

Ildikó Vásárhelyi-Nagy¹

Physical Aptitude Testing in Practice within the Admission Procedures of Staffs of Armed and Law Enforcement Agencies

A fizikai alkalmassági vizsgálatok gyakorlata a fegyveres és rendvédelmi szervek állományának felvételi eljárásában

Those joining defence and law enforcement forces choose a special profession, which already manifests during the selection and admission procedures. The present scientific publication analyses the rules of procedure and practical application of preliminary physical aptitude testing. Nowadays, special regulations govern those serving within the career forces of law enforcement agencies, the army, and finance guards within the career staffs of the National Tax and Finance Guard Agency. The exercises do not reflect either the specificities of the particular career or the complex approach to aptitude. Thus, preparedness for the physical aptitude testing do not serve the development of physical conditional competences required for the execution of day-to-day tasks by career forces directly. The present publication describes possible alternative offering an even more accurate picture of the physical and health condition of career staffs in the course of selection.

Keywords: aptitude testing, physical condition testing, age group, motion forms, evaluation

A hon- és rendvédelemben elhelyezkedők különleges hivatást választanak, ami már a kiválasztás során, a felvételi eljárás alkalmával megnyilvánul. Jelen tudományos közleményben az előzetes fizikai alkalmassági vizsgálatok eljárási rendjét, alkalmazásának gyakorlatát elemzem. Napjainkra külön rendeletek irányadóak a rendvédelmi szervek hivatásos állományában szolgálatot teljesítő, a honvédség dolgozói számára, illetve a NAV hivatásos állományába tartozó pénzügyőrök esetén. A feladatok nem tükrözik sem az adott pálya specifikumait, sem az alkalmasság komplex szemléletét. Ilyen formán a fizikai szintfelmérésre történő felkészülés sem szolgálja direkt módon a hivatásos állomány napi feladatvégrehajtásához szükséges kondicionális kompetenciák fejlesztését.

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Közleményemben ismertetem azokat a lehetséges megoldásokat, amelyek segítségével a kiválasztás során még pontosabb képet lehet kapni a hivatásos állományba pályázók fizikai és egészségi állapotáról.

Kulcsszavak: *alkalmassági vizsgálat, fizikai állapotfelmérés, korcsoport, mozgásformák, értékelés*

Introduction

The system of preliminary and periodic physical aptitude examinations dates back two decades. Mandatory application thereof was regulated in a joint ministerial decree pursuant to authorisation from Act XLIII of 1996 on the service relationship of career members of armed agencies. Nowadays, various decrees govern those serving in the career personnel of law enforcement agencies, working for the army or finance guards within the career personnel of NAV (National Tax and Customs Authority). Such differences manifest in the nature of tasks to be fulfilled, the number of exercises to be performed, and the time criteria of tasks to be performed within a set timeframe as well. It may be established, however, that such tasks reflect neither the specificities of the particular career nor the complex approach to aptitude but isolated and non-functional tasks are regarded successful in case of completion within a prescribed timeframe.

The nature of tasks to be fulfilled (motion forms measuring the endurance of the circulatory system, power endurance of arms and shoulders, power endurance of the body) did not change on the merit over the past 20 years while numerous modern methods suitable for assessing the performance of the human body has surfaced recently.

It may be grasped easily that individual job descriptions are not identical even in a specific field of career expertise just like physical condition requirements towards them.

The National Tax and Customs Authority may be set as a positive example with the development of a separate set of requirements for its task forces.² The status of the firefighter intervening personnel working within the disaster management organisation may be regarded as special for example since the performance of the human body during each intervention is not determined solely by the muscle efforts exerted but also by the specificities of circumstances such as hyperthermia and dehydration.³ Central neuro-systemic, regulatory and muscular (local) factors play equal roles in decreasing performance and tiring. The less physically trained one is, the more do central factors cause tiring.⁴ Those trained better are more able to mobilise reserves, therefore, such development of the neuro-system mostly plays a role in the long-term preservation of personnel performance.

The reshaping of career aptitude, including physical aptitude examinations with a view to career specificities has become inevitable on the basis of modern scientific examination methods.

² NGM Decree 73/2013 (XII. 30.).

³ KANYÓ 2008.

⁴ KANYÓ 2007.

