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Original article

## MAINTAINING THE MOTOR CAPACITY OF MILITARY FIREFIGHTERS DURING THE EMERGENCY IN THE CONTEXT OF THE COVID-19 PANDEMIC

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### Abstract

**Objective.** The aim of this research was to identify new ways to maintain the capacity of physical effort of operational staff in professional structures for emergencies (military firefighters) during the state of emergency on compliance with the rules of social distance, and the cessation of sports activities organized with the involvement a large number of people, related to the prevention and spread of SARS-CoV-2 virus infection.

**Methods** Taking into account the situation created by the coronavirus COVID-19, the study was carried out during the state of emergency, respectively in March-April-May (16.03.2020-15.05.2020) and had as subjects the shifts involved in the fight against this. virus. The research methods used in the above mentioned period being: the study of the specialized literature, the direct observation, the experiment, the comparison, the statistical-mathematical analysis.

**Results.** During the experiment, the physical training activities were mainly focused on maintaining the physical condition / abilities and health of the military personnel.

**Conclusions.** Following the physical training activities assigned to the military personnel, the access to the unit's gym or to the outdoor sports base, the access will be organized, based on the planning of the physical education specialist officer or the sports instructor from the subunit, respecting the following rules:

- access to the space intended for the practice of physical training activities should be made within a maximum of two to three persons, in order to provide and assist the equipment used by the participants in the activity;
- the rules required to prevent the spread of the SARS-CoV-2 virus by sanitizing sports equipment, installations and materials affected, before and after each use, ventilating the gym, using one's own towel and indoor sports footwear;
- the rules of access to the gym;
- the time budget allocated to the category of normal or accentuated physical load to which the unit's staff is assigned (maximum 4 hours, respectively 6 hours per week), with priority given to the performance of duties and compliance with the reporting deadlines specific to the field of activity; entrusted missions.

**Key Words:** firefighters, state of emergency, gym, military, COVID-19.

### Introduction

The activity of physical education and sports within the subunits of the Inspectorate for Emergency Situations "Nicolae Iorga" of Botoșani County are components of the process of training and continuous training of military personnel (Law 80/1994) and is performed in order to guide physical activity to training and the development of the motor capacity and of the psychic qualities from the cognitive, volitional and affective sphere of the personnel, necessary for the fulfillment of the entrusted missions (O.M.A.I. 154/2004).

Physical education is a duty of service, being planned, organized and carried out in order to ensure the fulfillment of service tasks and missions according to the

competencies / attributions conferred by law. Each military officer is responsible for his own level of training and has the obligation to train individually

General objectives of physical education and sport (Torje, D., C.) of military firefighters (officers, foreman, non-commissioned officers):

- supporting, through profile activities, the fulfillment of specific missions and activities by the subordinated personnel;
- maintaining and developing the motor capacity of the staff, in order to achieve action autonomy, which allows capitalizing on the possibilities of effort in different situations;
- harmonious physical development and maintaining

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the optimal state of health through the systematic and continuous practice of physical exercise;

- forming the habit of independent practice of physical exercises in order to improve motor performance, recovery and for recreational or prophylactic purposes;
- development of the following motor qualities: speed, skill, strength and endurance;
- learning the basic procedures, training, consolidating and improving the skills for performing the exercises and procedures specific to the sports disciplines approached in the physical training process;
- forming a pleasant working climate by conducting sports competitions based on competitiveness in the spirit of fair play (Torje D., 2006).

The specific objectives of military firefighters are:

- training and improvement of handling skills with speed and precision of the accessories of the intervention technique, as well as of the individual protection equipment;
- improving the way of fulfilling the missions and activities specific to the management of the emergency situations identified in the area of competence of the inspectorate;
- training and developing endurance for long-term physical exertion and increasing the ability to withstand, for a long time, static positions and reduced mobility; participation and obtaining very good physical performances, at the final stages of sports competitions organized at the level of the Ministry of Internal Affairs, the General Inspectorate for Emergency Situations as well as at the international level. (O.I.G. 1535/2018).

