains the experience of training and competitions and tries to develop his/her own individual technique of "tuning" before competitions and options of influencing his/her negative states. This process is often procrastinated; hence, the psychological-pedagogical involvement into sports preparation should be systemic. A great role in this process is played by a sports psychologist, who should master various techniques of working with athletes.

Psychological preparation of an athlete for competitions is a significant and indispensable part of learning and training. Psyche, consciousness and human personality are not only revealed but are also formed in the course of activity. Competitive activity is a special type of human activity, performed under special conditions (Martynenko et al., 2017, pp. 311-317).

The degree of psychological preparedness of young athletes for competitions was studied by G.D. Babushkin and E. G. Babushkin. They researched the technique of diagnosing and correcting the psychological preparedness of young athletes before competitions and noted that motivation for success has a positive influence on pre-competition state, on the behavior during competitions, and on the results of this activity (Babushkin and Babushkin, 2010, pp. 19-23).

During competitions, an athlete overcomes several various psychic states of different degrees of intensity, following one another (Konovalova, 2016, pp. 104-106).

Thus, psychological preparation of an athlete is an important part of a multi-sided process of preparing for competitions. Individual qualities of an athlete should be taken into account and properly employed during sports training, preparing for competitions and preparation immediately before them. Psychological training of skiers is crucial, which determines the necessity to deeply comprehend psychology and pedagogy.

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Participation in competitions is considered to be the best means of psychological preparation. The experience of taking part in competitions is the central aspect of an athlete's reliability. Each competition releases nervous stress, but it also often leads to serious physical and psychological traumas and shocks. Participation in competitions always leads to achieving certain results, summarizing the outcomes of a certain stage in improving the athlete's professionalism. Psychological preparation for competitions should be aimed at forming the features and qualities of a personality and psychic states facilitating the success and sustainability of performance at competitions. The goal of psychological preparation is adaptation to the situations of competitions, improving and achieving the optimal level of reactivity and response of the body to the unique extreme conditions at competitions (Zagaynov, 2012).

Depending on the individual features of athletes, their psychological and physical qualities and stages of sports achievements, specific method are selected to optimize, regulate and control the states before competitions (Babich et al., 2017, pp. 23-25).

Many skiers experience excessive irritation, psychological and nervous-muscle tension, sleep disturbances, while their efficiency and results remain high. If such state of increased psychic tension occurs several days before important competitions and no measures to stabilize it are taken, then the state may worsen and greatly influence the functional capabilities, decreasing the results (Kalmykov, 2016, pp. 51-55).

Autogenic training, or auto-training is a widely known technique of self-regulation of psychic states through self-suggestions; its founder is a German psychotherapist Johannes Heinrich Schultz (1932) (Aleksandrov, 2011).

Autogenic training is a psychotherapy method based on self-suggestion; it enables to influence the psychic state of a human, which results in higher adaptation of emotional sphere, improves the functioning of central and peripheral nervous system, and levels psychological deviations. Through autogenic training, one may effectively control one's behavior and adaptive psychic processes (Vysochina, 2016, pp. 40-42).

Autogenic training is a technique of active psychic hygiene, psychic prophylaxis and psychic therapy; through certain formulas of self-suggestion, it significantly increases the possibilities for self-regulating those body functions which were initially involuntary (Alyabyev et al., 2001).

Autogenic training helps to form the optimal level of psychological preparedness for competitions or for significant and intensive training load (Ivanova et al., 2001).

Modern modifications of autogenic training in the sports practice use ideomotor training as one of the key components. A number of foreign researchers have proved the athlete's conceptions, or mental images, greatly influence their physiological state, including at the level of microfilaments (Vysochina, 2016, pp. 40-42).

Autogenic training is based on exercises involving volitional, prolonged and deep relaxation of muscles, forming and consolidating useful conditional reflexes from the cortex to internal organs, and reproducing the traces of emotionally colored situations. Elements of self-suggestion are also present in the structure of training. The structure of autogenic training largely relies on self-conviction and self-discipline, which turns it into an intellectual and volitional process (Aleksandrov, 2011).

