1. INTRODUCTION

Physical preparation belongs among the most important kinds of preparation of a professional soldier. It results in physical fitness and psychic resistibility of soldier for the fulfilment of demanding tasks of combat actions.

The current engagement of members of the Slovak Armed Forces in various parts of the world intensifies the requirements on every subject and his complex preparedness. Variability of military actions leads to increase the demands of every soldier, increasing responsibility for the fulfilment of commands, orders and tasks in the conditions of physical and psychic load. This task is ensured to a large degree by the special physical preparation. Our article aimed at pointing out which areas are necessary to stress during the special physical preparation. The special preparation prepares the soldier to extreme situations and develops his physical fitness and psychic resistibility.

The main impact should be put on interconnecting physical exercises with such actions, which develop activity of soldiers, teaching them overcome various kinds of obstacles accompanied with stress, danger, risk, intensity and unexpectedness. Loading in physical preparation must put high claims on physical and strength of the individual, but may not overstep the threshold of his potentialities. To find out the optimum limit of loading for every soldier is the most serious task of the commander, since it is just loading and coping with it plays the decisive role in the formation of physical fitness and psychic resistibility. If the professional soldier wants to be well prepared and wants to reach a goal, he must count with painful training methods.

Nothing can replace the training, it will help soldiers when they have troubles, feel bad and suffer stress. Maximum performance in the final phase of combat action requires power and resistibility. That is why it is necessary in the physical preparation of soldiers frequently work on the limit of exhaustion to improve the rough power and resistibility. We can agree with the opinion of the formerly well-known Italian trainer of cyclists Francesco Conconi, who said that when you feel totally tired you still have some power in yourself1. It is up on the trainer, in our case the commander, how he is able to mine these strengths from his soldier out. It is important that the solider under the conditions of extreme loading knows his potentialities and knows how to perform in an optimum way just in this situation, when it is necessary.

From the methodological point of view we should carry out physical activity under the conditions of a threat, in unusually psychically and physically demanding environments, under motivating conditions and circumstances. This requires observing the well-known pedagogical principles such as adequacy, systematic character and progressiveness in training, proceeding from easier to more difficult, from well-known to less-known content, at first the solution of simple situations,
then solving of complex situations, solving situations after exertion and in field conditions. However, physical fitness is a daily habit that needs to be developed 4 to 6 times a week. For the build-up of psychic resistibility we can recommend to take into account also basic idea of the team-work of American Marine Corps: ‘to learn to be unsuccessful’. Methodical requirements to increase physical and psychic resistibility in the physical preparation of armed forces can be briefly presented in the following principles:

- Gradual increase of the load into maximum values
- Increase in the exertion through making the conditions extremely hard
- Shortening the time for the drill execution
- Overcoming the obstacles from various directions
- Increasing the number of obstacles
- Increasing the load at the onset of fatigue
- Improving the action after an intensive loading
- Employing acoustic and light effects at training
- Clearing obstacles built by the ‘enemy’
- Employing mutual assistance of exercising soldiers
- Creating dangerous situations connected with adequate risk
- Fulfillment of physical exercises also at other jobs
- Performing exercises at various daily and yearly period.

Optimisation of training programmes of professional soldiers helps to increase the level of physical fitness, motor performance and psychic resistibility in their preparation for the fulfilment of the demanding tasks of military service. Observing the influence of various kinds of aerobic physical activities on physical and functional fitness of professional soldiers allows for the specification of the most suitable aerobic physical activities for individual units with regard to their material and spatial conditions. In our research we dealt with the impact of aerobic exercises on the level of fitness of soldiers. The level of aerobic endurance (aerobic power and aerobic capacity) directly determines the performance of the soldier at fulfillment of demanding tasks in the terrain. Higher level of aerobic potentialities has an influence on the health state of soldiers and creates also a certain perspective of achievement rise. To improve aerobic endurance we can use various content of movement activities (running, cycling, swimming, games, etc.) while observing intensity and duration.