The aim of this research was to identify new ways to maintain the capacity of physical effort of operational staff in professional structures for emergencies (military firefighters) during the state of emergency on compliance with the rules of social distance, and the cessation of sports activities organized with the involvement a large number of people, related to the prevention and spread of SARS-CoV-2 virus infection.

#### Methods and subjects.

Taking into account the situation created by the coronavirus COVID-19, the study was carried out during the state of emergency, respectively in March-April-May (16.03.2020-15.05.2020) and had as subjects the shifts involved in the fight against this virus.

The research methods used in the above mentioned period being: the study of the specialized literature, the direct observation, the experiment, the comparison, the statistical-mathematical analysis.

Regarding the working methods approached in physical activity, the three basic rules of the accessibility principle were observed as follows:

- ✓ transition from easy to difficult;
- ✓ the transition from simple to complex in which the criterion of skill necessary for

performing motor acts and actions works as a priority;

- ✓ the transition from known to unknown, ie from the elements already acquired to new ones, which should be based on those already acquired (Chirazi, M., 2004)

The time budget allocated to this category of training was at least 2 hours per shift, in compliance with the structure and time allocated to the organization and conduct of physical education and sports lessons, and the time limit will be achieved cumulatively in a month (OMAI 177/2016).

For the staff assigned to the category of "accentuated" physical load, it was provided, through planning, as follows:

- general physical training 40%;
- specific physical training 60%;

Planning the physical training of the military personnel that falls into the category of "accentuated" physical demand, including themes and exercises from various disciplines, adapted to the sports base and the sports materials existing in each place of activity, as follows:

General physical training:

- 30% for athletics;
- 30% for gymnastics;
- 40% for sports games (mini-football, volleyball, table tennis, football-tennis).

Specific physical training:

- 80% weapon-specific physical exercises - utilitarian-applicative exercises and samples or segments from the tests specific to military firefighters' competitions (window ladder, 100 m obstacle course, 4x100 m relay, motor pump intervention device and circuits for checking capacity driving);

- 20% bodybuilding, sports orientation.

Personnel holding a diving or mountaineering license and performing missions in the aquatic environment or mountaineering, specific assignments and meetings have also been allocated, so that through planned and / or self-planned training and annual internships they are able to maintain the qualification of climber / diver of class.

The main operative non-commissioned officer (and dog handler) assigned to the 8-hour work schedule, carried out the physical education and sports program with the shift on Mondays, Wednesdays and Fridays.

The actual time allocated to each physical training session was 100 minutes, according to the distribution by topics / months / weeks / days.

The physical training program customized by the sports instructor in order to maintain the body's exercise capacity (initial testing) consisted of:

1. Easy running - 10 minutes around the sports field / subunit plateau / running band in tempo of 2/4;

2. Active break - 2 minutes breathing movements, joint mobility (rotations of the upper and lower limbs, rotations of the torso, rotations of the head, and stretching (for muscle elasticity);

3. Easy running - 10 minutes around the sports field / subunit plateau / running band in tempo of 2/4 but in the opposite direction to how it was run in the first series of 10 minutes;

- At the end of the 20 minutes of easy running, perform 1 series of push-ups of 30 repetitions and 2 series of abdominal flexions of 30 repetitions. The completion time of the series of push-ups and abdominal flexions will be a maximum of 5 min.

4. Easy running - 3 minutes for the return of major body functions;

Travel speed includes 4 times:

- running in 1/4 tempo ----- very easy running (walking faster);
- running in tempo of 2/4 ----- light running;
- running in tempo of 3/4 ----- running with speed launched step;
- running in tempo of 4/4 ----- running in maximum speed (Sprint);

The physical training program customized by the sports instructor in order to maintain the effort capacity of the body (final testing) according to **tab. number 1**.

### Results and discussions

During the experiment, the physical training activities were mainly focused on maintaining the fitness and health of military personnel. Specifically, during this period there was a much more active participation of staff

due to lack of activity (the need for social isolation). Given the attitude and desire of staff to participate in physical activities, new elements were introduced (pair work, individual competition, etc.). As a result of this attitude, following the analysis of the tests for the three months, there was an increase in staff who rated it "very good".