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Auto-training exercises imply a certain volitional effort on the part of a skier. Volitional processes are complex psychic phenomena. Controlling one's emotions, making volitional efforts stabilize a personality, lead to psychic and somatic health, and increase vitality and working capability, making an athlete more optimistic. During auto-training sessions, an athlete acquires psychological attitudes for self-development, self-improvement, which leads to forming the professional orientation of the athlete's personality. Further, in the course of action, the psychological attitudes are consolidated and transformed into social ones (Opletin and Panachev, 2015, pp. 133-140).

Much emphasis is laid on independent training, performed twice a day (in the morning before getting up and in the evening before falling asleep). It is recommended to keep a diary, describing the key feelings occurring at the moment of training (Shults, 1985).

Also, there are descriptions of reproductive training as a complex technique of psycho-physiological and personal self-regulation. This modification uses sensory regulation as a key technique, consisting in volitional reproduction of sensations (Gissen, 2010).

Thus, the comprehensively mastered and consolidated system of autogenic raining allows an athlete to get optimally tuned for competitions, i.e., to regulate their emotional state.

To study the topicality of using autogenic training in adolescents, we polled 14-15 y.o. racing skiers (2002-2003 years of birth) at Velsk Sport School for Children and Adolescents (ski racing department). The number of the polled was 20 people, 10 girls and 10 boys. Four skiers had the category of Master of Sports Candidate, seven athletes had the I adult category, four athletes had the II adult category, one athlete had the III adult category, and three athletes had no category. Polling was carried out in August 2017.

Psychodiagnostics was carried out in two stages. The first stage was performed on 26 August 2017, the second on 30 December 2017. The initial (before the experiment) study revealed the level of personal and situational anxiety in 14-15 y.o. racing skiers on the eve of Open regional roller skis competitions in memory of Master of Sports of international category Nikolay Fokin. The venue of the competitions is Velsk sports camp "Orlenok".

The secondary (after the experiment) study revealed the level of personal and situational anxiety in 14-15 y.o. racing skiers on the eve of Regional ski-racing competitions "New Year's Race". The venue of the competitions is Velsk Sports School for Children and Adolescents.

The polling results showed that most of the respondents felt anxiety before competitions – 60%, while 15% do not feel anxiety, and 25% could not answer the question.

The majority of respondents (55%) admitted that they experience "pre-start fever", which is characterized by high excitation and emotional instability, as well as reduced self-criticism. According to the respondents, 20% of them experience the state of pre-start apathy (competitions are not of interest for them, or long-term emotional excitation transforms into inhibition). Only 25% of racing skiers have positive pre-start state – the state of alertness.

The largest percent of successful performances was shown by those in the state of alertness; a much smaller percent – by those in the state of pre-start fever or pre-start apathy.

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The athletes gave the following answers to the question "Does your coach help you to cope with unfavorable pre-start states?": 30% – yes (in most cases a coach used cheering, calming, suggestion, and psychoregulation), 60% – no, 10% could not answer the question.

The influence of unfavorable pre-start state on the performance was marked by 70% of the respondents. 25% could not answer the question, and just 5% believe that unfavorable pre-start state does not influence their performance.

Analyzing the answers to the question about coping with pre-start anxiety, we found the following: 50% of the respondents answered that they "cheer up themselves", 20% cope with anxiety with the help of a coach and relatives, 25% could not answer the question, and just 5% of the athletes believe that they do not feel any anxiety before competitions.

The polling showed that most of the respondents (80%) wanted to learn how to regulate their pre-start state themselves. 20% could not answer this question.

Only 20% of the respondents knew what autogenic training was, while 80% had never heard about autogenic training as a means of psycho-regulation in sports.

To the question: "Would you like to mater the technique of autogenic training?" 85% of the respondents answered positively; 15% could not answer the question.

During the initial and secondary testing we used "Anxiety research test" by Ch. D. Spielberger. This is the only technique enabling to differentially measure anxiety as a personality trait and a state. The technique is as follows: the respondents are offered 40 questions, 20 of them on the level of personal anxiety, and 20 on the level of situational anxiety before competitions. The technique shows low, middle or high levels of personal and situational anxiety.

Ch. D. Spielberger distinguishes two types of anxiety. The first is situational anxiety, generated by a specific situation. Such state may occur in any person in case of probable troubles and hardships. The second type is personal anxiety, which is considered to be a personality trait and is revealed in permanent disposition to worry in a variety of situations. Personal anxiety is characterized by the state of fear, uncertain threat, readiness to perceive any event as dangerous and inauspicious (Batarshev, 2005).

