

**Major Pál Dunai**

**DETERMINATION OF REQUIREMENTS OF THE METHODS OF  
PHYSICAL PREPAREDNESS AS BASIC PART OF NECESSARY  
CAPABILITIES FOR FIGHTING IN MODERN WARS, ITS PLACE  
IN SYSTEM OF MILITARY EDUCATION AND PREPARATION**

Author's Demonstration and Official Opinion  
of Ph.D. Thesis

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## EXPLANATION OF THE SCIENTIFIC PROBLEM

The system of physical preparation is shifted toward the compulsion of congruence with aptitude tests. The most important factor of the system is the material of the **physical aptitude test (PAT)** and **physical condition test (PCT)**. The theoretical basis of the aptitude tests is prepared on high level, and the staff of specialists structured appropriately is present. Notwithstanding, the system of physical preparation of the army has more importance. The system includes every sphere of the military training. As a result of the training, besides some improvements of physical capabilities, also skills essential for basic military activities are formed by particular means and methods of the training section. It has some significance beyond the system of PAT as an essential part of the physical preparation. There are a few researchers only examining this problem. The goal of my research is to attempt an analysis of the field beyond the system of PAT. An important function of the system is to elaborate the system of requirements serving as a base of training.

This topic has considerable literature as in the NATO armies as in other significant armies (Russia, China, Japan, Australia). There are numerous countries where this training field is examined by scientific institutes (United States, Russia, Canada, and China). Since this topic is confidential because of importance, the experimental results are hardly available for researchers. In different countries it is treated as military secret.

## GOALS OF THE RESEARCH

The *basic goal of the research* is to process the theories and practices of physical preparation of different armies analyzing the available Hungarian and international literature. My goal is to prove by scientific arguments that requirements of physical preparation may be formed through the examination of objective conditions of the examination of certain arms and special posts exactly.

*Partial Goals of the Research:*

- 1) For reaching the basic goal, it is necessary to form a researching method making the examination of the labor skill i.e. fight possible in the modeling conditions. A training system based on physical requirements originated in the real fighting activities resulting predictive validity of requirements of norms has to be found. It makes the training possible to ensure the necessary working capabilities.
- 2) The requirements toward soldiers are different by arms and posts. The differences of physical requirements are based on particular requirements. The physical requirements originated in particular requirements of the activity are differentiated. The differentiation is determined by objective regularities of the military activities. Besides general condition every soldier needs special physical training.
- 3) The measurement of **motor capabilities** shall be drawn up according to loading characters of a given working area.
- 4) Since presumably the training section does not meet the expectable requirements, using representative questionnaires, I want to estimate the judgment of physical preparation in the Hungarian Defense Forces (HDF). It would cause deficiencies of motivation in this field. Lack of adequate knowledge and low motivation make any effective training system resultless.
- 5) The basic principle is to teach the soldiers things needed in fighting activities. It is more valid in training of flight navigation. In training of high expenses, the time of physical training has primary necessity. There the special training focusing on real effects of flight has *raison d'être*. For forming this, my research on measuring parameters of physiological and physical output is necessary.
- 6) Through accomplishment of basic goals of my research I draw up suggestions for optimization of the system of physical preparation and development in the Hungarian Defense Forces. This is an important factor of development of the **fighting efficiency**.

## **APPLIED METHODS OF THE RESEARCH**

### *Analysis of Documents*

I studied the Hungarian and international literature related to the research topic. I analyzed the regulations related to the physical aptitude tests, their basic principles and discovered their deficiencies.

I examined the physical preparation system of foreign armies and their roles on the process of military training.

I collected the main characters of the measuring methods and efficiency diagnostics applied by the armies.

I studied the planned military doctrine of the Hungarian Defense Forces and position map for explanation of points of view of differentiation of physical requirements of posts.

I summarized the practical and theoretical bases of the system of physical preparation and its expedient formation.

