



*Asesorías y Tutorías para la Investigación Científica en la Educación Puig-Salabarría S.C.*  
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RFC: ATI120618V12

**Revista Dilemas Contemporáneos: Educación, Política y Valores.**

<http://www.dilemascontemporaneoseduccionpoliticaayvalores.com/>

**Año: VII      Número: Edición Especial      Artículo no.:116      Período: Diciembre, 2019.**

**TÍTULO:** Formación de la preparación psicológica de los cadetes para la práctica profesional durante las actividades deportivas.

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**RESUMEN:** El artículo investiga la influencia del entrenamiento de levantamiento de pesas rusas en el nivel de cualidades psicológicas profesionalmente importantes de los cadetes (n=96) de las instituciones de educación militar superior de Ucrania. Se revelan las razones que afectan el nivel de preparación psicológica de los cadetes para las competiciones, se ilustran los principios de la metodología de los autores de la formación psicológica de los cadetes, y la influencia de la

metodología de los autores en el nivel de las cualidades psicológicas profesionalmente importantes de los cadetes. Se descubrió que los cadetes del grupo experimental tenían un mayor nivel de cualidades psicológicas que los del grupo de control al final del experimento. Se demuestra la influencia positiva del entrenamiento de levantamiento de pesas rusas en la formación de la preparación psicológica de los cadetes para la práctica profesional.

**PALABRAS CLAVES:** cadetes, preparación psicológica, cualidades psicológicas profesionalmente importantes, deporte, levantamiento de pesas rusas.

**TITLE:** Formation of cadets' psychological readiness for professional practice during sport activities.

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**ABSTRACT:** The influence of kettlebell lifting training on the level of professionally important psychological qualities of cadets (n=96) of Ukrainian higher military educational institutions is investigated in the article. The reasons affecting the level of cadets' psychological readiness for competitions are revealed, the principles of the authors' methodology of the cadets' psychological readiness formation are illustrated, the influence of the authors' methodology on the level of cadets' professionally important psychological qualities is determined. The cadets of the experimental group were discovered to have a higher level of most psychological qualities than the cadets of the control group at the end of experiment. It proves the positive influence of kettlebell lifting training on the formation of cadets' psychological readiness for professional practice.

**KEY WORDS:** cadets, psychological readiness, professionally important psychological qualities, sport, kettlebell lifting.

## **INTRODUCTION.**

Sports activities were considered in the works of many scientists (Edwards, Stephen, & Clive, 2004; Kyrylenko, 2001; Ueynberg, & Gould, 2001) as an effective means of the formation of professionally important psychological qualities of future specialists.

Applied military sports play a significant part in the formation of psychological readiness of military personnel for professional (combat) activity (Rolyuk, et al., 2016; Sergienko, & Andreianov, 2013).

Kettlebell lifting as one of the applied military sports is highly popular among military servicemen, especially the cadets of Ukrainian higher military educational institutions (HMEI) (Ambrozy, et al., 2017; Beauchamp, & Pike, 2006; Bolotin, Bakayev, & Vazhenin, 2016; Prontenko, et al., 2019). The advantages of kettlebell sports among the other applied military sports are: the possibility to complete sports grades and obtain sport titles; the possibility to participate in the competitions of

different ranks both in Ukraine and abroad; the absence of material expands; compact equipment; the possibility to train both in confined spaces and outdoors; the possibility of conducting both independent training and training with the group; a wide range of simple exercises excludes the possibility of adapting to the same type of loads; the possibility to conduct classes simultaneously with cadets of different levels of physical fitness, high efficiency in the development of physical and volitional powers, strengthening the muscles of the back and the whole body; prevention of spinal and joint injuries (Ho-Jin, 2017; Lake, & Lauder, 2012; Manocchia, et al., 2013; Prontenko, et al., 2019; Vatel, & Gray, 2005).

The essence of kettlebell lifting is to perform exercises with a certain weight (24 kg, 32 kg) during a definite period of time (10–12 minutes, and in biathlon – 20 minutes) that proves the high requirements for the physical and psychological readiness of the cadets engaged in this type of sport.

Kettlebell lifting holds a specific place in the system of physical training and sporting and mass participation events of S. P. Koroliiv Zhytomyr Military Institute (ZMI) which makes the future specialists in technical types of intelligence and information confrontation ready to serve for Ukrainian Armed Forces. Kettlebell lifting as a means of physical training plays a vital role in the formation of physical readiness of the specialists in mentioned above areas for professional activity, health and working capacity improvement.

There is a powerful section on kettlebell lifting in ZMI which is the largest among the other sports sections of the institute. Among the cadets of 10 last years, more than 20 cadets become Masters of Sports of Ukraine in kettlebell lifting, more than 10 cadets become champions of championships of Ukraine, Europe, and the world. During this time, the representative team of ZMI in kettlebell lifting was ranked only the first in all competitions of HMEI of Ukrainian Armed Forces that proves the popularity of kettlebell lifting among the cadets of ZMI.