The results of psychodiagnostics revealed the following. At the beginning of the experiment, the high (over 45 scores) level of personal anxiety was found in 15 % of the respondents, middle level (31-44 scores) in 65%, and low level (under 30 scores) in 20% of the respondents. At the end of the experiment, the results were as follows: high level of personal anxiety in 10% of the skiers, middle level in 70%, and low level in 20% of the athletes.

The high level of situational anxiety (in this case, pre-start anxiety) was observed in 90% of the respondents at the beginning of the experiment. It should be noted that only 10% of the respondents (two girls having II adult category) showed moderate situational anxiety. At the end of the experiment, the high level of situational anxiety was found in 25%, and moderate – in 75% of the respondents.

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The average score of personal anxiety in the group before the experiment was 37, which is moderate according to Spielberger's scale. The level of situational (pre-start) anxiety in the group was high 56 scores. After the experiment, the average level of personal anxiety was 35 scores (moderate), while the level of situational anxiety was 42 scores (moderate). It was revealed that the level of situational anxiety in 14-15 y.o. racing skiers decreased significantly after the experiment.

Analysis of the results subject to the gender of the respondents showed that the average level of personal anxiety before the experiment in girls was 36 scores. In boys, the same parameter was 38 scores. Both scores correspond to the moderate level of personal anxiety. After the experiment, the level of personal anxiety in girls was 34 scores, in boys – 36 scores (moderate level in both cases), i.e., the level of personal anxiety decreased insignificantly in both genders.

As for the level of situational anxiety subject to the gender, the results were as follows: the average level in girls before the experiment was 56 scores (high level), in boys – 57 scores (high level). After the experiment, the level of situational anxiety in girls was 39 scores (moderate level), in boys – 44 scores (moderate level). Thus, diagnostics after the experiment revealed significant decrease in situational anxiety both in girls and in boys. In both cases, this level of anxiety is moderate.

Before the experiment, the following results subject to sports categories were revealed: in the athletes of I adult category, the level of situational anxiety was 58 scores. In the athletes of II adult category the average level of situational anxiety was 49 scores, in the athletes of III adult category – 52 scores. In the skiers having the category of Master of Sports Candidate, it was 56 scores. In the adolescents without a sports category, the level of situational anxiety was 62 scores.

After the experiment, the following results subject to sports categories were revealed: in the athletes of I and II adult categories, the level of situational anxiety was 41 scores on average. In the athletes of III adult category, the average level of situational anxiety was 49 scores. In the skiers having the category of Master of Sports Candidate, it was 42 scores. In the athletes without a sports category, the level of situational anxiety was also 42 scores. Thus, it was found that during the experiment the largest decrease of the situational anxiety level was shown by the athletes having the category of Master of Sports Candidate and those without a sports category.

The elaborated complex of autogenic training included the following steps:

- The first step was an introductory lecture held at a conference hall of "Orlenok" sports camp on 26 August 2017 at 7 pm. The participants received detailed information about autogenic training and all accompanying measures. Also, the participants were given the plan of the experiment and the schedule of events;
- Six sessions of autogenic training with a coach were held in the athletes' room in "Orlenok" sports camp (with girls and boys separately). These sessions took place from 26 August to 1 September 2017 at 9:45 pm during 15 minutes (every day before falling asleep);
- Independent sessions of autogenic training at athletes' homes every other day (in the morning after waking up and in the evening before falling asleep) during 3.5 months;

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- 12 group sessions (10 athletes with a coach), held in coaches' room at Velsk Sport School for Children and Adolescents in order to maintain the effect of autogenic training, to control, to render assistance if necessary, and to resolve the questions concerning the technique. These sessions took place every Saturday during the period of experiment.

Below we describe the complex of autogenic training.

It is recommended to conduct the autogenic training while lying on the back. The arms should be slightly bent in the elbows and lie along the body, palms down. The feet should be relaxed and moved apart. A session may be conducted while sitting. An armchair should have a high back with a support for the head and soft arms.

Autogenic training should be conducted in complete silence. Brief explanations are allowed, after which joint exercises are done together with a coach, then independently in complete silence.

The complex of autogenic training (duration – 10-12 minutes).