Various factors decide on the effectiveness of aerobic activity: type of activity, applied load (volume and intensity) and their frequency, as well as the training method employed. Professional literature recommends to improve endurance by exercising 3-5 times a week, 20 min or more in one training unit, pulse rate between 60 per cent to 80 per cent of the maximum one.

High intensity interval training (HIIT) with short intervals of 10 s-15 s at 90 per cent - 100 per cent of maximum heart rate, with rest/recovery periods of 30 s - 60 s (i.e. recovery periods should be three times as long as the effort), trains the ATP-CP system. HIIT increases the muscle’s resting levels of ATP-CP. It is also responsible for neuromuscular changes in the rate and pattern of the movement performed by recruiting the motor units used during training.

There have been several reports from similar research studies on endurance development in military forces. Kowal et al. demonstrated a mean increase of 13 per cent in aerobic power for males tested before and after a 6-week basic training (BT) course. In a study of 87 males Patton et al. reported a 3.2 per cent increase in VO\textsubscript{2max} following 7 weeks of army BT. On account of their high level of initial fitness (mean VO\textsubscript{2max} = 59.4 ml (kg min)\textsuperscript{-1}), Daniels et al. failed to observe a change in VO\textsubscript{2max} in 29 male officer cadets following an intense 6-week training program. Stacey et al. reported a 16.2 per cent increase in the VO\textsubscript{2max} predicted from best effort 2.4 km run times for 50 male New Zealand army recruits following 10 weeks of BT. In contrast, Marcinik et al. reported a 6.2 per cent increase in maximal work capacity predicted from cycle ergometry for one group of 55 naval recruits after 8 weeks of BT, but a decrease of 0.4 per cent in another group of 56. Hottenrott et al. present in their study that high intensity training as well as continuous endurance exercise lead to significant improvements in body composition, resting heart rate and aerobic power with less than 2 h 30 min training weekly. Gosselin et al. showed that 5 bouts of high intensity training (HIT) are no more physiologically taxing than 20 min steady state exercise performed at 70 per cent VO2max, so that HIT might be safe and suitable for recreationally active people as well. Depending on intensity the load can vary from some seconds to several minutes, followed by a few minutes of rest or an exercise phase at low intensity. A whole training session can take 20 to 40 minutes. High-intensity interval training (HIT) can serve as an effective alternate to traditional endurance-based training, inducing similar or even superior physiological adaptations in healthy individuals and diseased populations, at least when compared on a matched-work basis. While less well studied, low-volume HIT can also stimulate physiological remodelling comparable to moderate-intensity continuous training despite a substantially lower time commitment and reduced total exercise volume.

In our research we measured effectiveness of various types of aerobic activities in a 6-week training period performed in real conditions. Our aim was to study optimum means to develop aerobic fitness of professional soldiers. The research tasks included:

- Monitoring the 6-week-long loading at various aerobic activities
- Evaluation of the impact of the specified training load on the development of functional indicators of soldiers
- Optimisation of aerobic physical activities for the departments with regard to their logistic provision.

2. METHODS

The basic methods of the research were pedagogical experiment and measurement (testing). The research plan was realised at the Academy of Armed Forces at Liptovsky Mikulas (Slovakia) during the physical education lessons and service physical preparation. 28 cadets attending 2nd and 3rd grades were invited in the research based on voluntary principle. The cadets were divided into couples, while 7 couples formed the experimental group and 7 couples formed the reference group. The reference group practiced 2 times a week during 40 minutes at regular physical training sessions. The experimental...
group performed 4 times a week during 20 min at each training unit. Our intention was to compare effectiveness of performing exercises with the frequency 2x40 min a week (traditional extent) and 4x20 min a week (experimental design). We expected that aerobic physical activities lasting for at least 20 min performed 4 times a week at the pulse rate 130 – 170/min, will be more effective than the training executed 2 times a week during 40 min at the same pulse rate levels. The following aerobic activities were included in the experiment:
- Terrain run – fartoek
- Joint control exercise on an obstacle track
- Swimming
- Shuttle run 20x20 meters
- Stationary bicycle
- Running treadmill
- Eliptic simulator