The observations of the cadets-kettlebell lifters during studying, as well as in the course of their further work, shows that the psychological qualities formed in the process of training and competitions in kettlebell lifting are effectively revealed during both educational and professional activity, having a positive influence on the results of mentioned activities. However, the issues of the formation of cadets' psychological qualities in the process of training and competitive activities in kettlebell lifting are insufficiently solved and they require scientific research.

## **DEVELOPMENT.**

### **Methodology.**

The aim of the article is to investigate the influence of kettlebell lifting training on the level of professionally important qualities of cadets of Ukrainian HMEI.

96 cadets, aged 19–25, of ZMI participated in the research. Two groups were formed: an experimental group (EG) which included the cadets engaged in kettlebell lifting during studying (n=39), and a control group (CG) which included the cadets who were training according to the current system of physical training (n=57). The experiment was conducted in 2015–2019 during the cadets' 1<sup>st</sup> – 5<sup>th</sup> years of studying.

The level of professionally important psychological qualities of cadets was examined according to the following methods: "Test of finding numbers" (attention capacity and allocation, emotional stability), "Method of operation with numbers" (operative and involuntary memory), "Complex associations method" (peculiarities of thinking), "Burdon-Anfimov test" (attention concentration and span), "Method of Ch. D. Spielberger and J. L. Hanin" (state anxiety), "Methodology of A. V. Zvierkov and Ye. V. Eidman" (volitional self-regulation, insistence, self-control), "Method of A. Wessman and D. Rick" (self-esteem of the emotional state), "Methodology WAM (well-being, activity, mood)" (Korolchuk, & Kraynyuk, 2006; Kudryashov, 1992; Marischuk, Bludov, Plahtienko, & Serova, 1984; Nemov, 2003; Raygorodskiy, 2001).

Research methods: theoretical analysis and generalization of literature, pedagogical observation, testing, questionnaire, statistical analysis.

During the researches, the authenticity of the difference between the indicators of cadets was determined by the means of Student's t-test. The significance for all statistical tests was set at  $p < 0.05$ .

Researches related to the involvement of cadets were carried out in compliance with all relevant national regulations and institutional policies (Order of the Minister of Defense of Ukraine "On Approval of the Regulation on the Organization of Scientific, Scientific and Technical Activities in the Armed Forces of Ukraine" dated 27.07.16, No. 385). The informed agreements were received from all people involved in this research.

### **Results and discussion.**

As modern kettlebell lifting is characterized by high loads and a high level of competition, it results in significant stress of cadets-kettlebell lifters which have various ways of psychological display (Beauchamp, & Pike, 2006; Prontenko, et al., 2019).

Being worried, anxious and scared, the cadets' organisms are stimulated to change physiologically that reduces the level of coordination abilities, increases muscle tension too much that causes exhaustion, concentration deterioration, slows down recreational reactions. In turn, these changes affect the sportsmen' attention, feelings, thoughts, evaluations, increasing the negative impact of stress on the principle of back reaction (Ganyushkin, 2002; Vyatkin, 1981). They do not allow achieving maximum results and sometimes lead to the premature end of the work.

According to the data of scientists (Henning, Park, & Kim, 2011), the negative impact of stress is not only limited by the effect on the result of the exercise, but it is also revealed in a sharp increase in the injury possibility. In this regard, psychological training plays an important role in achieving high results in kettlebell lifting and maintaining the health of cadets.

Nowadays, achieving maximum results in intense competition concerning the same level of sportsmen' physical fitness mostly depends on psychological readiness. According to A. V. Alekseev (1982), "many coaches and sportsmen put in the blood, sweat, and tears to train their bodies, but also the head, or to be exact, the brain needs special training".

To overcome the exhaustion that appears in the process of exercises performance, kettlebell lifters should carry out "volitional actions" of a certain type – these actions should not be too impulsive as a kettlebell lifters must spend all the time determined by the regulations on the exercise, but also they should not be "soft" because the weight of kettlebells is quite significant and "psychological settings" are needed almost every second for a long intensive work with such weight. Therefore, specialists in physical education and sports, cadets-kettlebell lifters should pay proper attention to psychological training, in particular, its main direction – volitional training.

Probably, every kettlebell lifter had the situation when things just are not working out properly sometimes, even if one is successful in the other days, while the level of physical fitness remains the same. It is caused by the change of psychological state. Everyone knows the following situations: you could not cope with worrying at a critical moment; you are in low spirits because of the slow recovery from injury; you have no motivation or desire to exercise; you are worried about your performance and you feel depressed. At the same time, most of the kettlebell lifters are familiar with the feeling that everything "goes with a swing" without any effort.

