

Colonel Sandor SANDRA Med. Dr.

Some Issues of Military Fitness and Locomotor Disorders

Author's resume of his PhD dissertation

Consultant:

Major General Jozsef FARKAS (ret.)
Med. Dr. Prof.
University Honorary Lecturer
Doctor of the Hungarian Academy of Sciences

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An outline of the scientific problem

Locomotor disorders have a huge economic and social significance. On the basis of international and Hungarian statistics locomotor disorders are the third most frequent cause of loss of working days. In the past 10-20 years our way of life has fundamentally changed – after a day-long use of a computer we voluntarily take the captivity of video or television. Public transport or cars reduce the time spent on physical exercise. Younger generations making no real physical efforts, rarely doing any sports, have a weakened physical staying power and low level of self control and concentrating capacity. It could be stated that there was no decrease in the – undiscovered – locomotor disorders of youth. Unfortunately, it is a fact that physical education at schools is inefficient and ineffective. At the age of their entering military service previously acquired bone- and joint disorders manifest themselves preventing young people from doing their military service, moreover, endanger their capacities to work. Therefore, it is reasonable to conduct a career-related preliminary medical screening and to conduct the necessary treatments in the framework of unified diagnostic and therapeutic protocols.

Young people wishing to evade conscription tried to exaggerate their diseases and disorders while those wishing to join the military on a contracted basis are interested in meeting service requirements and declared fit.

Research objectives

1. How do locomotor disorders influence the general health conditions, deployability, and service career of personnel?
2. Is the denomination and systematization of locomotor disorders correct, unified, and transparent?
3. Does current fitness screening meet the requirements of checking up personnel assigned for deployment in more extreme conditions?
4. Does the medical examination system properly reflect the needs of arms and services?
5. Should examination techniques be unified? If so, at what level and in what format?
6. Is the current documentation system capable of registering and processing of medical data? Is there a need for a further data storage technique?
7. What are the related expenses of the current examination technique for the military service system? How does this technique support the selection of proper persons, their medical treatment, or rehabilitation?

Research methods

In order to achieve my objectives the following research techniques were applied:

- I studied and analysed the related Hungarian and foreign special literature, latest publications, study papers, research findings and recommendations of the newest tendencies;
- I applied the methods of analysis and synthesis in comparisons, descriptions, and analyses;
- I studied laws, legal acts, other decrees, and resolutions;

- I studied the ways and accuracy of occupational-health examinations, their depth, reliability, and relations to various professions;
- In connection with applied research I used adaptation as a dominant technique. I summarised both the common and contradicting facts of documents related to the theme of the dissertation;
- I participated in both international and Hungarian conferences, symposiums, and lectures related to my research field;
- I systematised my experience and knowledge obtained during my professional career in military health service;
- I conducted professional consultations with experts and researchers involved in this field, discussing and fine-tuning the findings of my research;
- I conducted targeted research on the internet for materials and publications related to my research theme;
- During my research I analysed the potential ways of adaptation of such medical examination techniques in various elements of the Hungarian Defence Forces. I utilised the findings in the field of military science and other branches of science by putting them into different context in accordance with the problem-oriented processing of my theme.

In my dissertation I analysed –

if the current fitness screening

- meets needs derived from altered service relations;
- properly assesses the fitness of personnel serving in extreme conditions;
- can be used to compare risk factors with the loadability of personnel.

if it properly supports

- the maintenance, recovery or rehabilitation of soldiers' health;
- the need for information of military leaders;
- the achievement of military, professional, or political objectives.

if it is

- capable to ensure high-level unified attendance;
- useable for modern recording, storage, and statistic processing of health and medical data in order to compare certain parameters at international level.

if it is possible

- to utilise examination techniques successfully used in other fields;
- to find similarly strict-regulated examination structures (either in Hungary or abroad);
- to rapidly find and adapt cheaper and more modern examination techniques.

Summarised conclusions

Thanks to their theoretic and practical training and equipment the Hungarian Defence Forces are capable of defending the territory of Hungary, of conducting activities beyond the State borders within the Alliance in the case of a crisis or emergency situation. The Hungarian military is capable to guarantee international stability, human rights and liberties, the

protection of logistic interests of Hungary, and sharing them with its allied countries where needed.

From military medical aspects certain types of locomotor disorders may lead up to serious fall in performance, accidents, disasters, losses of human lives and material. Discovering such diseases is of extreme importance.

Since Hungary is establishing its professional armed forces knowledge and interpretation of locomotor disorders is paramount for assessing the fitness of contract and professional personnel. One of the objectives of my research was to produce a detailed list of such diseases.

The health service of the armed forces and its experts are increasingly conducting more detailed medical examinations in order to provide reliable data on the fitness and deployability of soldiers or a would be soldiers.

I ascertained that more precise health requirements are necessary for military personnel in the arms and services. There are different requirements in different branches too: e.g. one unfit for being a pilot can make a perfect ATC. This capacity is first examined and analysed during the pre-employment medical check-up. At a later stage through a more thorough analysis of job- / service-related risk factors it is possible to find (within the framework of rehabilitation process) new military assignments for personnel with decreased abilities.

I regard it necessary to unify the theoretical and practical requirements towards medical examinations and their correct documentation with modern and legal data management. I regard it reasonable to establish a closer cooperation with military leaders, human resource managers, and officers involved in training.

The presumption that in practice more special fields should be represented in medical inspections and their analyses was proven.

I set the goal to disclose problems and provide an efficient solution for them, and to produce a structural plan of efficient capacity examination protocol for military medicine.

New scientific findings

- During my research I established a worksheet for examining state of motion to be filled in for each person before check-up. It has an annex of a diagnostic sheet for registering examination findings.
- I prepared a list of instruments for locomotor diagnostics.
- I analysed the examination techniques of the movement range of joints and prepared their assessment.
- I collected and systematised diagnostic signs necessary for fine-tuning diagnoses of locomotor disorders.
- I compiled a list of imaging diagnostic techniques and their range of application for locomotor disorders' examination. On the basis of my examinations I consider it reasonable to produce x-ray images of the lumbosacral region and knees and specific UH-image of the knees of each prospective serviceman/-woman.
- I systematised the list of rheumatic diseases from the aspect of military service.

Practical use of research findings, recommendations

The analysis of fitness for military service is important for both the Hungarian Defence Forces and the future serviceman/woman and has also social significance. It is the medical staff's job to provide a forecast on the duration of these people's potential military service in the short and long run with no or minimum damage to their health. This activity can also be used for the collection, systematisation, and analysis of useful information. It also allows collecting information as a filter on the health conditions of a well-defined part of population. This is, of course, just a snapshot representing an important set of information. Regular screenings provide a huge amount of information on effects of special or general stress, health consequences, the efficiency of treatments and training, and possible deficiencies too. The cause is that all concerned persons participate in screening regularly thus their conditions can be tracked during their entire military service. On this basis the analysis and synthesis of examination evidences can have significant influence on public health processes.

I consider the theoretical and practical materials useable in all and in parts for diagnosis of locomotor disorders.

The diagnostic techniques described in my work can serve as a basis and the material can be further developed through the adaptation of certain new materials.

With the use of current internal pathology, psychology, coupled with the locomotor diagnostics developed by me current testing and screening methods can be made more efficient.

Such a new and sophisticated capability testing allows establishing a reliable database useful both for the Hungarian Defence Forces and the concerned individuals.

Last but not least exact economic indices can be derived from the above described results.