Legal Regulation of Physical Aptitude Examinations

In Hungary, career aptitude requirements towards the career personnel of law enforcement agencies, working for the army or finance guards within the career personnel of the National Tax and Customs Authority – as identified in the introduction – are not uniform for the time being. The reason thereof laying not within diverging career specificities as one may rightly believe but in the differences of sectoral regulations. The relevant legislation being as follows:

- *HM Decree 10/2015 (VII. 30.) of the Minister of National Defence* on health, psychological and physical aptitude for military service, and review process thereof;
- *IRM-ÖM-PTNM Joint Decree 57/2009 (X. 30.) of the Ministers of Justice and Law Enforcement and of Local Governments and of Postal Services and Communications* on health, psychological and physical aptitude of members of the career personnel of certain law enforcement agencies, on health aptitude of civil servants and public officials, on establishment of inability for service and earning, and on basic health care provision;
- *NGM Decree 73/2013 (XII. 30.) of the Minister for National Economy* on aptitude examination of those employed by the National Tax and Customs Authority, and on those eligible for utilising health care services provided by the Institute for Training, Health and Culture of the National Tax and Customs Authority.

A common underlying presumption of the aforementioned legislation being the mandatory examination of the health, psychological and physical aptitude of employees prior to and periodically during their service employment as required for the fulfilment of the particular position and for the classification under the relevant aptitude category, and opinion formulation thereof within the scope of specific aptitude examinations. Such aptitude examinations may be preliminary, periodic, extraordinary or final, they may be health, psychological and physical.

The definition of physical aptitude examination is stated in the national defence sectoral legislation: the entirety of such performance and physiological examining procedures that examine the presence of physical features and capabilities, physical endurance required for the fulfilment of military service. Physical condition assessment: annual checking up of physical aptitude at military organisations. This piece of legislation issued in 2015 may be regarded as the most up-to-date in respect of definitions and notions. The entirety of performance and physiological examining procedures is forward-looking while personnel face the execution of physical condition assessments in day-to-day practice, save for special units (police task force, NAV task force, etc.). It is a problem that physical assessment covers the execution of strict series of tasks not related systematically to health and psychological examinations.

Requirements of various sectoral regulations are illustrated in the table below:

Table 1. Comparing sectoral rules of physical condition assessments

	Army	Law enforcement agencies	NAV finance guards
Legislation	HM Decree 10/2015 (VII. 30.)	IRM-ÖM-PTNM Decree 57/2009 (X. 30.)	NGM Decree 73/2013 (XII. 30.)
Scope	career personnel	career and civil personnel	career and government official personnel
Nature	preliminary and periodic	preliminary and periodic	preliminary and periodic
Periodic examinations	annually	annually	biannually task forces: annually
Exemptions	over 55 years of age	over 56 years of age	upon 50 years of age
Age groups	< 25 years 25–29 years 30–34 years 35–39 years 40–44 years 45–49 years 50–54 years	Age Group I: up to 29 years of age, Age Group II: between 30 to 35 years of age, Age Group III: between 36 and 40 years of age, Age Group IV: between 41 and 55 years of age	Group I: up to 29 years of age, b) Group II: between 30 and 35 years of age, c) Group III: between 36 and 40 years of age, d) Group IV: between 41 and 49 years of age, e) Group V: members of special task forces
Examined by	Panel designated by the health organisation of the Hungarian Army	personnel with sports specialist qualifications	personnel with sports specialist qualifications
Examined forms of motion	a) standard push-ups b) pull-ups c) sit-ups from laying back d) suspension with bent arms e) running: 3,200 m up to 44 years 2,000 m 45–49 years 1,600 m from 50 years f) running replaced by: ergometric cycling ergometric running	a) standard push-ups b) suspension with bent arms c) bench-press d) 4 x 10 m swing run e) standing broadjump f) sit-ups from laying back g) 2,000 m running	a) standard push-ups b) suspension with bent arms c) bench-press d) 4 x 10 m swing run e) standing broadjump f) sit-ups from laying back g) 2,000 m running
Classification	a) "Physically apt", b) "Physically inapt"	a) "Physically apt", b) "Physically inapt"	a) "Physically apt", b) "Physically inapt"
Exception	female members of the personnel	Special police forces Parliamentary Guards	NAV task force

Source: Compiled by the author

Similarity characterises the three sectoral regulations more so than diversity. Nonetheless, deviations are not linked to certain career-specific requirements appearing in each career organisation. Requirements established on the basis of aptitude categories assigned to positions and age groups must be fulfilled by executing specifically defined and precisely described motion forms. Such motion forms measure the endurance of the circulatory system, the power endurance of arms and shoulders, and the power endurance of the body, aptitude may be determined on the basis of total scores calculated from the outcome score tables. Each and every prescribed exercise must be completed, which gives a score of at least one (1) point.