The mental and emotional components predominate over physical and technical aspects of preparedness very often. Many years of observation of the kettlebell lifters of different qualifications showed that it often happened that the kettlebell lifters, even of high-class, had completed the competitive exercise earlier or significantly reduced the pace of exercise for no apparent reason. Sometimes it happened that the kettlebell lifters had changed the parameters of the technique because of slight exhaustion (for 2–4 minutes). When they were questioned about the

awareness of their unsuccessful performance, most of sportsmen stated that they had not felt physically exhausted. However, they mentioned worrying, anxiety, emotional over-excitement or vice versa apathy and unwillingness to compete.

In order to find out the reasons for the lack of psychological readiness of kettlebell lifters, a survey of 138 kettlebell lifters of different qualifications was conducted by the authors' questionnaires (Table 1).

Table 1. The results of the investigation of the state and effectiveness of psychological training in kettlebell lifting (n=138, %).

Questions of the survey	Group A, kettlebell lifters who have the sport grade (n=81)			Group B, kettlebell lifters of high qualification (n=57)		
	Almost never	Sometimes	Often	Almost never	Sometimes	Often
Do you feel worried before competitions?	3.7	19.8	76.5	8.7	47.4	43.9
Are you worried about the possibility of a bad performance?	8.6	18.6	72.8	24.6	56.1	19.3
Do you feel the increase in heart rate before competitions?	4.9	7.4	87.7	15.8	43.9	40.3
Do you feel discomfort in your stomach before competition?	30.9	35.8	33.3	49.1	35.1	15.8
Do you feel not confident before competition?	12.3	22.2	65.5	64.9	24.6	10.5
Have you ever had an unsuccessful performance because of psychological problems?	51.8	38.3	9.9	49.1	45.6	5.3

The survey showed that in group A, 76.5 % sportsmen often feel worried before a competition, 19.8 % – sometimes, 3.7 % – almost never. The percentage of sportsmen who often feel worried before competition is lower in group B than in group A and it accounts for 43.9 %. 47.4 % sportsmen sometimes feel worried and 8.7 % kettlebell lifters of high class are almost always calm before a competition. Answering the question, if they are worried about the possibility of a bad performance before competition, 72.8 % respondents of group A answered that they are often worried, 18.6 % – sometimes, 8.6 % – almost never. The answers to this question were distributed in group B in the following way: 56.1 % sportsmen mentioned they are sometimes worried, 24.6 % – almost never



and 19.3 % – often. The questioning also showed that 87.7 % sportsmen often feel the increase in heart rate, 7.4 % – sometimes, 4.9 % – almost never in group A. Among the sportsmen of group B, 43.9 % sometimes have the heart rate increased, 40.3 % – often and 15.8 % – almost never. 33.3 % sportsmen of group A often felt discomfort in the stomach before a competition, 35.8 % – sometimes, 30.9 % – almost never. In group B, 49.1 % sportsmen almost never felt discomfort, 35.1 % – sometimes and 15.8 % – often.

One of the most important abilities of a high-qualified kettlebell lifter, especially the one who successfully takes part in the competitions of the highest essence, in acute competition with equally-skilled rivals, is self-confidence (Prontenko, et al., 2019; Vatel, & Gray, 2005). The confidence in the abilities to achieve high professionalism, to gain the advantage over rivals, to win the competition significantly affects the quality of training and competitive activities. On the other hand, self-distrust not only leads to breakdowns in training and competitions but also creates a so-called negative presentiment which is a psychological barrier leading to the creation of an "endless circle": the expectation of failure leads to failure which, in turn, increases expectations of another failure. 65.5 % sportsmen often felt not confident before competitions in group A, 22.2 % – sometimes, 12.3 % – almost never. In group B, on the contrary, most sportsmen were self-confident (64.9 %), 24.6 % sometimes felt not confident and 10.5 % – often.

Answering the question, if they have ever had unsuccessful performance because of psychological problems, 51.8 % sportsmen of group A claimed they had almost never had such situations, 38.3 % – sometimes and 9.9 % – often. In group B, 49.1 % cadets had almost never had breakdowns in competitions because of psychological problems, 45.6 % – sometimes and 5.3 % – often.

The high percentage of sportsmen of both groups who sometimes had unsuccessful performances because of worrying and anxiety should be noted that emphasizes the importance of psychological training of both the sportsmen who have sports grades and the sportsmen of high class.

The study of the answers to the question, on what the degree of worrying before competitions depends, showed that about 90 % sportsmen mentioned several answers, however, the next trend was identified: the majority of the sportsmen questioned (81.2 %) consider that the degree of worrying depends on the level of readiness for certain competitions; 54.3 % are worried when discovering strong rivals; 49.3 % noted that the factor of worrying is the rank of competitions; 47.8 % – the responsibility to the team and coach; 40.6 % – inappropriate emotional state and self-distrust; 31.9 % – the lack of the support of a coach; 21.1 % – previous injuries; 19.6 % – the state of equipment (the height and the diameter of the weight hand, another magnesium powder etc.); 18.1 % – a definite physical state (disease, exhaustion); 15.2 % – uncertainty in future competition results.

