

Relevance of standardizing the process of conducting military (research) tests of exercises for physical training

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Purpose: to substantiate the relevance of standardization of the process of conducting military (research) tests, to determine the quantitative characteristics of criteria for assessing the quality of standards for physical training of servicemen of the Armed Forces of Ukraine.

Material & Methods: analysis of the relevance of the issues of standardization of the process of developing, organizing and conducting military (research) tests, determining the quantitative characteristics of the criteria for assessing the quality standards for the physical training of military personnel used in developed countries and in Ukraine.

Results: discusses the importance of standardization of documents on the management and organization of physical training in the Armed Forces of Ukraine, reaching eligibility standards PP armed forces – NATO members. Suggested content standard.

Conclusion: urgency of creating a standard in conducting military tests of physical training exercises for servicemen and units of the Armed Forces of Ukraine has proved the need to achieve criteria for compliance with the standards PP of the armed forces – NATO members countries. The lack of a regulatory framework makes it difficult to organize and carry out research and development work, operational tasks to develop new standards of physical training for the Armed Forces of Ukraine.

Keywords: military standard, physical training, tests, military.

Introduction

In the conditions of conducting a hybrid war in the east of the country, the problem of developing effective mechanisms for implementing combat experience in the training of specialists through the introduction of changes into practically all combat training programs, both individual and collective, from the initial course of the young soldier (sailor) and the Course of firing to the introduction of new standards in the training of military units and consideration of new forms and methods of using troops [1].

One of the integral mechanisms of state influence on the quality of the process of special physical training is the standardization of the order of checking the level of physical readiness of servicemen aimed at achieving the optimal degree of ordering in the physical training system of the Armed Forces of Ukraine by developing and establishing requirements, norms, rules, technologies, services used in the PP [2].

The urgency of the study is strengthened by the need to comply with the requirements of the Law of Ukraine of 5 June 2014 No. 1315-VII "On Standardization" and the provisions of the Presidential Decree of September 24, 2015. No. 555/2015 "On the new version of the Military Doctrine of Ukraine" [1; 16; 17].

Relationship of research with scientific programs, plans, themes. The research was carried out in accordance with the plan of scientific and scientific and technical activities of the Department of Physical Training of the Central Department of Training and Daily Activity of the Armed Forces of Ukraine for 2011–2015. On the topic of research "Justification

of the expedient ways of introducing the Combat Army System into the physical training system of the Air Force of the Armed Forces of Ukraine" (code "Bars-AF") (state registration number 0101U001568).

Purpose of the study: substantiation of the urgency of standardization of the process of development, organization and conduct of military (research) tests, determination of quantitative characteristics of criteria for assessing the quality of standards for physical training of servicemen of the Armed Forces of Ukraine.

Material and Methods of the research

The analysis of the relevance of the issues of standardization of the process of development, organization and conduct of military (research) tests, determination of the quantitative characteristics of criteria for assessing the quality of standards for the physical training of military personnel used in developed countries and in Ukraine.

Results of the research and their discussion

The standardization of documents on the management and organization of physical training (PT) in the Armed Forces of Ukraine is of primary importance for public quality management. Standardization is an activity that consists in establishing provisions for general and repeated use with respect to existing or potential tasks and is aimed at achieving an optimal degree of orderliness in a particular field [3]. The purpose of PT standardization is to ensure that the objects of standardization meet their purpose; diversity management, applicability, compatibility, interchangeability of standardiza-

tion objects; ensuring rational production through the application of recognized rules, regulations and procedures; protection of life and health; ensuring the rights and interests of consumers; ensuring labor safety; preservation of the natural environment and saving of all types of resources; elimination of technical barriers to trade and preventing their occurrence, supporting the development and international competitiveness of products [4].

The first attempts to organize a system of standardization in the field of physical training in the Armed Forces of the Soviet Union, and in the next Ukraine, began in the late 30's – early 40's. And they were conditioned by the introduction of combat experience in civil and other local wars [18–27]. At the present time, a fairly large number of installations that have been put in place to ensure the physical readiness of personnel for the successful performance of combat missions and actions [3].

