

## **Main Tasks of Sports and Preventive Medicine in the Polish Air Force**

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Proper health and perfect fitness are considered the most important criteria of the uniqueness of military pilot's profession. Both of them are basic factors in fighting risk connected with performing air service and survival on the Earth after being shot down or emergency landing [3, 4, 7]. This correlation has been very accurately defined by Col. J. Dale (USA) – "Optimal Health and Total Fitness" [2]. Maintaining health and (strictly speaking special) physical fitness, however, can be obtained by conscious and science based everyday activity of a pilot himself.

It seems that the level of this consciousness and pilots' motivation for healthy and physically active lifestyle is indirectly affected by the activities of specialised units subject to Polish Air Force Command. The most important of them are: Polish Air Force Institute of Aviation Medicine (PAFIAM) in Warsaw and the Military Training and Health Centres for Pilots (MTHCP) – one in Zakopane-Gronik (the Tatra Mountains) and the other one in Mragowo (Mazurian Lake District).

This paper presents the main tasks of preventive medicine and physical activity in pilots population (promoting healthy, active lifestyle), carried out by the above mentioned units.

### **Placement of PAFIAM and MTHCP in the system of "career development" in air force pilots**

Polish Air Force Institute of Aviation Medicine plays the most important role in promoting healthy and active lifestyle both among pilots and people influencing their professional career (fig. 1). This results from two main factors, namely:

one interdisciplinary unit including teams of specialists dealing with different aspects of health and psychophysical fitness of pilots;

selective examination determining fitness for air service performed in aviators from the candidates to the Air Force Academy to the oldest pilots applying for licence renewal.

The Military Training and Health Centres for Pilots organise special stationary fitness training courses. Each year the pilots train their psychophysical fitness in the mountains or in the lake district.

### **The main tasks of PAFIAM concerning preventive medicine**

The main task of preventive medicine realised at PAFIAM - by the Central Aeromedical Board (CAMB), included in the Institute's structure – is diagnostics of the pilots health state and prevention. The basic form of diagnostics are selective studies in Air Force flying personnel members (pilots under 40 – every 12 months, pilots above 40 – every 6 months). Since 1996, two prevention-treatment programmes of the circulatory system have been implemented, namely:

- CORO (detection and treatment of sub-clinical forms of coronary arterial disease in supersonic aircraft pilots);
- CHOS (diagnostics comprises hypercholesterolaemia, overweight and smoking) in the remaining flying personnel.

Moreover, the following programmes have been implemented:

- prevention of neuroses and mental disturbances;
- back-pain syndromes (by the team of specialists, including: the Chairman of CAMB, neurologist, orthopaedist, radiologist and physiotherapist- Technical Watch Spinal Injury – TWSI)
- urinary system diseases (from 1997).

During the examinations, the pilots are informed about their health state and, if necessary, about preventive measures. Basic prevention, however, that has been implemented, is based on healthy diet, elimination of smoking habits, maintaining proper body mass and optimal lipid profile, and aerobic fitness. Additional pharmacological treatment (e.g. hypolipaeamic drugs) has been applied in case of patients with several main risk factors and no improvement after lifestyle changing.

The remaining tasks carried out at PAFIAM, more or less closely connected with the quality of preventive medicine in Polish Air Force include:

- studying the problem of health and physical activity promotion as well as associated problems (as far as structure is concerned these include the activity of Health and Physical Activity Promotion Laboratory at PAFIAM from 1997);
- studying the problem of increasing the effectiveness of psychophysical training in pilots (many of the realised research programmes);
- postgraduate training of physicians (specialist courses in aviation medicine – exclusively for physicians working for Air Force and Civilian Aviation units);
- postgraduate courses, mainly for specialists in sport and physical education, and physicians: “biomedical bases of physical culture for adults – especially physical education of military pilots”;
- substantial supervision – in the aspects of medicine and exercise load optimisation – of fitness training courses carried out at MTHCP;
- promoting health and active lifestyle among pilots and in their closest environment (lectures, editorial activity, etc.);
- exchange of information in particular branches of knowledge (publications, scientific and occupational practice, study visits, active participation in scientific conferences – especially in workshop sessions).

The discussed system of PAFIAM tasks within the range of preventive medicine in Polish Air Force is presented in fig. 2.