The introductory part is used only for group sessions with a coach, and is pronounced without pauses and repetitions. The coach pronounces the following text:

"Breathe in. Make a calm long breath out. When breathing out, feel general relaxation. Make yourself comfortable, nothing disturbs you. It is pleasant to realize that there is a long calm rest ahead. Now we are interested only in rest, quiet, deep relaxation. We are gradually calming down, distracting form everything around. We switch our attention to the relaxing, calming body. Follow my words calmly and softly, not straining but not distracting; silently repeat the phrases, three times each phrase, and evoke the necessary feelings."

Preparatory exercise of autogenic training. "Strain the main groups of muscles 3-4 times in a sequence, at half-strength, when breathing in: the muscles of legs, trunk, neck, face; relax them when breathing out. Pay special attention to the muscles of arms. They should be the last to relax. Try to feel relaxation of your arms' muscles as well as possible contrasting to their strain. Silently repeat three times each phrase pronounced by the coach, concentrating on your sensations".

Exercise for general calming: "All your attention is on breathing – it is regular and calm. With each exhalation, the body is filled with pleasant flabbiness. All problems and troubles, all extraneous sounds and thoughts move away, become weaker with every exhalation. All my body is relaxed, flabby, motionless. My arms are lying freely and relaxed. With each exhalation, the arms become more and more heavy. Heaviness moves along the left and right arm from the shoulders to the hands. Both hands become more and more heavy with each exhalation. Both hands are very heavy. The arms are heavy as weights. I am completely calm. Nothing disturbs me. All my muscles are pleasantly relaxed. All my body is having rest. I am completely calm". Each phrase pronounced by the coach should be silently repeated three times, concentrating on one's sensations.

Exercise for regulating breathing: "I am completely calm. My breathing slows down. The air comes freely into the lungs. I am breathing rhythmically, evenly. My breathing is light and warm. I am getting calmer and calmer with each exhalation. I feel my heartbeat getting slower. My body is getting rest. I feel all my muscles relaxed".

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Exercise for psychological preparation for competitions: “Competitions make me feel joy and freedom. Competitions give me pleasure. I will manage. I am ready for struggle. I am starting with confidence in myself. I am calm and composed. I am starting easily and quickly. I am pushing with the ski poles sharply and strongly. My skis are sliding reliably and firmly. I know that the race will be successful. I will do my best in the race. I will do everything I can”.

If an autogenic training session is carried out in the morning or afternoon, a mobilizing exercise must be included in the end in order to quickly remove the state of flabbiness and relaxation. One should conceive the sensations and images associated with cheerfulness and activity. An athlete should realize that appropriate changes are taking place in their body, which increase the level of activity and remove relaxation, drowsiness, and flabbiness.

At the end of each session (except for sessions before falling asleep), such phrases are used: “Rest has restored my strength. With each inhale, more and more energy fills y muscles, which become strong and elastic. Each exhalation takes away my relaxation. With each inhale, I feel freshness and lightness all over my body”.

The exercises to activate breathing are used: several long deep inhales ending with sharp exhalations. Then count backwards from three to one, feeling increasing freshness, strength, cheerfulness. At count one, open your eyes, with a smile on your face, and be ready to act.

IV. CONCLUSION

The carried out research confirms the efficiency of the described complex of autogenic training in forming the sustainable psychological state of 14-15 y.o. racing skiers before competitions.

Based on the research, practical recommendations were elaborated for using the complex of autogenic training by 14-15 y.o. racing skiers. The coaches were instructed how to organize further implementation of this complex.

The coaches were recommended to take into account that young racing skiers often develop unfavorable pre-start states. They need psychological support of a coach and the immediate environment. It is recommended to use the complex of autogenic training for correcting the emotional state of racing skiers in the process of preparing for competitions since 14 y.o.

The coaches should focus on certain sections of general pre-professional program in the sphere of physical culture and sport “Ski races” (in particular, the section “Psychological training”). They should study special literature on the topic and, after mastering the special knowledge on implementing the autogenic training technique, teach this technique to the athletes, encourage them for independent sessions, so that young athletes could apply it in future when needed.

To master the autogenic training technique, regular sessions during 3-4 months are necessary, 3-4 times a week, two times a day (in the morning and evening) during 15-20 minutes. The place for autogenic training should be comfortable. As a rule, a slight background noise does not distract from sessions. Sudden and loud noises should be excluded.

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It is recommended that athletes pay due attention to their psychological state before competitions and be able to correct it with the help of autogenic training.

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