With a view to reforming the training in the university, in recent years, certain steps have been taken to regulate the individual components of the combat training system, in particular, the orders of the Minister of Defense of Ukraine "On the Adoption of the Interim Instruction on Combat Training in the Armed Forces of Ukraine" [6], the order of the NSAH – "On the approval of the Provisional Instruction for the training of officers, sergeants (foremen) of tactical management, institutions, organizations of the Armed Forces of Ukraine" [5], "The concept of development of physical and training of the Armed Forces of Ukraine for the period up to 2020".

In the field of special physical training, the project "Catalog of standards for physical training for servicemen and units of species, arms and military specialties of the Armed Forces of Ukraine VKT 03.035.001-2016 (01)", the project "Manual on physical training", commissioned research work Commander of the Air Force of the Armed Forces of Ukraine "Justification of expedient ways of introduction of the Combat Army System into the Physical Training System of the Air Force of the Armed Forces of Ukraine" (code "Bars-AF") (number of the state registration 0101U001568), the commissioner of the Air Force of the Armed Forces of Ukraine received a separate instruction from the commander of the Air Force of the Armed Forces of Ukraine to study the impact of the implementation of the standards for the physical training of the Air Force of the Armed Forces of Ukraine on the level of their special physical readiness to operate in difficult conditions of modern combat operations, the power of attorney for the fulfillment of the operational task to substantiate the criteria (normative indicators) and conditions for the implementation of promising military-applied and special physical exercises for servicemen of the Air Force Arms of Ukraine.

The experience of these tasks demonstrates the immediate need to develop standardization of the process of developing, organizing and conducting military (research) tests, determining the quantitative characteristics of criteria for assessing the quality of standards for physical training of servicemen of the Armed Forces of Ukraine.

At the same time, the catalyst for the standardization of physical training is also the need for the Center to achieve operational standards and methods for training the Armed Forces of Ukraine (a group of standards for physical training) for criteria of compliance with the standards of the Armed Forces of the

Armed Forces of NATO member countries [7]. The lack of a regulatory framework concerning the requirements for the development of standards for physical training makes it difficult to organize and perform research on the development of new standards for physical training for the Armed Forces of Ukraine and may lead to a discrepancy between the quantitative characteristics of the criteria for assessing the quality of standards developed for the physical readiness requirements of servicemen.

In the Armed Forces of the NATO member states the standardization of the organization of physical training is set out in the field charters and programs [8].

In the understanding of NATO states, standardization is the process of developing concepts, doctrines, procedures aimed at achieving and maintaining the most effective levels of compatibility, interoperability, interchangeability and unification in the fields of technology, management and logistics [3; 9; 10]. There are 4 levels of standardization, which can be acceptable under different circumstances, namely: compatibility – "my system (or procedure) is not inconsistent with yours"; interoperability – "my system (or procedure) has much in common with yours"; interchangeability – "my equipment can be replaced with yours without further modification"; Uniformity (commonality) – "we use a single doctrine, the same procedures or equipment" [11].

The following principles of standardization are singled out in NATO:

- voluntary participation in the development and application of standards;
- cyclicity, that is, the process of standardization is repeated, provided that the efficiency of technologies or the use of resources is increased;
- importance of some levels of standardization for the implementation of plans;
- others are preferred if they increase the effectiveness of implementing plans or improve resource management;
- interaction is the minimum level of standardization desired;
- uniform terminology, which is the basis of standardization.

Thus, it should be noted that the development of a common methodology for organizing and conducting military trials, determining the quantitative characteristics of the criteria for assessing the quality of physical training standards will help solve the problem of the possibility of using them to determine the criteria for assessing the planned program results of training special physical training for servicemen and sub-units of species, arms and military specialties of the Armed Forces of Ukraine. Among the arguments in favor of choosing the research topic is the possibility of improving the normative documents and the practice of physical training on their basis. As a result of the conducted research it is established that to solve the existing problem, a sufficient amount of data has already been accumulated, namely textbooks and manuals [12–15].