### Conclusions

Following the physical training activities assigned to the military personnel, the access to the unit's gym or to the outdoor sports base, the access will be organized, based on the planning of the physical education specialist officer or the sports instructor from the subunit, respecting the following rules:

- access to the space intended for the practice of physical training activities should be made within a maximum of two to three persons, in order to provide and assist the equipment used by the participants in the activity;
- the rules required to prevent the spread of the SARS-CoV-2 virus by sanitizing sports equipment, installations and materials affected, before and after each use, ventilating the gym, using one's own towel and indoor sports footwear;
- the rules of access to the gym;
- the time budget allocated to the category of normal or accentuated physical load to which the unit's staff is assigned (maximum 4 hours, respectively 6 hours per week), with priority given to the performance of duties and compliance with the reporting deadlines specific to the field of activity; entrusted missions.

**Table 1.** Customized physical training program by the sports instructor in order to maintain the body's exercise capacity

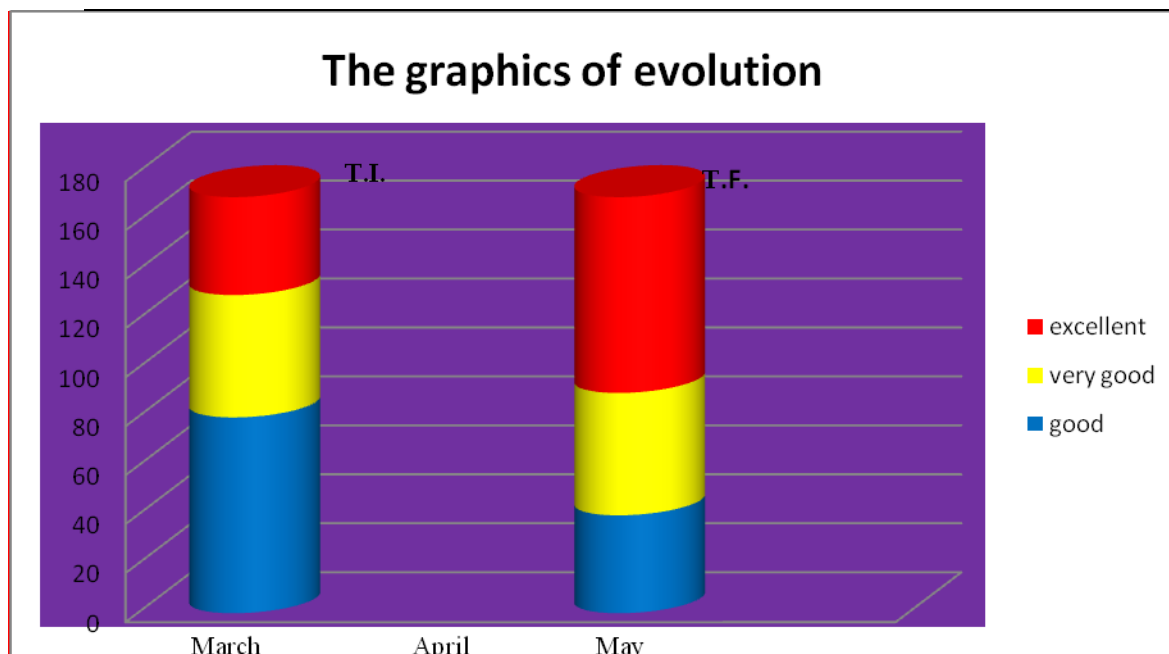
DAYS OF THE WEEK	Preparatory exercises necessary to prepare the body for effort	Dosage
Exercises for muscle warm-up are done at the beginning of each day of physical training.	<ul style="list-style-type: none"> <li>• <u>3 TURNS</u> of sports field / plateau sununit / treadmill in light running in 2/4 tempo, alternating with rotations of the arms back and forth, with exercises from the running school (ankle play, knees up, pendulum swinging back, step added, crossed) <u>NOT</u> more than 20 meters. Each exercise in the running school will be preceded by at least 10 meters of light running with muscle relaxation and breathing movements</li> <li>• Exercises in the running school will be performed only on the length of the field, the width of the field being covered in light running in a tempo of 2/4.</li> <li>• Selective influence of the musculoskeletal system:               <ul style="list-style-type: none"> <li>a) warm-up exercises to prepare the body for effort (head, arms, torso, legs)</li> <li>b) exercises (bending, extensions, bending, rotating, bending).</li> </ul> </li> <li>• exercises for stretching (example-bending stg –dr 6-8 repetitions, then stay in tension for 10-15 sec on the upper or lower limb</li> </ul>	10 min