Among the characteristic conditions and feelings observed before competitions, sportsmen noted heavy sweating, cold limbs, increased muscular tension, inability to concentrate, dry mouth, sleep disorders before competitions, the lack of appetite and others (Table 2).

Table 2. Characteristic features of the state of high anxiety of athletes before competitions, %

Features	Group A (n=81)	Group B (n=57)
Cold limbs	25.9	15.8
Heavy sweating	55.5	36.8
Increased muscular tension	88.9	73.7
Inability to concentrate	62.9	45.6
Dry mouth	95.1	84.2
Headache	17.3	5.3
Heart pain	27.2	10.5
Feeling sick	33.3	14.0
Fear	41.9	15.8
Sleep disorders	58.1	36.8
Restraint	44.4	31.6
Increased talkativeness, fuss	48.1	12.3
Desire to relieve natural functions	65.4	26.3
The lack of appetite	72.8	50.9
Aggression	18.5	5.3

The analysis of the survey results showed that the indicators of the psychological readiness of the sportsmen of high qualification who have more experience are higher than the indicators of the sportsmen who have sports grades. It also should be mentioned that, on the one hand, psychological qualities ground the level of the kettlebell lifters' achievements, and on the other hand, they are formed in the results of kettlebell lifting activities that explains that the sportsmen of high qualification have the higher level of these qualities.

Hence, the conducted investigations prove that the principle reasons reducing psychological readiness of sportsmen for competitions are: insufficient preparedness (state of training) that leads to the fact that the conditions of competition become a threshold stimulus (insufficient level of development of physical qualities, functional capabilities of the basic systems of the organism, irrational technique of exercise, inadequate pace of exercise); reduced or increased overall emotional excitability of the sportsman with nervous system imbalance displays and inability to control oneself (the presence of strong or weak opponents, the quality of equipment, injuries, etc.); the inconsistency between the feeling of responsibility for the performance and the lack of preparedness (feeling obliged against the coach, team, sports organization); the uncertainty in the results of competitions (competitions of the equal in strength opponents, teams – the higher the degree of uncertainty is, the higher the state of anxiety and stress is); personal anxiety and self-distrust (low self-esteem and the perception of competition as a threatening event).

According to the data of a number of scientists (Ganyushkin, 2002; Platonov, 2014), to solve the problems of the psychological preparation of sportsmen, a number of directions were developed, among which volitional training takes the central place. The will is an active part of human consciousness which in unity with the mind and feelings regulates the behavior and activity in difficult conditions. That is, "will" means the ability of a person to consciously regulate the actions, actively direct them to achieve goals while overcoming difficulties and obstacles.

In the structure of volitional readiness are distinguished such qualities as purposefulness (clear vision of a promising goal), decisiveness and courage (tendency towards reasonable risk combined with timeliness and moderation of decisions), perseverance and persistence (the ability to mobilize functional reserves, being active in reaching the goal and overcoming obstacles), endurance and self-control (the ability to control one's thoughts and actions in the context of emotional excitement), independence and initiative (the ability to determine the purpose and ways of its achieving).

The specificity of different sports significantly affects the requirements for volitional powers and features of their expression. The representatives of each sport have their own principal volitional powers that are the closest to them and those that complement them. On the basis of literary sources (Beauchamp, & Pike, 2006; Manocchia, et al., 2013) and conducting of our own research, we have proposed a structure of volitional powers in kettlebell lifting, according to which the main quality which unites the whole structure is purposefulness.

The leading volitional powers of the kettlebell lifters are endurance, self-control, perseverance and persistence in achieving the goal; qualities that complement the leading ones are courage, decisiveness, independence and initiative. Volitional powers can be developed only in the process of overcoming difficulties. The difficulties that people face do not foster freedom themselves, but facing the need to overcome them, mobilizing for this purpose all the efforts, people thereby develop willful qualities.

The more complex the difficulties that a person overcomes are, the higher their educational value is. It is important to note that many studies (Kyrylenko, 2001; Platonov, 2014) showed that volitional powers developed in the process of sports activities are likely to be transferred to the effectiveness of everyday and professional activities. At the same time, it should be noted that the difficulties that

the cadets-kettlebell lifters face should not be too hard, because if they are not fulfilled or achieved, it will "weaken" the will of the cadet.