The process of developing standards is conceptually fairly simple (Figure 1). This is a cyclical process, having six steps: proposal, verification, development, approval, publication and execution. Head of the Center for Operational Standards

and Methods of Training the Armed Forces of Ukraine, Head of the Department of Physical Culture and Sports of the Ministry of Defense of Ukraine make a proposal for the introduction of a standard or installation. The proposal is checked, and then a working group or group of experts is created. This group is developing a draft document on the procedure for checking physical exercises, which is revised as many times as necessary. The next draft is being considered for inclusion in the Defense Ministry's program on military standardization. If this standard is included in the program of the Ministry of Defense of Ukraine for military standardization, it is planned to submit it for approval to the Office for Standardization of Codification and Cataloging. When the project is accepted, he agrees. When a sufficient number of institutions have agreed the document, it is made public (it comes into force as a military standard). When you need to make changes or additions during use, the cycle is repeated.

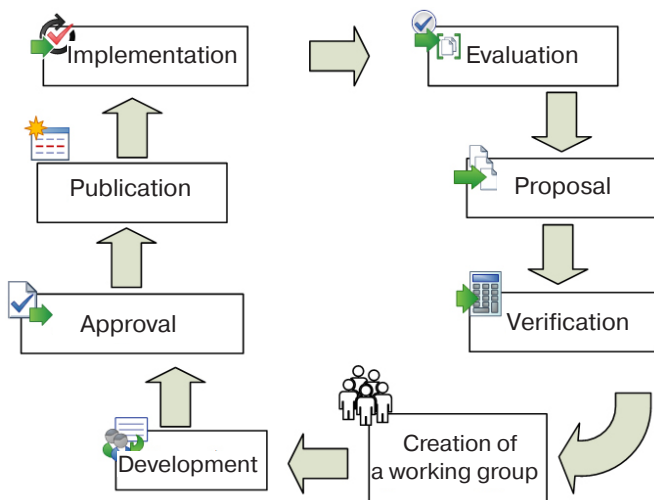


Figure 1. Process of developing a standard for conducting military trials

The structurally military standard (SMS) for the standardization of the development, organization and conduct of military tests is a text document that contains the following sections: the general part and the annexes. The SMS contains a description of the sequential steps aimed at the process of developing, organizing and conducting military trials and algorithms for calculating the quantitative characteristics of the criteria for assessing the quality of physical training standards, taking into account available individual and group means of appointment. The general part contains the following information: the name of the SMS of the Armed Forces of Ukraine; On putting into operation; historical reference; preface (indicated by the institution-developer and the composition of the authors' team, conciliation institutions, the appointment of the SMS, details of the institution where the document was developed); the content of SMS; scope of application; abbreviations and symbols; basic principles of organizing and conducting military trials; algorithm (order) of the standard; material and technical basis for the implementation of the standard; the date of approval of the Ukrainian Defense Ministry. The main part of the SMS of the Armed Forces of Ukraine is an application, is: a way to determine the required sample size; Typical Research Test Plan; order "On approval of the membership of the commission for testing military standards for physical training"; order "On the organization of tests and studies of standards of physical fitness"; form of the final report. An in-

tegral part of the SMS is methodical recommendations on the program for determining the quantitative characteristics of the criteria for assessing the quality of the military standard for physical training (Table 1). The program defines the actions, the responsible executor, the executive document. It is indicated that the basis for carrying out the military tests is an order, an order of the relevant head of the structural subdivision of the Ministry of Defense of Ukraine or the General Staff of the Armed Forces of Ukraine, on the basis of which the Plan for carrying out research tests is drawn up, the procedure, terms, place of their holding (military unit) and responsible persons.

For the organization and conduct of tests in a specific military unit, a commission is appointed by the commander of a military unit. The commission includes:

chairman of the commission – commander of the military unit;

Deputy Chairman of the Commission – Head of the Department of Physical Education, Special Physical Training, Head of Physical Training;

members of the commission – the head of the medical service, scientific and pedagogical staff of the Department of Physical Education, special physical training, unit commanders, ICC.