The Role of Physical Aptitude in Career Aptitude

In order for the personnel of law enforcement agencies to be able to take full responsibility for Hungary's security, healthy operative personnel are required. The definition formulated by the World Health Organisation (WHO) in 1946 is used to determine the notion of health: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".⁵ In 1982, Stokes et al. formulated an even more detailed definition encompassing more functions. In their position, the notion of health combines, among others, the aptitude to process physical, biological and social stress situations.⁶

When considering the career aptitude of law enforcement personnel, health denotes an even more complex notion, which the employer ascertains in detailed and versatile fashion during preliminary aptitude examinations. As regards physical aptitude examinations, the notion of health may be linked to physical conditional abilities, which are as follows:

- strength,
- speed,
- endurance,
- pliability (flexibility).⁷

Physical aptitude examinations aim to assess the condition of such abilities to reveal whether career personnel applicants could fulfil the particular law enforcement work. If the admission process is successful, the area of speciality in which the then career soldier, finance guard, firefighter or police officer could perform the most successfully should be differentiated on the basis of findings from the complex physical aptitude examination.

This is made difficult by the fact that neither preliminary health nor preliminary physical aptitude examinations reveal the condition of coordinating and balancing ability of law enforcement career applicants.

This is an ability, the intactness of which is indispensable for the fulfilment of day-to-day tasks pertaining to law enforcement positions. If, however, the level of development and current condition of such ability is not ascertained either preliminarily or periodically, then we do not have a proper insight into development opportunities either. The significance of the then current condition and assessment of individual coordinating and balancing ability has been emphasised by numerous Hungarian and foreign authors publishing on national defence and law enforcement subject areas in their studies.⁸ A Hungarian PhD dissertation from 2007 also mentions it as a shortcoming of the then current practices that employers are not oriented as to the then current condition and development level of coordinating and balancing ability of the individual.⁹

⁵ ÁDÁNY 2011.

⁶ CSELIK 2017.

⁷ ÁNGYÁN 1993.

⁸ JUHÁSZ 2008; SANDRA et al. 2017.

⁹ DUNAI 2007.

Coordinating and balancing ability is intertwined with the notion of body awareness, i.e. proprioception, commonly known as body awareness or articular positioning, which is a sophisticated and complex neuro-systemic function, however, indispensable for the individual to move or maintain within the gravitational space the body or certain parts thereof in a concerted and coordinated fashion.

As every physical ability, the condition of such may be assessed and developed; foreign practices show training programme tools of instable surfaces used in various ways, the courses of which have been documented, the effectiveness and practical benefits to body awareness and posture have been assessed in biomechanical labs.¹⁰

In order for the coordinating and balancing ability to function impeccably, intact, healthy and fully functional sensory organs are required, since the aforementioned proprioception controlled at the neural level is able to function the most effectively if assisted by sensory organs.

Intact visual organs are of outmost importance in such assistance. A study was published in Hungary in 2009, which examined orientation and navigation through sensory organs, and the efficiency with which firefighters are able to be oriented without sensory organs assisting positioning and motion in space.¹¹

The neuro system not only has an impact on the functioning of proprioception and sensory organs but also controls special reflexes, determining the tone of skeletal muscles and then the current lengths of muscles. Consequently, not only strong but sufficiently flexible muscles are pre-requisites of passing preliminary and the periodic physical aptitude examinations successfully.¹²

As regards career personnel already working in law enforcement, sufficiently advanced coordinating and balancing ability contributes to reducing the number of certain work-related accidents. An American study shows that the most injuries and accidents related to work, working or sustained in the course of fulfilling jobs occur in the course of firefighting.¹³

International technical literature features an article identifying recommendations, training programmes and opportunities for individuals willing to pass preliminary physical aptitude examinations or periodic physical aptitude examinations in order to achieve the best results in the course of testing without sustaining injuries.¹⁴

Firefighters' physical aptitude examination is totally special and diverging from physical aptitude examinations in all other law enforcement areas in that certain firefighter-specific tasks must be executed in full personal protective equipment (PPE), which has special impact on the human body, as already investigated in foreign studies on heart functioning and body temperature changes in the course of completing test exercises.¹⁵ In 2008, Kanyó attested significant differences through laboratory examinations between tasks performed in sports-wear and firefighters' personal protective equipment. Closed clothing may represent increased

¹⁰ FUNK et al. 2017.

¹¹ ERDÉLYI 2009.