The following parameters were measured in all cadets involved: body weight, body height, W170, percentage of fat, body mass index (BMI), visceral fat, percentage of muscle mass, 20 x 20 m shuttle run (from standing start). For the measurement of functional parameter W 170 (for predicting maximal oxygen intake) the measuring device cycling ergometer Cardiovit AT 104 PC from the Department of Functional Diagnostics of the Department of P.E. and Sport was used. Pulse rates during practices were taken by pulse meters Garmin Forerunner 305, body weight was measured by electronic scale Omron BF 500. Input and output tests and measurements were performed one week prior and one week after the experimental period.

3. RESULTS

Standards used for the assessment of fitness (W170/kg) are shown in Table 1.

### Table 1. Standards for the assessment of fitness (W170/kg)

<table>
<thead>
<tr>
<th>Performance</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect</td>
<td>3.26 and more</td>
<td>2.61 and more</td>
</tr>
<tr>
<td>Aboveaverage</td>
<td>2.94 – 3.25</td>
<td>2.28 – 2.60</td>
</tr>
<tr>
<td>Average</td>
<td>2.61 – 2.93</td>
<td>1.96 – 2.27</td>
</tr>
<tr>
<td>Underaverage</td>
<td>2.28 – 2.60</td>
<td>1.63 – 1.95</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>2.27 and less</td>
<td>1.62 and less</td>
</tr>
</tbody>
</table>

Results of the measurements of basic indicators are presented in Tables 2 – 8.
- Input values: values measured at the beginning of the experiment
- Output values: values measured at the end of the experiment
- Reference group: 12 training units - 2 x 40 min per week
- Experimental group: 24 training units 4 x 20 min per week.

#### Evaluation in Obstacle track

In the reference couple no significant changes were recorded, with the exception of the 20x20m shuttle run. Experimental couple recorded marked decrease in body weight and good improvement in the shuttle run test.

#### Evaluation in Terrain run - fartoek

Despite the improvement of indicators in both couples, more pronounced improvement was recorded in the experimental couple, mainly in the following indicators: per cent fat, W 170 and BMI. A slight decrease in per cent muscles was recorded in the experimental couple.

### Table 2. Changes in parameters (Obstacle track)

<table>
<thead>
<tr>
<th>Obstacle track</th>
<th>Weight (kg)</th>
<th>% fat</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (per cent)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
</tr>
<tr>
<td>Input - Cadet 1</td>
<td>70</td>
<td>87</td>
<td>14.7</td>
<td>15.1</td>
<td>4</td>
<td>7</td>
<td>21.7</td>
</tr>
<tr>
<td>Output - Cadet 1</td>
<td>70.5</td>
<td>84</td>
<td>14.2</td>
<td>14.2</td>
<td>5</td>
<td>6</td>
<td>21.8</td>
</tr>
<tr>
<td>End of training</td>
<td>+0.5</td>
<td>-3</td>
<td>-0.5</td>
<td>-0.9</td>
<td>+1</td>
<td>-1</td>
<td>+0.1</td>
</tr>
<tr>
<td>Input - Cadet 2</td>
<td>77</td>
<td>81</td>
<td>9.7</td>
<td>24.2</td>
<td>3</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Output - Cadet 2</td>
<td>76</td>
<td>79</td>
<td>9.1</td>
<td>23.0</td>
<td>3</td>
<td>8</td>
<td>21.6</td>
</tr>
<tr>
<td>End of training</td>
<td>-1</td>
<td>-2</td>
<td>-0.6</td>
<td>-1.2</td>
<td>No change</td>
<td>-1</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