### *Inquiries by Questionnaires*

I collected data in questionnaires on opinion on physical preparation in the Hungarian Defense Forces. Through representative data survey I examined the relations to training sections. I searched into answers on necessity of differentiation of requirements by the staff, the estimation on execution of requirements, and placement of physical preparation in training system of the Hungarian Defense Forces.

### *Statistical Analyzes of the Data*

I processed the data got by questionnaires and the measuring of output by statistical methods. I searched for relations between motivation and physical output and between condition and opposition to tiredness. For statistical calculations I used programs of Excel for Windows and SPSS for MS Windows Release 6.0.

### *Secondary Analysis of Statistical Data*

I analyzed the results obtained by statistical process of the data, and searched for reasons of relations and examined their practical utilization.

## SUMMARY OF COMPLETED EXAMINATIONS

In the course of my research I proved the correlation of high level between the soldiers' preparedness and actions. A basic factor of the fighting efficiency is the suitability of a soldier determined also by physical preparedness.

I set a goal of my research to examine the special trend deduced from fighting factors as a determining factor of the physical preparation. The determination of requirements of characters of actions against physical preparedness has primary necessity in development of our training system. On the base of the analysis of the actual control system of the HDF, the method if is correct. However, there is an analogy with the *FM 21-20 Physical Fitness Training* of the US Army. As a first step of the controlling system, the PAT and PCT are sufficient for controlling the conditional capabilities and they cannot turn into the main goal of the physical preparation. Control of the efficiency of the training system examined by me is excluded by examining system of PCT only. Since the Hungarian military science does not treat the questions of the physical preparation as a field of this science, consequently there are a few literature of it, so my work has become harder. I determined the concept of the physical preparation, and elaborated the theoretical and practical structure of the physical preparation. I examined and proved that the base of the determination of the objective circumstances is the most efficient, and complex method of direct examination of the military basic activity (operational drilling activity). The tactical exercises of subunits of arms may give its frame.

I studied the possibilities of experimental examination of the working capabilities and complex physical conditions. It is clear that the measuring and determination of differences of professional working capability of soldiers having different levels of physical preparedness on these exercises is decisive for getting objective and valid research results. For production of loading by experimental data resulted by real military activity and for study of its affect on the soldiers' organizations, the exercises shall to be planned for multiply days. Also, the difference of output of the regeneration phase after the exercises shall be studied.

Examining the measures of special requirements of the US and Russian forces, I studied the available basic documents of armies of these decisive countries. I established that the

physical suitability has decisive importance in both armies. The requirement for preparation and training including special requirements resulted by special direction of the physical preparation is also present. Besides tests and norms measuring general conditions, the tests measuring special capabilities have also decisive necessity. I drew up the scientific research system of the Training and Sport Centre of the Bolyai János Military Technical Faculty of the Zrínyi Miklós National Defense University started already and aiming the longitudinal examination of physiological and conditional grade of the students of navigation. The content of the research was formed observing the concrete effects of aviation. Since our goal was the continuous comparison of the different levels of physical preparedness of the participants and professional levels of their working capabilities, the specialists and aviation trainers of Aviation Preparation Department of the All-Arms Headquarters of the Hungarian Defense Forces were drawn in the research. The final goal was the development of efficiency of special training applied in special preparation of the students and lecturers and development of the predictive validity of the applied controlling methods.

On the base of representative sample through questionnaires I examined the assessment of the place and role of the physical preparation in the Hungarian Defense Forces. The survey made possible to prove contradictions of the importance of the training section and real situation and assessment. Provided that we want a leading of the change of paradigm introduced by joining the NATO to forming armed forces based on real capabilities, it is necessary to rethink the practical tasks of the physical preparation for more intensive and effective training.

## NEW SCIENTIFIC RESULTS

In the course of the researches I examined the method of determination of requirements for the soldiers' physical preparedness observing the requirements of the real fight. I consider the professional establishment of the requirements as factor forming the system of the preparation, serving as a base of the system of the preparation. Lack of this knowledge makes impossible the functional and structural formation of the system.