¹² EGERMAN 2011.

¹³ CHIOU-KEANE 2016.

¹⁴ ELLIS-ELLIS 2008.

¹⁵ RICHMOND 2012.

physiological and psychological loads on those wearing such clothing. Individual tolerance, workout and fitness conditions play a major role in whether symptoms develop in certain individuals or not.

Conclusions, Findings

Physical condition assessment constitutes an integral part of physical aptitude examination and complex career aptitude examination. It may be concluded that motion forms used in the course of physical level assessment are suitable for a basic examination of physical condition abilities. Motion forms assessed are included as requirements in the sectoral regulations of all national armed and law enforcement agencies in line with NATO practices and those of several foreign countries.¹⁶

At the same time, it may be claimed that the current practice of physical condition assessment offers sufficient information on the prospective success of applicants only upon admission into career personnel, during the course of preliminary aptitude examinations at best. Nonetheless, practice shows some applicants admitted into career personnel fail physical aptitude examinations prior to being finalised in their position. Such ratio is not high, 2–4%, however, it is worthy of attention. While training programmes are developed for applicants abroad, e.g. in the USA, preliminary preparations are not generally available in Hungary. In the absence of such, applicants failing aptitude examinations upon their admissions may undergo retrials after individual preparations.

The requirements of preliminary physical condition assessment are identical to those of periodic examinations for the time being. Exercises equally apply to operational and office career personnel, save for some special units (TEK, NAV task force). Regulations merely feature distinctions by age groups diverging by sector. Series of exercises and hurdle courses elaborated and applied in physical aptitude periodic examinations in a position-specific manner by profession are indispensable for career personnel. It should be noted that personnel are also more motivated by executing tasks approximating their day-to-day activities.

When elaborating a series of tasks for physical condition assessment, the emphasis should be put on profession-specificity and the aspects of examining motoric and sensorimotor abilities, coordinating and balancing ability, and functioning of sensory organs as well. Opportunities must be offered for biomechanical laboratory examinations, especially for personnel exposed to joint physical and psychological loads.

Laboratory and performance diagnostic examinations and evaluations thereof strikingly contribute to improved selection of career personnel for various service tasks and projection of long-term load tolerance.

Simultaneously with the elaboration of a new set of physical aptitude requirements and examination methods, measures have to be taken to facilitate preparations and to elaborate methodological aids, workout plans and series of exercises for the application of tools, including

¹⁶ ELEKI 2013.

modern tools based on proprioceptive principles with a view to various ages, positions and workout levels.