On the basis of the studied literature and concerning the results of exploratory research, we developed the methodology of the formation of cadets' psychological readiness during kettlebell lifting training. The peculiarities of the authors' methodology are: the orientation of the cadets' activity on systematic overcoming of constantly increasing difficulties (physical activities); organic combination of the process of formation of volitional powers with the improvement of technical preparedness, development of physical qualities and functional abilities of cadets; focus on higher achievements; systematic participation in competitions. The main points of the authors' methodology are stated below:

1. A cadet should be required to perform training programs regularly, as well as the tasks and targets of the competition. This requirement is associated with the cultivation of the kettlebell lifters' habit to systematic efforts and perseverance in overcoming difficulties, the ability to finish the job, to keep the promise firmly. It is possible in the case of the cadets' full awareness of the purpose of kettlebell lifting activities, the coach's belief and the correctness of the program. It is important that the tasks set for a cadet are real and correspond to one's level of readiness.
2. The implementation of additional difficulties. According to the authors' methodology, the following techniques were used the implementation of distracting factors in the training process (loud music, side conversations and questions during exercises with kettlebells, constant fuss in front of the stage where a cadet works, deliberate miscounting of the number of weights lifting, a sudden change in lighting, performing exercises at night time, etc.); training in difficult conditions (the weight change unknown to a cadet, increase in the planned duration of the exercise, number of approaches, pace, the exercise performance not on the stage or on the stage of a much smaller size, etc.); the implementation of additional tasks (for example, during the 8 minutes exercise, an

additional task to work out for another 2 minutes is given during the 7<sup>th</sup> minute or to perform 1–2 additional sets after the 10<sup>th</sup> – 12<sup>th</sup> minute of performing exercises; performing exercises while feeling exhausted (the improvement of the technique of jerk after performing squats with a barbell, practicing a snatch after a cross or pull-ups, etc.).

3. The usage of a competitive method. The systematic participation in competitions is important for the formation of volitional powers of cadets who are future officers. The appliance of the competitive method involves the organization of control trials (mini-competition) at certain stages of preparation to check the level of physical, functional and technical preparedness. The authors' methodology recommends to use the following methodical techniques: the main task of some control trials is to perform a given (rather significant) number of weight liftings without taking into account time (usually more than 10 minutes), the main task of others – to keep the specified pace for a certain period of time (kettlebell lifting relay race (2–3 minutes), interval training, etc.); carrying out control trials in unusual and complicated conditions (performing exercises for more than 10 minutes, with heavier weights, inviting teachers as judges to control trials, creating an atmosphere of competition (time for going to the stage, referee alarm).

4. The appliance of methods of psychological influence on the cadets-kettlebell lifters. They include active voice support from the teacher and teammates (shouting the words "Stick it!", "Hold on!", "Well done!", "You can do it!", etc.); the distribution in thoughts of a given number of weights lifts into several "segments" during the jerk or snatch, because it is quite difficult to keep in mind large numbers, and moving towards the goal in "small steps" reduces the psychological stress (80 lifts, for example, can be divided into 4 series by 20, or 8 by 10, and the last 10 or 20 lifts – by 5 more).

5. Gradual intensification of the self-education function, which implies cadets' steady sports schedule following; convictions, getting over yourself to do all compulsory tasks and achieve the intended result; constant self-control (of one's own weight, heart rate, level of readiness); self-

regulation of mental state in the process of competitive activity (the ability of a cadet to mobilize functional capabilities for the limit use of the organism's energy resources to achieve the goal); the cadets' following the rules of competition, traditions, fostering a sense of responsibility, honor, honesty, dignity, respect for judges and rivals, exactingness to oneself and others, independence in decision making, discipline and so on.

An important factor in a cadets' psychological readiness is also one's ability to manage the level of excitement before and during competition. Emotional excitement in the pre-competition environment is a positive factor if it does not exceed the optimal limits for the sportsman. Optimal excitement is revealed in the cadets' self-confidence, positive attitude towards competition, and increased attention.

When the level of emotional excitement exceeds the optimum range, over-excitation occurs that leads to uncertainty, anxiety, attention deterioration, discoordination and, as a consequence, a decrease in the efficiency of competitive activity. The following types of pre-competition states are found in the scientific literature: pre-competition fever (over-excitation), apathy (insufficient excitement), and optimal combat state (optimal excitement, combat readiness) (Alekseev, 1982; Vyatkin, 1981).

The basis of psychological tension is the interaction of two types of regulation: emotional and volitional. The first generates worries, the second – willful effort. Often, the kettlebell lifters' worries before a competition successfully stimulate one, minimizing willpower. At the same time, any strong-willed effort is based on an emotional start. These concepts are profoundly interconnected.

Pre-competition emotional tension is regulated by purposeful willpower. Emotions cause energy release and the will determines the efficiency of using that energy. There are many examples in the history of the sport when record-breaking achievements were the results of will-driven emotions.

Pedagogical observation of the behavior of kettlebell lifters in the competitive activity and immediately before the performance for many years allowed characterizing the dynamics of the mental states of kettlebell lifters before a competition. Thus, in everyday life, the level of mental tension is within the norm when extreme situations do not happen. Its fluctuations correspond to the states of a person, from dormant to active states.

