

THESES

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**Measuring the adaptability of augmentative physical readiness
preparation methods' effectiveness in the field of Military Personnel's
physical fitness assessments.**

Summary of PhD. theses

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Introduction

In the history of humanity, active bodily exercise and the subsequent good physical condition has always been fundamentally important in both self-preservation and communication. Our way of life has not evolved simultaneously with the spread and development of our civilization, a fact that is sadly proved right by many health surveys today. The main reason in today's society for working disability is heart- or circulatory ailments, and locomotor diseases. One of the main reasons behind this is sedentary lifestyle.

Parallel to the European Union's Public Health strategy, Hungary is paying huge attention to developing the way of healthy lifestyle. Hungary's Public Health strategy includes the contained life-style-reform for the nation's defense social segment, which could prove to be an essential example towards the civilian population. Today's modernized and civilized society relies mainly on sports and on the few of those that still do manual work processes, nevertheless, the importance of health care is still of the utmost importance since a healthy society needs healthy people.

This bears particular importance in regard to the armed forces, where despite of the high standard technology at hand, the international security policy in the tactical and strategical field challenges the soldier's physical readiness. Should the soldier be physically, mentally unfit, or unhealthy, seriously endangers the chance for success during missions, as well as the well being of fellow soldiers. Statistics says, that of those applying for duty are by 55-60%, and of those already serving are by 35% deemed physically unfit, and since this indicator has only become more relevant in the last 20 years, the question becomes clear: how do we change this unacceptable situation? The applicants from high schools are by far the most affected group of this matter, and their preparations through the right methods is of great importance.

During my dissertation I plan to demonstrate exercises and measurements compiled by me and aim to analyze the readings of their results. The exercises are aggregated from the field of games, athletics, sports games and gymnastic drill themes. Practices were regulated by the rules of athletic sprints, individual and coupled muscle strength training, basketball and European football areas. The physical surveys, which previously and afterwards my testing phase determined the conditional status of the participants, were executed according to the MH Egészségvédelmi Intézet Fizikai Alkalmasság - Vizsgáló Osztály (further on mentioned only as MH EVI FAVO) regulations, (3200m runs, push-up and sit-up exercises).

1. Methodological questions of the dissertation

1.1 Reasons behind the picking of the theme

Physical adequacy (assessment) tests have been ongoing since 1998 within the ranks of The Hungarian Defense. Executing the strain, performance and physiological tests are within the MH EVI FAVO's scope of authority, which was established in 1997. The MH EVI FAVO laboratory is preserved to contractual, professional and on duty military personnel's examinations. The nation's defense social segment is affected by today's modernizational problems (such as: deleting the enlisted man duty, cut-backs, rallying up different areas of services, closing of military institutes), where Hungary was directly struck after the NATO joining, regarding the contractual military personnel. Especially coming to mind the multinational interoperable units, which can be ordered and sent to missions in highly dangerous situations on different terrains (mountains - woods - deserts - swamps - snow - ice) any season, anywhere.

1.2 Goals of the research

The most important goal of my research is the elaboration of up-to-date and scientific methods, which helps reforming the contractual military personnel's current physical and conditional preparational methods up to modern standards and expectations.

1. There is strong need to elucidate the Hungarian Defense's contractual military personnel's strain, performance and physiological tests. Understanding and systematizing the concepts of conditioning, with a new, scientific- metric measurement view.
2. Measuring the importance of the physical fitness in order to digest and unfold the necessary methods for physical competency. Unraveling the changes caused by the NATO joining in the field of contractual military personnel's conditional preparation methods, expectations, guidelines and to examine their effect on the preparation phase.
3. Analyzing the essential parts of the competency examinations for contractual military personnel applicants, exploring the ways of possible improvements and adaptations. Recommending new ideas for physical preparational exercises.
4. In the theme of requirements and methods of preparations there are no specific or unified programs present in Hungary. This is why I've decided to introduce a new system and structure of exercises for measuring the competence of military personnel applicants, as well as bettering the on duty personnel's physical readiness in order to be more successful in the relevant fields. All results are

evaluated and assessed.

5. Proving the effectiveness and the upgrading results in performance through the new, systematically built and well organized program presented.

1.3 The root of the problem discussed

The regulations of the Ministry of Defense 4/2003. (I. 31.) HM, 2.§ (1), 116/2009. HVKF clearly and unmistakably determine the appropriate competency of the professional and contractual military personnel's required health, physical and mental status, as well as the tasks for repeated physical measurements for those reporting for duty. Contractual military personnel applicants need to take part in physical tests, where by looking at the results, we can safely say, that those applying for duty are by 55-60%, and of those already serving are by 30% deemed physically unfit (MH HEK REVKI MÉFDO 2008.).