References

- ÁDÁNY Róza (2011): *Megelőző orvostan és népegészségtan* [Preventive Medicine and Welfare Studies]. Budapest, Medicina.
- ÁNGYÁN Lajos (1993): *Sportélettani alapismeretek* [Sports Physiological Basics]. Pécs, Duplex-Rota Kft.
- CSELIK Bence (2017): *Egészségfejlesztő program hatása általános iskolásdiákok egészség-maga-tartására* [Impacts of Health Development Programs on the Health Behaviour of Elementary School Students]. Pécs, University of Science in Pécs, Health Sciences Doctoral School.
- CHIOU, Sharon S. – KEANE, Paul R. (2016): Influence of Personal Protective Equipment Use on Fall Risk. In HSIAO, Hongwei ed.: *Fall Prevention and Protection: Principles, Guidelines, and Practices*. CA, CRC Press. DOI: <https://doi.org/10.1201/9781315373744>
- DUNAI Pál (2007): *A fizikai felkészültséggel szembeni követelmények meghatározásának módszere, mint a korszerű harc megvívásához szükséges képességek alapvető része, helye a katonai nevelés és felkészítés rendszerében* [Methodology of Defining Requirements towards Physical Preparedness as an Essential Part and Place of Capabilities Required to Fight Modern Battles within the System of Military Education and Readiness]. Budapest, Zrínyi Miklós National Defence University, Doctoral School of Military Science.
- EGHERMAN, Monte (2011): Flexibility & Firefighting. *Fire Rescue Magazine*, Vol. 7, No. 1. Available: www.firerescuemagazine.com/articles/print/volume-6/issue-8/firefighter-fitness-and-health/flexibility-firefighting.html (Downloaded: 10.11.2018.)
- ELEKI Zoltán (2013): A Magyar Honvédség fizikai alkalmasság-vizsgálatának kialakulása és elemzése [Development and Analysis of Physical Aptitude Examination in the Hungarian Army]. *Bolyai Szemle*, Vol. 22, Special edition.
- ELLIS, Jeff – ELLIS, Martha (2008): How to Train for a Department Physical Ability Test. *Fire Rescue Magazine*, Vol. 3, No. 11. Available: www.firerescuemagazine.com/articles/print/volume-3/issue-11/firefighter-safety-and-health/how-to-train-for-a-department-physical-ability-test.html (Downloaded: 01.11.2018.)
- ERDÉLYI István (2009): A füstben mi is vakok vagyunk – tájékozódás- és közlekedés az érzékszerveink segítségével [We are blind in smoke as well. Orientation and navigation by using our sensory organs]. *Védelem – Katasztrófa- és Tűzvédelmi Szemle*, Vol. 16, No. 4. 50–52. Available: www.vedelem.hu/letoltes/ujstag/v200904.pdf (Downloaded: 01.10.2018.)
- FUNK, Shany – JACOB, T. – BEN-DOV, D. – YANOVICH, E. – TIROSH, O. – STEINBERG, N. (2017): A balance and proprioception intervention programme to enhance combat performance in military personnel. *BMJ Military Health*, Vol. 164, No. 1. DOI: <https://doi.org/10.1136/jramc-2017-000809>
- JUHÁSZ Zsolt (2008): Fizikai alkalmasság-vizsgálat az újjászervezett, önkéntes haderő logisztikai rendszerében [Physical aptitude examination within the logistics of reorganised voluntary military forces]. *Hadmérnök*, Vol. 3, No. 2. Available: www.hadmernok.hu/archivum/2008/2/2008_2_juhasz.html (Downloaded: 05.11.2018.)
- KANYÓ Ferenc (2007): A fátadság kialakulásának folyamata a beavatkozáskor [The development of the process of tiring in case of firefighting intervention]. *Védelem – Katasztrófa- és Tűzvédelmi Szemle*, Vol. 14, No. 2. 28–32. Available: <http://vedelem.hu/letoltes/ujstag/v200702.pdf> (Downloaded: 01.10.2018.)
- KANYÓ Ferenc (2008): *A tűzoltók fizikai alkalmasságának felmérése az új évezredben. Laboratóriumi és pályavizsgáló teljesítménydiagnosztikai eljárások alkalmazási lehetőségei a tűzoltók teljesítménymérésében* [Physical Aptitude Assessment of Firefighters in the New Millennium. Applicability of Laboratory and Field Testing Performance Diagnostics in Assessing the Performance

of Firefighters]. Budapest, Zrínyi Miklós National Defence University, Doctoral School of Military Science.

SANDRA Sándor – MOCSAI Lajos – STICZ László – RIVASZ Gábor – VÁSÁRHELYI-NAGY Ildikó – OLÁH Csaba – TIHANYI Krisztina (2017): *A speciális bevetési területen szolgálatot teljesítők fizikai megterhelése kapcsán esetlegesen kialakuló szövődmények megelőzése, illetve terápiája* [Prevention and therapy of potential implications arising from physical exposure of those servicing in special task forces]. *Honvédségi Szemle*, Vol. 145, No. 5. 90–100. Available: www.honvedelem.hu/kiadvanyok/honvedsegi-szemle-2017-5-szam/ (Downloaded: 05.11.2018.)

RICHMOND, Victoria (2012): *Monitoring heat strain in physically challenging environments*. Doctoral Thesis. Loughborough University, U.K. Available: <https://core.ac.uk/download/pdf/9689686.pdf> (Downloaded: 01.08.2018.)

Legal References

NGM Decree 73/2013 (XII. 30.) of the Minister for National Economy on aptitude examination of those employed by the National Tax and Customs Authority, and on those eligible for utilising health care services provided by the Institute for Training, Health and Culture of the National Tax and Customs Authority. Available: https://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=a1300073.ngm (Downloaded: 05.08.2019.)

HM Decree 10/2015 (VII. 30.) of the Minister of National Defence on health, psychological and physical aptitude for military service, and review process thereof. Available: https://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=a1500010.hm (Downloaded: 05.08.2019.)

IRM-ÖM-PTNM Joint Decree 57/2009 (X. 30.) of the Ministers of Justice and Law Enforcement and of Local Governments and of Postal Services and Communications on health, psychological and physical aptitude of members of the career personnel of certain law enforcement agencies, on health aptitude of civil servants and public officials, on establishment of inability for service and earning, and on basic health care provision. Available: https://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=a0900057.irm (Downloaded: 05.08.2019.)