	worked. Work at the end of training for muscle elasticity and joint mobility).	
Monday	<p><b>ENDURANCE RUNNING:</b></p> <ul style="list-style-type: none"> <li>8-10 laps of sports field / plateau sununit / treadmill in light running with breathing movements and muscle relaxation (will run in a tempo of 2/4 over long distances to increase the body's capacity for effort).</li> </ul>	2 min and 30 " for each round
Tuesday	<ul style="list-style-type: none"> <li>3 laps of sports field / plateau sununit / treadmill (2 min and 30 sec per lap) - easy running</li> <li>The break is necessary to be active and include - exercises for stretching, abdominals two sets of 30 rep. with a break of 1min between them necessary to return the body after exertion through breathing movements and muscle relaxation.</li> <li>3 laps of 50 m running in 3/4 tempo (running launched close to the sprint) 50 m light running.</li> </ul> <p>He will run alternating a big lap with a small one for a total of 6 laps At the end of the training program, 2 light running laps will be performed and at each corner of the sports field, the following exercises will be performed:</p> <ul style="list-style-type: none"> <li>10 push-ups and 10 abs</li> </ul>	A large turn will alternate with a small one
Wednesday	<p><b>ENVELOPES:</b></p> <ul style="list-style-type: none"> <li>50 m (3/4) -100 m (easy running) 2-3 laps (width thrown, length of easy running);</li> <li>100 m (3/4) -50 m (easy running) 2-3 rounds (length released, width slightly);</li> <li>50 m (3/4) -50 m (easy running) 2-3 laps;</li> <li>200 m (3/4) - 150 m (easy running) -50 m walking-3 laps.</li> </ul> <p>The break between evenings will be a maximum of 3-4 minutes, necessary for the body to return after exertion through breathing movements, stretching and muscle relaxation.</p>	
Thursday	<p><b>RACE WITH RHYTHM CHANGES:</b></p> <ul style="list-style-type: none"> <li>10 min (20sec. 3 / 4-40 sec easy run)</li> <li>7 min (30sec 3/4 -30 sec easy run.</li> <li>5 min (15sec 3/4 -15 sec easy run)</li> </ul> <p>Don't sit down between evenings! ✓ always walks with breathing movements</p> <p>It is possible to work both on the sports field and on the plateau of the subunit. depending on the material base existing in the subunit.</p>	Break of 3-4 minutes between sets
Friday	<p><b>SPEED RESISTANCE RUNNING:</b></p> <ul style="list-style-type: none"> <li>100 - 200 - 400 m --- 400 - 200 - 100 m - 2 series</li> <li>200 m (time 30-35 sec), 400 m (1min and 30 sec), 600 m (2 min and 30 sec.)</li> </ul> <p>(Example) 200 m run run, then walk 50 m, 400 m run run, walk 100 m, then 600 m running launched.</p>	Pause 5 min

**Grille for transformation notes in the ratings:**

- Exceptional - E = 10
- Very good - FB = 9,00 - 9,99
- Good - B = 7,00 - 8,99
- Suitable - C = 6,00 - 6,99

- Mediocre - M = 5,00 - 5 99
- Incorrect - NC = 1,00 - 4,99



**Figure 1.** Evolution of results from initial testing (T.I); at the final test (T.F) for the emergency period (March 2020 -April 2020 - May 2020).

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