A few days before the start, the level of tension remains close to normal. The mental tension increases when competitions are approaching. The cadets who are emotionally unstable feel it a week or more before the competition and the cadets who are emotionally stable – most often only on the day of competition. The most favorable is the case when the optimum level of mental tension coincides with the start time. The state that arises in such cases is called a state of combat readiness. Then a kettlebell lifter realizes his readiness maximally with great inspiration and uplift, using all reserved motor capabilities at the competition. This state is expressed in the awareness of the importance of the future task, in a clear understanding of the responsibility and complexity of the future struggle and the active desire to lead this fight to the full extent till final victory. At this moment, cadet experiences bright emotions of confidence in his success, in his own strength, feels the burst of cheerfulness, energy and looks forward to the beginning of a competition, it brings him joy and satisfaction. His attention is completely focused on the main task (he does not notice anything external).

A cadet notices, associates, analyzes and generalizes quickly all that is important for the success of a competition. His thoughts work clearly, he can think quickly, evaluate and make a decision. However, the optimum level of mental tension may not coincide with the start time. In these cases, the mental tension is increased and as a result, a cadet is in a state of fever. This condition reduces the reliability of achieving a high result. In this state, the nervous system of a kettlebell lifter is close to breakdown because of excitement. Braking elements appear in the behavior. The emotions



that arise at this time are unstable; some are quickly changed to others, often the opposite ones: a cadet is afraid of future performance, then hopes for success and again despairs and loses hope. In this state, a cadet is not free to control his thoughts, his attention. He becomes distracted by unnecessary external details, unable to concentrate. His perception and imagination are fragmentary, and his thoughts are confused, jumping from one to another. All these signs of starting fever are accompanied by physiological indicators: increased respiratory rate and pulse, trembling hands and feet, cold limbs, as well as cold sweating, paleness. Sometimes, cadets complain of dry mouth, stomach disorders, etc.

The condition of the starting fever happens most often to insufficiently trained kettlebell lifters. Starting apathy, as a rule, arises as a result of the transition from the maximum mental tension to the state of immobility (stupor) and it is a consequence of acute overstrains during the pre-competition stage. Starting apathy is a decrease in the motivation of activity, the will to win and a sense of responsibility. It does not allow realizing even the achieved level of readiness. A kettlebell lifter experiences breakdown, weakness, and even drowsiness. Thus, a cadet has emotions of indifference, self-doubt, and depression. He loses interest in the future activity, in those around him and can barely make himself ready to start. The apathy is associated with a decreased functional state of the nervous system slowing down the excitatory processes and increasing the breaking processes.

A cadet is not capable of great and maximum effort, and he does not have the desire to fight and win. The peculiarity of the pre-competition emotions in kettlebell lifting is that a cadet competes not so much with other participants, but with himself. Therefore, the formation of psychological readiness for competitions is important for achieving high results in kettlebell lifting and, in the future, for improving the efficiency of professional activity.

The methods of regulation of the pre-competition state (methods of self-suggestion and self-conviction) play an important role in the process of forming cadets' psychological readiness of for competitions (Edwards, Stephen, & Clive, 2004; Platonov, 2014). The cadets were advised to abstract from the situation of competitions and rivals for better self-adjustment before competitions. Increased excitement before the start should be focused not on worries about performance results, but on the key components of exercise techniques and functional state. The self-suggestion texts we recommended were: "I'm confident in competing"; "Competition for me is a holiday, a holiday of my readiness, willpower, and courage"; "I look forward to the competition"; "I know that competitions cause great inspiration and general uplift"; "I trained honestly and qualitatively, now I can only realize my readiness calm and confidently"; "The pre-competition self-doubt has gone away; it has been replaced by self-confidence, peace, and coolness, lightness, relaxedness, steadiness"; "Whatever happens during the competition, I will remain calm and confident"; "I will survive the start of the excitement, they will turn into combat energy"; "This rare combat spirit will help me mobilize as much as possible"; "I'll take all my efforts to fight, all the way."

To study the impact of kettlebell lifting on professionally important psychological qualities and the emotional state of cadets during study at the HMEI, we analyzed the level and dynamics of the results of psychological testing of the EG and CG cadets at the beginning and end of the pedagogical experiment. The analysis of the cadets' indicators of attention capacity and allocation according to the "Test of finding numbers" showed that at the beginning of the experiment the indicators of groups did not differ significantly ( $p>0.05$ ).

In the course of the experiment, the indicators of attention capacity and allocation were authentically ( $p<0.001$ ) improved in both groups: in CG – for 2.82 points, and in EG – for 3.06 points. At the end of the experiment, the indicators of the EG cadets were better authentically in comparison to CG, for 0.86 points (Table 3).

Table 3. The dynamics of professionally important psychological qualities of EG and CG cadets during the pedagogical experiment ( $X \pm m$ ).