### Table 3. Changes in parameters (terrain run – fartoek)

<table>
<thead>
<tr>
<th>Running</th>
<th>Weight (kg)</th>
<th>% fat</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (per cent)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td>treadmill</td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
<td>Ex</td>
<td>Ref</td>
</tr>
<tr>
<td>Input - Cadet 1</td>
<td>84</td>
<td>82</td>
<td>17.3</td>
<td>21.2</td>
<td>8</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Output – Cadet 1</td>
<td>83</td>
<td>80</td>
<td>16.8</td>
<td>18.2</td>
<td>8</td>
<td>6</td>
<td>25.1</td>
</tr>
<tr>
<td>End of training</td>
<td>-1</td>
<td>-2</td>
<td>-0.5</td>
<td>-3</td>
<td>No changes</td>
<td>-2</td>
<td>-1.9</td>
</tr>
<tr>
<td>Input - Cadet 2</td>
<td>82</td>
<td>88</td>
<td>15.8</td>
<td>24.1</td>
<td>9</td>
<td>10</td>
<td>26.2</td>
</tr>
<tr>
<td>Output - Cadet 2</td>
<td>82</td>
<td>85</td>
<td>15.3</td>
<td>20.8</td>
<td>8</td>
<td>8</td>
<td>24.1</td>
</tr>
<tr>
<td>End of training</td>
<td>No change</td>
<td>-1</td>
<td>-0.5</td>
<td>-0.5</td>
<td>-1</td>
<td>-1</td>
<td>-2.1</td>
</tr>
</tbody>
</table>
**Evaluation in Running treadmill**

No significant changes were observed in any couples.

**Evaluation in Shuttle Run**

In both couples a marked increase in the performance of tests W 170 and 20x20 m was recorded. Moreover, a decrease in body weight and per cent fat was found in the experimental couple.

**Table 4. Changes in parameters (Running treadmill)**

<table>
<thead>
<tr>
<th>Running treadmill</th>
<th>Weight (kg)</th>
<th>Fat (%)</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (%)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output – Cadet 1</td>
<td>71</td>
<td>79.0</td>
<td>22.1</td>
<td>14.0</td>
<td>6</td>
<td>5</td>
<td>23.2</td>
</tr>
<tr>
<td>End of training</td>
<td>-1</td>
<td>-1.6</td>
<td>-0.6</td>
<td>-0.4</td>
<td>No change</td>
<td>No change</td>
<td>-0.3</td>
</tr>
<tr>
<td>Input – Cadet 2</td>
<td>95</td>
<td>77.3</td>
<td>14.4</td>
<td>14.2</td>
<td>6</td>
<td>5</td>
<td>25.8</td>
</tr>
<tr>
<td>End of training</td>
<td>-1</td>
<td>-0.3</td>
<td>-0.1</td>
<td>-0.1</td>
<td>No change</td>
<td>No change</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

**Table 5. Changes in parameters (Shuttle run)**

<table>
<thead>
<tr>
<th>Shuttle run</th>
<th>Weight [kg]</th>
<th>Fat (%)</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (%)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output – Cadet 1</td>
<td>64</td>
<td>84</td>
<td>12.7</td>
<td>22.2</td>
<td>4</td>
<td>8</td>
<td>21.6</td>
</tr>
<tr>
<td>End of training</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>+0.1</td>
<td>No change</td>
<td>No change</td>
<td>+0.1</td>
</tr>
<tr>
<td>Input – Cadet 2</td>
<td>77</td>
<td>80</td>
<td>15.1</td>
<td>20.1</td>
<td>7</td>
<td>8</td>
<td>19.2</td>
</tr>
<tr>
<td>End of training</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
</tbody>
</table>

**Table 6. Changes in parameters (Swimming)**

<table>
<thead>
<tr>
<th>Swimming</th>
<th>Weight (kg)</th>
<th>Fat (%)</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (%)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output – Cadet 1</td>
<td>81</td>
<td>77</td>
<td>18.3</td>
<td>14.2</td>
<td>9</td>
<td>5</td>
<td>25.0</td>
</tr>
<tr>
<td>End of training</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>+0.1</td>
<td>No change</td>
<td>No change</td>
<td>+0.1</td>
</tr>
<tr>
<td>Input – Cadet 2</td>
<td>78</td>
<td>83</td>
<td>16.0</td>
<td>16.5</td>
<td>7</td>
<td>7</td>
<td>19.3</td>
</tr>
<tr>
<td>End of training</td>
<td>+1</td>
<td>+0.5</td>
<td>+0.1</td>
<td>+0.2</td>
<td>No change</td>
<td>No change</td>
<td>+0.2</td>
</tr>
</tbody>
</table>