Since the applicants from high schools are by far the most affected segment of this matter, I decided to plan, direct and organize my tests for their group of age.

An important part of this is that, those reporting for duty, asking to be commissioned or are already on duty need to be in close to perfect conditional shape according to the NATO regulations, due to the fact, MH needs to reconstruct the current physical preparation methods. The number of changes, tasks that occurred after joining the EU and NATO makes us rethink the training and preparational structure as a whole. Should the current system stay in effect, it may very well lead to not only the degradation of physical status, but to serious injuries and impairment of health.

In accordance with the points detailed above, we may come to the following conclusions:

1.4 Assumptions of the dissertation

At the beginning of my research the following hypotheses were ascertained:

1. Thanks to the successful preparational phase the acquired higher physical status and capability enables the individual to alter the results positively during the complex coordinational exercises.
2. Regular and more intense trainings lead to more secure efficiency, than when the individual only gets him/herself ready for the tests occurring from time to time.
3. The group participating in the research shall be more successful, shall provide better results and higher efficiency than their non-participant counterparts during the same

period. The well planned, organized and regular training program means that the individual graduates with better scores and results.

4. After analyzing the results, I can get a clear and objective picture of the soldiers' physical indicators, thus their physical capabilities.

1.5 Method and strategy of research

The research itself is inductive in strategy, descriptive type, is looking for connections, and is a Basic Research in genre.

The statistical methods for data processing,

- Contingency table,
- Graphical view (column diagram),
- Average and standard deviation,
- Average comparison with one and two-pattern „t”- probe,

I had the chance to survey the physical and conditional status of two different high school's junior and senior aged students, who, till the examination period started, both had normal PE classes: Dózsa György Gimnázium, Budapest (examination group) and Fasori Gimnázium, Budapest (control group). During the survey I chose ladies and gentlemen, who were about to apply for university which requires physical strain exercises (ZMNE- military, police TF, or other college for teacher or trainer education).

The surveys were taken in the range of 2008-2010, at the beginning and end of school year, and during the winter holiday, totaling up to seven occasions. Participants were all born in the year 1990-91. The examination group contained 14 female, and 22 male, while the control group 18 female and 21 male participants. The conditions were on all occasions the same for the two groups, we used the high schools's gym and sport field.

The examination group was doing my strength and endurance program with weekly regularity from march 2008 till may 2010. I measured the conditional and coordinational indicators after each huge physical strain. The surveys in September were always followed by overseen surveys in December and March. I set the results I got against the results of same aged, normal PE classed students' data, which I got from the Hungarian Defense, Defense Medical Centre, Flying Doctor, Health Examination and Research Institute Height Physiology and Functional Diagnostics Department (MH HEK REVKI MÉFDO) The comparison results I received were processed in Excel via average and standard deviation, comparison with one and two-pattern „t”- probe statistical indicators. I was looking for connections among the how physical fitness and higher performance capability delays the feeling of tiredness.

Survey results, experience

55-60% of the youngsters applying for military personnel duties are unfit to accomplish the basic requirements of the physical tests. Those without the capability of the required physical skills should be filtered out before being accepted in line of duty. Students in general decide their future in the last year of high school studies, the same is true for those planning on a military carrier. Since one-third of the applicants are unsuitable for military duty my examination group needs to aim for these groups. The exercises compiled for the group I chose were executed during PE classes and sport faculties. The conditions were on all occasions the same during examination period (March, 2008 - May, 2010). The results of the examination group were set against the results done by participators taking the same physical tests from Budapest and Kecskemét. Then, these results were set against the same aged, military personnel applicants' scores. (MH. HEK. REVKI. MÉVDO.- Kecskemét) The surveys and reporting drills were made in accordance with the HM's basic regulations: condition of heart- or circulatory measurement (3200m runs), local muscular strength (push-ups, sit-ups) were all tested within the different aged groups. Meanwhile, within the control and examination group, I examined how the tiredness caused by strain effects the individual's concentrational and coordinational skills. After doing my examinations I made the following assumptions:

In 2008, when we began our program, both groups were on the same level of fitness, there was no relevant difference to be examined.

The examination group's male participants in point of push-ups managed to improve the average number of push-ups done from 38 to 58, thanks to the regular systematically built exercises, while the control group's average was from 32 to 40. In the case of the examination group this means around 150% improvement against the control group's 125%. The results confirm, that there is a strongly countable difference between the development of the two groups.

I made the following assumptions regarding the female participants of the examination group: The group started from the average of 18 and at the end of our testing phase the average got to 28, which is an 150% improvement against the control group's 18-22, which is an 122% improvement. The survey proved, that the difference between physical educational methods can maintain significant difference in development.