Commission organizes the following major events:

- development of the order of the commander of the military unit (chief) on the organization of tests and studies of standards for assessing special physical training;
- briefing of servicemen involved in testing, about the purpose and procedure for their conduct;
- medical examination of servicemen involved in testing; completion of the preparation schedule for the exercise, the frequency of testing and the study of standards for assessing special physical training with the preparation of the certificate;
- selection and preparation of the necessary educational and material resources;
- reports by the representatives of the Ministry of Defense of Ukraine, the General Staff of the Armed Forces of Ukraine on the establishment of a commission together with the order on the organization of tests, the date of testing and the evaluation standards for the assessment of special physical training.

Study of standards for the assessment of special physical training should be conducted in the real conditions of combat training. Creation of special conditions for servicemen taking part in the tests is prohibited.

Study of evaluation standards for special physical training is usually conducted in comparison with exercises that are used to test the most important aspects of the motor skills of combat training activities of military personnel, professional and special qualities, and are reflected in special tasks of physical training.

When carrying out tests, the following requirements must be observed:

Table 1
Program for determining the quantitative characteristics of criteria for assessing the quality of standards of physical preparedness

Action	Executor					System executive document / data / records
	SU	GS	UC	MU	AU	
Adoption and analysis of the order, the order of the corresponding head of the structural unit of the Ministry of Defense of Ukraine or the General Staff of the Armed Forces of Ukraine, in assessing the quality of the standards of physical training	CAF	CGS				Order, order of the respective head of the structural unit of the Ministry of Defense of Ukraine or the General Staff of the Armed Forces of Ukraine
Development of the Research Test Plan			S			Research Test Plan
Appointment of the membership of the commission			CMU			Order of the commander of the military unit on the approval of the membership of the commission
Report on the establishment of the commission together with the order on the organization of tests in the military unit			DCC			Report of the representatives of the Ministry of Defense of Ukraine, the General Staff of the Armed Forces of Ukraine
Determination of the volume of servicemen is subject to testing			AU			The list of servicemen is subject to testing (Appendix A to Clause 6.1 of the SMS)
Instruction of servicemen involved in testing, about the purpose and procedure for their conduct			AU			Sketch plan. Methodological guide (recommendations) for working out the standard of physical training
Medical examination of servicemen involved in testing				P		Statement of research of standards of an estimation of special physical preparation with a mark of the doctor
Bringing the schedule of preparation for the exercise, the frequency of testing and the study of standards for assessing special physical training with the preparation of an act			AU		C	Schedule of preparation for the exercise, the frequency of testing
Selection and preparation of the necessary educational and material resources				P	C	Schedule of distribution of educational and material resources, statistical analysis package
Control over the accuracy of the organization and testing			DCC			Conclusions on compliance with the requirements for testing in accordance with 6.3.3. TSTA
Assessment of the level of special physical preparedness of servicemen for the exercises of the active NPP			CM	P		Manual on physical training in the Armed Forces of Ukraine (current NPP)
Assessment of the level of implementation of a set of special exercises and actions to determine the level of special physical readiness of servicemen and units			CM			The draft standard of physical preparation CTP 12.035.15.10 (13-17,25-37,39,45) .4.01. Evaluation list for the standard of physical training
Evaluation of test results of new standards			CM			Methodological recommendations for determining the quantitative characteristics of the criteria for assessing the quality of the military standard for physical training
Completion of tests			CMU			Conclusions on the appropriateness of the adoption of research standards or on the directions for their further development. final report

Remark. CM – commission members; DCC – Deputy Chairman of the Commission; CMU – commander of the military unit; EU – executive unit; S – statement; AU – an auxiliary / supervisory unit; MU – medical unit; P – paramedic; UC – unit commander; GS – General Staff of the Ministry of Defense of Ukraine; SU – structural unit of the Defense Ministry; MU – \military unit; CGS – Chief of the General Staff of the Ministry of Defense of Ukraine; CAF – Command of the Armed Forces of Ukraine; C – coordination.