The stages of the experiment	EG (n=39)	CG (n=57)	Significance value, p
Attention capacity and allocation, points			
The beginning	4.98±0.31	5.16±0.20	>0.05
The end	8.04±0.19	7.18±0.14	<0.001
Visual operative and involuntary memory, points			
The beginning	5.26±0.28	5.37±0.21	>0.05
The end	7.61±0.17	7.56±0.13	>0.05
Peculiarities of thinking, points			
The beginning	4.45±0.30	4.51±0.22	>0.05
The end	6.90±0.18	6.78±0.16	>0.05
Attention concentration and span, %			
The beginning	86.12±0.89	86.97±0.45	>0.05
The end	92.94±0.77	90.15±0.41	<0.05
State anxiety, s. u.			
The beginning	53.71±1.14	52.94±0.84	>0.05
The end	30.50±0.72	35.52±0.65	<0.001
Index of volitional self-regulation, points			
The beginning	11.30±0.58	11.34±0.49	>0.05
The end	16.12±0.45	13.87±0.41	<0.01
The persistence index, points			
The beginning	8.14±0.55	8.09±0.43	>0.05
The end	12.52±0.31	10.27±0.33	<0.001
The index of self-management, points			
The beginning	4.94±0.47	5.02±0.35	>0.05
The end	8.20±0.24	6.93±0.26	<0.01

The dynamics of visual operative and involuntary memory, investigated according to the "Method of operation with numbers", peculiarities of thinking (by the method of "Complex associations") and concentration and stability of attention (by "Burdon-Anfimov test"), is similar to the dynamics of indicators of attention capacity and allocation – a significant ( $p < 0.001$ ) improvement of indicators during the experiment in both groups. At the end of the experiment, memory and thinking indicators of EG cadets were better than CG cadets (for 0.05 points and 0.12 points respectively), but the difference between the groups was not significant ( $p > 0.05$ ). At the end of the experiment, the indicators of attention concentration and span of EG cadets were significantly better than the indicators of CG cadets for 2.79 % (Table 3).

The study of the cadets' indicators of state anxiety according to the "Method of Ch. D. Spielberger and J. L. Hanin" shows that at the beginning of the experiment, the level of anxiety of the cadets of both groups was estimated as high, being in the range of 52.94–53.71 s. u. and it did not differ significantly ( $p>0.05$ ). During the experiment, the level of anxiety of the cadets of EG and CG decreased significantly ( $p<0.001$ ), at the end of the study, the optimal level of state anxiety is determined in both groups, but a comparative analysis of the indicators showed that the level of anxiety in EG (30.50 s. u.) is significantly lower than in CG for 5.0 s. u. ( $p<0.001$ ) (Table 3). It allows to state about more effective impact of kettlebell lifting, in comparison to the current system of physical training, on the indicators of the cadets' anxiety.

The analysis of the indicators characterizing the cadets' volitional powers (indices of volitional self-regulation, persistence, and self-control) showed that at the beginning of the study, no significant difference in the cadets' of EG and CG indicators was found ( $p>0.05$ ). At the end of the study, EG cadets' indicators were significantly better than the CG cadets for all the indicators studied ( $p<0.01$ – $0.001$ ) (Table 3). Thus, the difference in the indicators of the cadets' of EG and CG volitional self-regulation is 2.25 points, persistence index – 2.26 points, the index of self-control – 1.27 points at the end of the experiment.

In the course of the experiment, the indicators of volitional powers were significantly improved in both groups ( $p<0.001$ ), but there were more prominent changes in EG than in CG. The increase in the index of volitional self-regulation for 4.82 points suggests that at the end of the experiment, cadets of EG were characterized by calmness, self-confidence, the developed sense of personal obligation, the ability to distribute efforts during the exercises and to control their actions.

An authentic improvement in the persistence index (for 4.38 points) which characterizes the power of intentions indicates an increase in the performance of EG cadets, an active desire to achieve the goal and perform planned tasks. A high index of the cadets' self-control at the end of the study

(8.20 points) indicates an increase in their emotional stability, the ability to control themselves in extreme situations. The improvement of these indices caused the increase in the EG cadets' self-confidence, reducing the fear of obstacles on the way to the achievement of results.

A better level of attention, memory, thinking, anxiety, volitional indicators of EG cadets than of CG at the end of the experiment shows that kettlebell lifting activities influence the improvement of the professionally important psychological indicators of cadets positively. Besides, high physical activity which kettlebell lifting involves and which are much higher than those identified by the current system of physical training did not prevent the development of the professionally important psychological qualities of cadets who are the future officers of the Ukrainian Armed Forces.

The study of the self-esteem indicators of the cadets' emotional state according to the "Method of A. Wessman and D. Rick" showed that they did not differ significantly in the groups at the beginning of the experiment ( $p > 0.05$ ), but the level of emotional self-esteem is discovered to be significantly better in EG (7.28 points) than in CG (6.05 points) for 1.23 points ( $p < 0.001$ ) at the end of the experiment (Table 4).