Basing on that, I consider the following as scientific result:

- 1) I am the first researcher who described the method of establishment of requirements for physical preparation on the base of operational drilling factors.
- 2) I discovered and analyzed the research method of objective requirements having predictive validity.
- 3) I am the first researcher who examined how to actualize the examination of physical preparedness on special tactical training where conditionality of physical loading was excluded. I supported with facts and data that such training might not be less than 5 days, because the fighting efficiency of valid differences of physically weak and sufficient soldiers could be measured in this case.
- 4) I am the first researcher who proved and suggested to insert controlling tasks of a group (subunit, squad, technical staff) into the appraising system, because they improve the authenticity of the gained information comparing to individual execution of the tasks.

#### THE PRACTICAL USAGE OF THE RESEARCH RESULTS, SUGGESTIONS IN THE FIELD OF THE SYSTEM OF PHYSICAL PREPARATION

As a result of my research, the system of the physical preparation in the army can be redefined. The determination and accuracy of the special direction of the training is emphasized making them concrete to the actual structure of the Hungarian Defense Forces. Analyzing the full system, a generally accepted definition of the fundamentals of the training section is accomplished. An important task of the specialists of physical training is to define the system of the specialties. It is important, because despite of declared necessity in warfare, preparation and training, it is not integrated in the Hungarian military science. My suggested method with additional method of examination meeting the requirements of scientific criteria may be a condition for full execution of the given professional task.

#### IN THE FIELD OF BASIC RESEARCH:

The physical preparation of the Hungarian Defense Forces never validated the interests completely. It is reflected by the low number of basic researches of the last 20 years in this specialty. The basic documents and professional instructions have not been changed. My suggested method of examination makes a basic research of value significant for specialists possible. Besides definition of the special requirements of the training section and changes in the soldiers' working capabilities and physical preparedness, further their regularity, we can get an image of fighting capability and actual level of deployment of the arms.

#### IN THE COURSE OF THE SOLDIERS' PHYSICAL PREPARATION:

The results of the accomplished basic researches shall be integrated into the system of the physical preparation. These results may appear in the special instructions issued newly. We may make the content of preparation more accurate. The composition of the material of preparation becomes more expedient. The application of the means and methods of the preparation serve the accomplishment of special tasks more effectively. The time devoted to training may be use more effectively, if we would prepare the soldiers for tasks expected in an occurring armed fight and it also would prepare the soldiers to successful endurance of these impacts. The basic principles of the preparation, the features of the organizational and teaching methods shall be integrated into the program of the subjects of the Zrínyi Miklós National Defense University improving the relationship of training of the University with the Hungarian Defense Forces.

#### IN THE CONTROLLING SYSTEM:

Actually, the PAT and PCT systems eliminate the necessity of the norm system. However, the controlling system measuring physical preparedness has decisive role. Through examination of the special requirements the determination of the materials of movement



and measuring levels may be determined more exactly. Besides measuring physical capabilities, tasks measuring special skills expressing working capability of an arm may be integrated. I consider integration of special tests in the controlling systems expedient for measuring fighting capability of a subunit or technical staff through necessity of physical abilities and special skills.

#### LIST OF PUBLICATIONS RELATED TO THE THESIS

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2. **Pintér, I. – Dunai, P.** „*A stratégiai vezetés és gondolkodás katonai specifikációi az ezredfordulón*” (vezetési és szervezési viszonyok a NATO elvárásai tükrében) [Military Specifications of the Strategic Leading and Thought in the Millennium] – research report of Colonel Prof. Dr. István Pintér, Major Pál Dunai– MH Vezetési Főcsoportfőnökség, 1999.
3. **Dunai, P.:** „*A Magyar Honvédség fizikai felkészítési rendszere. A fizikai felkészítés megítélése a Magyar Honvédségben*” [The System of Physical Preparation of the Hungarian Defense Forces. The Assessment of the Physical Preparation in the Hungarian Defense Forces] – Repüléstudományi Közlemények – 29/12 A publication of the scientific conference “Regenerating Training of Aeronautical Specialists” ZMNE Repülőtiszti Intézet Szolnok, 2000 (pp. 367-377)
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5. **Dunai, P.:** „*Alkalmassági követelmények meghatározásának modelljei, a fizikai teljesítmény mérésének módszerei, teljesítményprognosztizálás lehetőségei*” [The Determination of Model of Requirements of Aptitude, Methods of Measuring Physical Capabilities and Possibilities of Prognoses of Output] –