### **General data concerning diagnostics and health prophylaxis in pilots**

Realisation of the discussed tasks allowed to determine the most frequent reasons of disability to perform air service from 1992 to 1997 (30% - circulatory system diseases, 25 % - neuroses and mental disorders, 15% - spine diseases), and to select risk factors of circulatory system diseases (the percentage close to that of Polish population: 76%- mild hypercholesterolaemia, 52% - mild overweight, 6,8% - obesity, 25% - tobacco smoking). The most frequent reasons for hospitalisation included neuroses and mental disorders (including recognised neuroses in 15,2% of pilots, emotional disorders in 15,2% and disadaptation in 3,8%), and in 14% - spinal disorders.

The implemented programme of urinary system prophylaxis (dynamics of benign prostate gland hypertrophy, screening to detect prostate cancer and asymptomatic inflammations as well as other risk factors depending on history) is the next stage of system effectiveness improvement aiming of optimal functioning of pilots and their realisation of other life objectives.

As the period of realisation of the above mentioned programmes is relatively short, it is difficult to estimate, apart from diagnostic data, especially long lasting effects each prevention-treatment systems. It results from our previous observations, however, that favourable changes occurred in the relations between the examined pilots and CAMB medical sub-commissions members.

### **Main tasks of MTHCP**

The main task of Military Training and Health Centres for Pilots is organising – all year long – three weeks' training courses for pilots. The programme of such courses comprises:

- Medical examinations
- Evaluation of physical fitness which constitutes the basis for pilots' selection to particular training groups;
- Physical training;
- Elements of survival;
- Air rescue training;
- Tourist excursions;
- System of individual and team sports competitions;
- Renewal and relaxation courses;
- Lectures on healthy and active lifestyle.

Moreover, preventive programmes of osteoarticular, musculo-ligamentous and cardiovascular system diseases as well as low cholesterol diet.

The programme of physical training performed at both Centres comprises:

- Fitness training (improving tolerance to +Gz acceleration);
- Swimming;
- Hand to hand fighting;
- Team games;
- March and march combined with running;
- Cycling hiking (also included in the tourist programme).

Moreover, the training programme at MTHCP in Zakopane-Gronik (the Tatra Mountains) comprises:

- mountain climbing;
- skiing;

and the training programme at MTHCP, Mragowo (lake district) comprises:

- Sailing;
- Canoeing;
- Water skiing and water bikes;
- Windsurfing.

Fig .3 presents the above mentioned system of MTHCP tasks promoting healthy and active lifestyle among Air Force pilots.

## Relations between Polish Air Force Command, PAFIAM and MTHCP

Health and psychophysical fitness of pilots are the most important problems in the hierarchy of Polish Air Force command's tasks and objectives. Therefore, in spite of the fact that both PAFIAM and MTHCP are autonomous units, Polish Air Force command has to its disposal staff units and structures responsible for coordination of these tasks (Fig.4).

The Chief of Polish Air Force Health Service deals with medical problems, while the chief of Polish Air Force Physical education is responsible for coordination of sports and physical education related problems. Their responsibilities include supervision of those problems in all aviation units.

PAFIAM supervises MTHCP on its merits as it employs researchers, specialists in aviation medicine and because of its research potential. The supervision includes the problems of medical diagnostics in pilots and the realised prevention-treatment programme, as well as optimisation of training (exercise) loads. The specialists from PAFIAM frequently organise various courses, not only for MTHCP physicians, but also for military sports instructors (e.g. courses of hand to hand fight, survival etc.). The most advanced educational programme for MTHCP employees, physicians and specialists in sports and physical education are postgraduate courses, organised and carried out by PAFIAM, that have already been mentioned.

### Summary

We can assume that health and active lifestyle promotion system in Polish Air Force is manifested by simultaneous efforts aiming at pilots' health improvement and making them aware of this fact through the whole period of their highest occupational activity starting from education at AF Academy – to organising courses for Air Force command and staffs of Ministry of National Defence central units.

This systematic approach towards the problem of health and active lifestyle promotion has already resulted in undoubtedly higher physical fitness potential and somatic development (one of the medical criteria) in the applicants – AF high school recruits [6]. Moreover, it seems that pilots' preferences concerning physical activity are closely connected with physical training programmes carried out at MTHCP. The pilots most readily practice skiing, hiking, cycling and sailing.

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