**Table 7. Changes in parameters (Stationary bicycle)**

<table>
<thead>
<tr>
<th>Bicycle</th>
<th>Weight (kg)</th>
<th>Fat (%)</th>
<th>Visceral fat</th>
<th>BMI</th>
<th>W 170</th>
<th>Fat (%)</th>
<th>Test 20x20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output – Cadet 1</td>
<td>75</td>
<td>85.5</td>
<td>13.6</td>
<td>16.7</td>
<td>5</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>End of training</td>
<td>No change</td>
<td>-1.5</td>
<td>-0.1</td>
<td>-0.2</td>
<td>No change</td>
<td>No change</td>
<td>+0.2</td>
</tr>
<tr>
<td>Input – Cadet 2</td>
<td>70</td>
<td>78</td>
<td>15.1</td>
<td>19.5</td>
<td>4</td>
<td>7</td>
<td>21.6</td>
</tr>
<tr>
<td>End of training</td>
<td>-1</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
</tr>
</tbody>
</table>

In both couples were not recorded any significant changes, however, a slight decrease in the 20 m x 20 m run test in three cadets was recorded.

**Evaluation in Stationary bicycle**

No marked changes were observed in the measured indicators in both couples.
Evaluation in Eliptic Simulator
No marked changes were found in the reference group, while in the experimental couple a slight increase was recorded only in one cadet.

4. DISCUSSION
The main aim of our experimental study was to assess the effectiveness of the development of endurance by various aerobic means. Our expectations that the most effective means for the development of endurance will be clear in the experiment. Fartlek and shuttle runs were experimentally confirmed. Discussion related to individual means used.

4.1 Obstacle track
This was the most demanding physical activity, where the improvement of endurance was connected with the development of strength and coordination. Both couples improved their performance in endurance shuttle run. Experimental couple showed a more pronounced decrease in weight. Both couples improved also in the W170 test. From the practical point of view we consider performing obstacle track in a shorter time period several times a week to be more effective. According to the statements of soldiers performing 40 min training was too demanding as to physical and psychic load and stereotyped. Despite that, we can evaluate this activity as highly effective, improving aerobic endurance and other physical skills of soldiers, which can be employed within the military practice.

Positive features:
- High physical demands, developing power, coordination and endurance,
- High effectiveness of the training in a short time interval.

Negative features:
- Danger of injury at performing exercises in bad climatic conditions,
- Insufficient equipment with obstacle tracks at military units of the Armed Forces.

4.2 Terrain running – fartlek
The most frequently and commonly used aerobic physical activity in military forces. In both couples an increase in the measured indicators was observed. It was manifested in the experimental group more significantly mainly in the decrease of % fat, increase in W170 and 20 x 20 m test. A slight decrease in per cent muscular mass at the parallel reduction of % fat is quite interesting. At this variant we also recommend training with the frequency of more than 2 times a week.

Positive features:
- Effective aerobic physical activity when frequency, time and optimum pulse rates are observed,
- Possibility to perform also at worse climatic conditions

Negative features:
- Frequent injuries as a result of overtraining (overloading).

4.3 Running treadmill
Physical activity performed in a bodybuilding gym suitable for the development of endurance also at in favourable climatic conditions. Minimum improvement, statistically significant in both couples.

Positive features:
- Possibility to effectively change the intensity of loading at training.

Negative features:
- Stereotype, boring activity for the majority of soldiers,
- Inadequate equipment of military units with running treadmills.

4.4 Shuttle run
Suitable aerobic physical activity for the development of endurance in a mass scale. In both couples a marked improvement was recorded in the 20 m x 20 m test, in the experimental couple also muscular mass reduction.

Positive features:
- Simple exercise, possibility to perform it in terrain and also in a gym, simple self-control of pulse rate values at performing exercises.