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  7. Handbook for commanding capabilities of commanders of subunits: „*Előtérben a testi-fizikai képességek*” [Physiological-Physical Capabilities in Foreground] – HM HVK Hadműveleti Csoportfőnökség, Budapest, no. 463/329 of 2002
  8. „*A XXI. Század katonai vezetője*” [The Commander of the 21<sup>st</sup> Century] - Physiological-Physical Capabilities in Foreground – A special issue of the Új Honvédségi Szemle, HM Zrínyi Kht., Budapest, 2002
  9. **Dunai, P.:** Practical and psychological aspects of the training process for the guided by their abilities Hungarian Military Forces in the 21<sup>st</sup> century- Bulletins in aeronautical sciences, proceedings of the 1<sup>st</sup> international symposium on „Future aviation technologies FAT 2002 - Szolnok, 2002 XIV. vol.1, (p. 59-64)
  10. **Dunai, P.:** „NFTC képzés fizikai felkészítési rendszere. A képzés hazai szakaszának eddigi tapasztalatai” [System of Physical Preparation NTFC Training. Experiences of the Domestic Training] – Hungarian Conference of Physical Trainers of the Hungarian Defense Forces, Göd, April 18-19, 2005 (pp. 40-41)

## PROFESSIONAL AND SCIENTIFIC RESUME

I am Pál Dunai. I was born in Budapest, in 1961. I completed my studies of 1977-1981 and graduated at the Petőfi Sándor High School. Following a successful entrance examination I started my studies at the University of Physical Training in Leningrad in 1983 as scholar on foundation of the Defense Forces.

Following completion of my university studies I was inaugurated to staff officer in 1988. First, I was positioned at the Oláh István Anti-Aircraft Training Centre as lecturer, where I participated in the training of foreign students.

Following liquidation of the training centre without legal successor I was employed by the Department of Physical Training of the Aeronautical Technological College of Szolnok in 1991. I worked in every field of the courses of the College. Following a successful application I gained the position of Deputy Head of the Department in 1993. Since then my main task was to organize the instruction of the subject, to conduct the elaboration of the basic documents of the training and to control the training.

The Commander of the College appointed me to the lecturer of the College. I hold this position until the end of the independence of the College. As a consequence of continuous reorganizations I was appointed to the deputy head of the special group ZMNE Centre of the Military Physical Training and Sport Institute of Szolnok first, and later I was appointed to the position of head of the group in 2001. Following reorganization of the sport institute I held the position of head of Military Physical Training and Sport Centre. Because of reducing personnel I have been the only lecturer of site in Szolnok.

My duty is the physical theoretical and practical training of the students studying on the Basis of the ZMNE in Szolnok, and participants in courses.

In 1998, I was accepted to the Doctoral School of the Zrínyi Miklós National Defense University as distant student.

As a consequence of my duties, I have participated in basic training of the University (of three years training, temporary, four years of the College, BsC) and in elaboration of basic documentation of different courses. My lecturer's duties include 10% of theoretical teaching and 90% of special practical teaching. I participate successfully in the

development of the training bases of the campus. I also participate in the elaboration of basic documents of special trainings related to physical education.

I manage domestic phase of the physical preparation of the students participating in the program of NFTC (NATO Flying Training in Canada). I compose the basic documents and program of this course since 2004.

During 16 years of my lectureship I carried out professional work in every field with exception of doctoral studies.

I hold a certificate “C” of Russian language of high level and certificate “C” with military issues of English language of basic level.

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