During the experiment, the level of self-esteem of the emotional state of cadets of both groups was improved significantly ( $p < 0.001$ ), but EG cadets were determined to have a more prominent difference that proves the positive effect of kettlebell lifting on the cadets' emotional state. Thus, it contributes to the success of training and the effective tasks of working and daily activities performance. The evaluation of the cadets' test results concerning each separate scale of the "Method of A. Wessman and D. Rick" indicates that at the end of the study, most of EG cadets mentioned such statements as "I am generally confident and I have no worries concern, feel free and easy" (according to the scale "calm – anxiety"); "I feel fresh, energetic, I have a lot of energy and a strong need to act" (according to the scale "energy – exhaustion"); "I feel very well, I have a good mood, I am cheerful" (according to the scale "uplift – frustration"); "I am confident in my skills; I

feel that I am enough skillful and my prospects are good, I am confident in my achievements" (according to the scale "self-confidence – helplessness").

Table. 4. The dynamics of the emotional state indicators of the EG and CG cadets during the pedagogical experiment ( $X \pm m$ ).

The experiment stages	EG (n=39)	CG (n=57)	Significance value, p
The emotional state self-assessment, points			
The beginning	4.46±0.28	4.61±0.18	>0.05
The end	7.28±0.20	6.05±0.14	<0.001
Emotional stability, points			
The beginning	4.76±0.33	4.88±0.21	>0.05
The end	8.12±0.20	7.93±0.13	>0.05
Well-being, points			
The beginning	6.42±0.24	6.50±0.17	>0.05
The end	8.21±0.19	7.53±0.15	<0.01
Activity, points			
The beginning	5.83±0.28	5.71±0.19	>0.05
The end	7.74±0.26	6.36±0.18	<0.001
Mood, points			
The beginning	6.57±0.25	6.49±0.18	>0.05
The end	7.85±0.20	7.46±0.14	>0.05

The analysis of the cadets' emotional stability according to the results of retesting by the "Test of finding numbers" (but with modified tasks) revealed that at the beginning of the research, the indicators of attention volume and allocation were decreased in both groups after retesting, in comparison with the results of the first testing, that proves a low and authentically same level of emotional stability of the EG and CG cadets at the beginning of the experiment.

The comparison of the results of retesting and initial testing of the cadets at the end of the study shows that the indicators were improved in EG and decreased in CG that indicates a positive influence of kettlebell lifting on the formation of the emotional stability of cadets that will contribute to the performance of the effective tasks in the conditions of stress and other unfavorable factors of the future military-professional (combat) activity.

The study of the dynamics of such characteristics of the emotional state of cadets, as well-being, activity and mood, according to the "Methodology WAM (well-being, activity, mood)" shows that they were significantly improved during the experiment ( $p < 0.001$ ) (Table 4). At the end of the study, the indicators of well-being and activity of EG cadets were determined to be significantly better than the CG cadets' indicators ( $p < 0.001$ ).

The superiority of the indicators of the professionally essential psychological qualities and emotional state of the cadets who were engaged in kettlebell lifting over the indicators of the cadets who were training according to the current system of physical training at HMEI can be explained by the fact that kettlebell lifting training, the essence of which is to lift a certain weight during a long period of time, require a high level of endurance and contribute to the development and improvement of such volitional powers of cadets as purposefulness, decisiveness self-confidence, persistence, courage, etc.

The high level of development of these qualities is revealed during the training of cadets – they desire to achieve high results also in the educational activities during the acquisition of theoretical disciplines. Thus, the studies of the impact of kettlebell lifting on the cadets' professionally important psychological qualities during training proved the high effectiveness of kettlebell lifting.

## **CONCLUSIONS.**

There are some conclusions that follow:

1. The main reasons for a low level of the cadets' psychological stability in competitions are determined. They include the lack of preparedness, decreased or increased general emotional excitability with nervous system imbalance displays and inability to control oneself, the inconsistency between the feeling of responsibility for the performance and the lack of preparedness, the uncertainty in the results of competitions, personal anxiety and self-distrust. The

cadets-kettlebell lifters of a high qualification who have greater experience in competitions are defined to have higher indicators of psychological readiness than the cadets with low grades.

2. The structure of volitional powers in kettlebell lifting is offered; according to it, the main quality is purposefulness; the leading volitional qualities are endurance, self-control, persistence and perseverance; the qualities that complement the leading ones are independence, initiative, courage and decisiveness.

3. The authors' methodology of forming the cadets' psychological readiness during kettlebell lifting training is grounded and its main principles are presented.

4. Different types of pre-competition emotional states are described, the recommendations on the formation of the optimal combat state of cadets are given, and the main texts of self-suggestion and self-conviction are presented.

5. The positive influence of kettlebell lifting training on the level of cadets' professionally important psychological qualities is proved – the most of the indicators of the EG cadets were significantly ( $p < 0.05 - 0.001$ ) better than the ones of the CG cadets at the end of the experiment. The high level of cadets' development of these qualities during kettlebell lifting training will help to improve the effectiveness of their educational activity and future military-professional (combat) activity.

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**RECIBIDO:** 5 de noviembre del 2019.

**APROBADO:** 19 de noviembre del 2019.