I made the following assumptions from the data I got from the sit-up results:

The examination group's male participants managed to improve the average number of sit-ups done from 47 to 69, which is an 147% improvement against the control group's 43-51, which is an 118% improvement. The survey proved, that the difference between physical educational methods can maintain significant difference in development.

I made the following assumptions regarding the female participants of the examination group: The examination group's female participants managed to improve the average number of sit-ups done from 42 to 56, which is an 133% improvement against the control group's 32-46,5, which is an 145% improvement. The surveys indicate that, there is no significant difference in development between the two groups.

The tests for condition of heart- or circulatory measurement with 3200m runs indicate the following: The examination group's male participants managed to improve the average time from 16'36" down to 14'56" against the control group's 16'42" down to 16'09". The result here well indicates that the difference is significant as the examination group's 1'40"(100") improvement is three times better than the control group's 33 minutes.

I made the following assumptions regarding the female participants of the examination group: Their average time improved from 18'59" down to 17'32" against the control group's 20'41" down to 19'45". The result here indicates that the difference is significant as the examination group's 1'31"(91") improvement is by 63% better than the control group's 56 minutes.

The results in statistical numbers are represented on table 17-18. The significance level is set in $p < 0,05$ value.

Interpretation of the results

My first hypothesis was:

1. Thanks to the successful preparational phase, the acquired higher physical status and capability enables the individual to positively alter the results during the complex coordinational exercises.

The surveys indicate, that examination group's first strain test results are equal to their relaxed status results. In the second year though, these results have shown continuous improvement. The success-rate in accomplishing battle situations are down to the individual's readiness and accuracy in delivering out orders and duties. It is safe to presume, that among the participants the better results came from the continuously physically fitter individuals.

The changes in today's cascade world, where the security challenges, the fast-paced technical improvements, battle proceedings are surrounding us, the need for thoroughly planning and executing physical preparational methods for military personnel is only getting stronger. The complex military duties and tasks require accurate movements, defined mental and emotional status, which must stay intact during extreme situations and longer period of strains. This is why these skills and abilities will need to be tested from time to time. To fulfill jobs and scopes of duties successfully, physical fitness is a must. The high level functionality of conditional and coordinational skills, physical and psychical abilities enable the soldier to accomplish and execute military and battle duties successfully. This, of course, goes hand in hand with keeping oneself healthy, which is a serious factor in martial values.

The importance of physical readiness is further proved by the fact, that in foreign armies the soldiers' good health status, fitness and the continual testing of fitness levels are primary objectives, regardless of the field engineering's status of development. It is not in question, that soldiers need to achieve and keep a required level of fitness and conditional status.

My second hypothesis was:

2. Regular and more intense trainings lead to more secure efficiency, than when the individual only gets him/herself ready for the tests occurring from time to time.

The results clearly indicate, that those participating in the program with regular and systematically built exercises, games for enhancing conditional and coordinational skills and abilities were far more successful in development than the normal groups. I could observe, that the examination group's fitness level during the summer holiday did not drop as much as the other groups'. The results of those taking on regular PE classes proved to be wavering, which I could explain with their lack of need for sporting activities and movement itself.

My third assumption was:

3. The group participating in the research shall be more successful, shall provide better results and higher efficiency than their non-participant counterparts during the same period. The well planned, organized and regular training program means that the individual graduates with better scores and results.

On comparing the results, I determined that the results of those participating in the program through regular and systematically built exercises, games for enhancing conditional and coordinational skills and abilities were superior to not only the control groups', but to the average of the military personnel duty applicants' in 2010. During the surveys I could experience, that the regular sporting activities have positive effect on the individuals behavior.

The group has become solid, coherent and supportive to one another during these two years.

My fourth assumption stated that:

4. . After analyzing the results, I can get a clear and objective picture of the soldiers' physical indicators, thus their physical capabilities.

According to the numbers of the required physical performance indicator table, the results proved, that after the examination phase our participants physical status was above the average requirements. It is proven true, that the experienced development status can be acquired through special and playful exercises and programs. Therefore, we can assume, that in order to enhance endurance there are many possibilities. For example: wanting to improve the 3200m runs' results, does not necessarily mean practicing 3200m runs, there are other possibilities as well. These statements are true in the area of muscular strength enhancement as well.

6.2 New scientific results

1. I demonstrated the significant role of physical strain and continual analysis of performance, unfolded the improved methods for measuring physical status and readiness. According to the objective of my research, I analyzed the changes of the NATO joining, affecting the contractual military personnel's conditional preparations, requirements, directives.

2. I analyzed the current physical competency and examination system and their possible further improvements for on duty military personnel. I am considered to be the first one to suggest new-line system for soldier selection methods, through exercises that help physical preparations.