- mode of the day before testing should be built according to one scheme. Its excludes medium and heavy loads, but can be held restorative activities. This will ensure the equality of current states of military personnel and the output level before testing will be the same;
- warm-up before testing should be standard (in duration, selection of exercises, sequence of their implementation);
- testing should be carried out whenever possible by the same people who are specially trained;
- test execution scheme does not change and remains constant from testing to testing;
- intervals between repetitions of the same test should elimi-

- nate the fatigue that arose after the first attempt (after 2–3 days);
- soldier should strive to show the maximum possible result in the test. Such motivation is real if in the course of testing a competitive atmosphere is created.

Control over the correctness of the organization and conduct of tests is vested in the deputy chairman of the commission.

In the process of testing, quantitative characteristics of criteria for assessing the quality of physical training standards are determined.

The members of the commission participating in the tests assess the test results of the new standards in comparison with the traditional ones for the following indicators:

- quantitative characterization of objectivity is estimated based on the results of the questioning of military personnel who participated in the tests. Questionnaires should include questions on the impact of the assessment (performance result) of the test conditions standard, the complexity of the instruction and the specifics of the implementation of the standard, the stimulating material, the time constraints, the behavior of the diagnosis and the experience of the respondent in testing.
- index of complexity is calculated – I_c test assignments;
- index of differentiating ability is calculated – I_d test assignments;
- average arithmetic mean of the distribution of points is calculated – \bar{X} ;
- basic statistical parameters of the measure of dispersion of the distribution of test scores – standard deviation – σ ;
- quantitative reliability characteristic (correlation coefficient R) is calculated between the test results after the first exam and after its repetition in the same contingent;
- quantitative characteristic of validity (coefficient of validity V) of the standard of physical preparation is calculated.

Order of completion of the tests is.

Test duration of the experimental standards can be from 30 days to a year, and if necessary exceed a year.

In a special period:

- Test period reduced to 15 days;
- in the development of a standard based on the NATO model and approval of the conditions for execution and evaluation procedure, research tests will not be conducted.

Factors that determine the early termination of the study may be:

- a high level of injuries (more than 10% of military personnel who participated in the tests)
- low level of objectivity of physical training standards (more than 81% of experts fully agree on the impact of at least one factor on the result or the process of implementing the standard);
- low level of reliability of physical training standards (correlation coefficient – $R < 0,6$).

When testing the standards proposed to modify existing ones,

the validity of the standard should be determined by the criterion, which is chosen as:

- indicators of compliance with the standards of combat training (where they exist) or indicators of the dynamics of indirect performance indicators;
- factor information of tests.

Based on the results of the tests, the commission compiles a report that includes data on all issues related to their organization and conduct, provides conclusions on the appropriateness of adopting research standards to determine the criteria for evaluating the planned program results of training special physical training for servicemen and units of species, arms and military specialties of the Armed Forces of Ukraine or on the directions for their further development.

Final report is sent to the military management body, which organized the trial no later than 10 days after its approval by the chairman of the commission. Copies of the acts are submitted to the structural subdivisions of the Ministry of Defense of Ukraine, the General Staff of the Armed Forces of Ukraine, who took part in the work of the commission.

Conclusions

The urgency of creating a standard in conducting military tests of physical training exercises for servicemen and units of the Armed Forces of Ukraine has proved the need to achieve criteria for compliance with the standards of the armed forces of the armed forces of NATO member countries [7]. The lack of a regulatory framework for the requirements for the development of standards for physical training makes it difficult to organize and perform research and development tasks, to develop new standards of physical training for the Armed Forces of Ukraine and may lead to a discrepancy between the quantitative characteristics of the criteria for assessing the quality of standards developed for the physical readiness of military personnel. Further development of standardization of special physical training on the basis of the general methodology for the development, organization and conduct of military (research) tests, the determination of quantitative characteristics of criteria for assessing the quality of physical training standards will help improve the quality of physical training in the Armed Forces of Ukraine.

Prospects for further research in this area are the development/adaptation of a physical training facility based on the principles and requirements for the development of regulations on combat training.

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