3. In the theme of requirements and methods of preparations there are no specific or unified programs present in Hungary for enhancing the military personnel's physical status. Therefore, I am the first to have suggested the need for an overall new system, that enhances the physical readiness of the military personnel applicants in order to pass the physical adequacy tests successfully. I evaluated the results.

4. I proved the effectiveness of the new, systemically built program's utilization, through the improvements represented by the examination group.

Thanks to the results of my research, I suggested a new system for measuring and enhancing the soldiers' and applicants' abilities and skills, which system is compatible with and matches the current system.

6.3 Utility in practice, suggestion

- Adequate physical fitness status is without question plays an important part in reforming an army. The new challenges demand the contractual military personnel's physical condition to be kept at high levels, as well as further improving their motion wise coordinational abilities.
- Fitness and conditional requirements will have to be set for the applicants, so that the preparational phase's strain exercises would not prove unbearable, and their adaptation to be smooth and successful. Through the course of this process, measuring the basic conditional status and the strength and conditional ability of the two muscular groups is well advised.
- I suggest the usage of my detailed programs, with drills and exercises throughout the dissertation, in secondary and higher education schools' official syllabus.
- Knowing the physical harshness and strains soldiers need to endure during foreign missions, for better success rate, beside the necessity of the conditional readiness, a very important segment is the arm and torso muscular system's sufficient status. In special cases, we may need to discuss different parts of the muscular system as well as the coordinational abilities and pace.
- I can see the possibilities lying in my dissertation's topic to be further discussed and analyzed, links among conditional, physiological and mental abilities may need further research itself. During foreign delegations and missions the mission commander could get a real picture of his underlings scale of tiredness, distress and physical condition through a tiny toolkit, personally compiled for him. With the help of this toolkit, a distressed and unfit soldier (or corps), who would otherwise jeopardize the mission, could be pulled out in time.
- We need to create standard physical and conditional measurement system within the NATO borders. This would raise the compatibility among member countries, forge relationships within the multinational corps and ease their partnership towards goals. An objective road would be set in front of MH, with the clear goal, what we would need to achieve and where we would need to get to.

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Date of birth: 10 September 1959

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Marital status: married, with two children

Profession: P.E. assistant professor
Soccer coach, (Master's degree)

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Studies:

2008 okt. UEFA Study Group Scheme (Brusseles)

2008 UEFA „A’ licence

2006-2009 Phd-student

1998 UEFA „B’ licence

1986-1988 Hungarian University of Physical Education, Budapest, Master’s degree in soccer

1982-1986 Hungarian University of Physical Education, Budapest, P.E. Teacher’s degree

Academic Positions:

2003- Semmelweis University Faculty of Physical Education and Sport Sciences, Institute of Sports, Department of Sport Games (Hungarian University of Physical Education)
– assistant professor

2000-2003 Semmelweis University Faculty of Physical Education and Sport Sciences, Institute of Sports, Department of Sport Games (Hungarian University of Physical Education)
– assistant teacher

1995-2000 Hungarian University of Physical Education, Department of Sport Games – assistant teacher,

Coaching Positions:

2008-2009 Football Head Coach I.Team **Vác-Újbuda LTC.** National League II.
2007- july Football Coach I.Team **Vác-Újbuda LTC.** National League II.
2007- január Football Head Coach **Vác VLSE (U-19)** National League I.
2006- Football Coach **Hungarian University of Physical Education (TFSE)**
2005-2006 Conditioner Coach-trainer **Honvéd Budapest** National League I.
2003-2005 Football Head Coach **Vasas Budapest (U-19)** National League I.
2003- Football Head Coach **Hungarian University of Physical Education (TFSE)**
2000-2001 Director of junior players **FC Siófok** National League II.
2000 Football Head Coach **SC Csepel** National League II.
1998-1999 Football Coach **Vasas Budapest (U-15/16)** National League I.
1992-1998 Football Head Coach **Hungarian University of Physical Education (TFSE)**
1990-1991 Football Head Coach **Kiskunhalas**
1989-1990 Football Coach **Erdért Budapest** U-18
1987-1989 Football Coach **Kiskunhalas** U-18

Teaching activity:

Soccer Teacher

Memberships:

1996-1997 President of **Budapest Football Federation** Coach Commision
2002- **Hungarian Physical Education National**
2003- **Hungarian Football Trainer's Corporation Association**
2008- **Hungarian Football Federation 'B' licence instructor**

Personal sport career:

1978 Vasas junior, 2nd place in National League I.
1983 TFSE BFF, 1st place
1985 Hungarian University Champion

Coaching Results:

1988	Kiskunhalas junior,	2nd place
1996	University Championships,	2nd place
1996	TFSE BFF,	4th place
1999	University Championships,	1st place
2003	University Championships,	2nd place
2004	University Championships,	3rd place
2004	TFSE BFF,	3rd place
2005	Vasas U-19,	3rd place

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