Negative features:
- In case of performing only this activity, it is boring and stereotyped.

4.5 Swimming
Suitable aerobic physical activity for professional soldiers in case of availability of a swimming pool. No improvement of the observed parameters was recorded during our experiment. On the contrary, at 20 m x 20 m test there came to a decrease in performance. We expect that the 6-week-long period of training in a pool is insufficient for the changes in the performance of
Effective physical activity in the training of power and endurance
suitable relaxation and weathering physical activity.

앉 - financially demanding, requires a swimming pool, which
is inaccessible for the majority of professional soldiers.

4.6 Stationary bicycle

Suitable complementary aerobic physical activity in
a bodybuilding gym. In our experiment no statistically
significant changes were recorded in any of the couples as far
as the measured parameters and increase in performance level
are concerned.

positive features:
Suitable physical activity in case of slight injuries of the
motor system not allowing to perform running
Possibility to set up intensity of loading in the course of
training.

Negative features:
Insufficient provision of military units with cycling
simulators.

4.7 Eliptic simulator

Suitable complementary aerobic physical activity
employable at infavourable climatic conditions in a gym. In our
experiment, no statistically significant changes were observed,
with the exception of 20 m x 20 m test.

Positive features:
Adequate aerobic activity in case of injuries of the motor
system and infavourable climatic conditions.

Negative features:
Insufficient provision of military units with the cycling
simulators.

5. CONCLUSIONS

In the previous scientific observations of professional
soldiers we stated that BMI was rather high in soldiers
and also the level of aerobic endurance was quite low for
professional soldiers in Slovakia. Based on this we decided
to focus on the development of endurance abilities in our
soldiers with the aim to find out the most suitable endurance
physical activities for the training of the troops. The main
task was to assess effectivity of the development of endurance by
various aerobic means. Having accomplished the tasks of the
research we can state that: the most suitable and effective
endurance physical activities of professional soldiers are:
Exercises on an obstacle track, terrain running in combination
with fast road marches, various types of shuttle runs and
jumping and acrobatic exercises. Swimming, cycling, ski
running and sport games can be recommended as suitable
complementary activities. Simulators for training can also
be considered effective for the development of endurance in
body building gyms. We are aware of the fact that in
the majority of military units in Slovakia obstacle tracks,
which are considered the best choice for the development
of endurance, are unavailable or in bad condition. However,
this activity can be executed also in improvised conditions,
but requires serious preparation of commanders. Important
factors of maintaining and improving endurance in soldiers
are intensity, duration and time span of the training. In our
experiment the 6-week-long training period was proved short
for any marked changes in the level of aerobic endurance
of soldiers, especially when implemented in the 2 x 40
min pattern, as planned in the majority of military units
in Slovakia. From the point of view of the development of
endurance the pattern 4 x 20 min proved to be more effective.
Variability of means for the development of endurance plays
also an important role in order to avoid unilateral
and monotonous loading of soldiers. We can thus prevent
overloading, injuries and organism wearing. The lack of
financial means and logistic provision of military units
with suitable premises and training simulators is a serious
shortcoming in the preparation of armed forces in Slovakia.

6. RECOMMENDATIONS

1. When planning professional physical preparation it is
inevitable to design the training of endurance in the 4x 40
min pattern, rather than 2 x 80 min per week one.

2. When developing endurance always observe the intensity
of movement within the range of 60 per cent – 80 per cent
maximum pulse rate during at least 20 min, 3 to 5 times a
week (maximum pulse rate = 220 – age).

3. To implement in the training of endurance overcoming of
obstacles and fast transfers in terrain, running in terrain,
various types of running and jumping and acrobatic
exercises. Swimming, cycling, sport games and exercises
on simulators should be used as complementary activities
as well.

4. In case of inadequate material and technical conditions at
military units, we recommend to lease swimming pools
and fitness centres in the local area.

5. Overcoming of obstacles is focused on the acquisition
of special skills, increasing psychic resistibility and
improvement of habits in overcoming natural and artificial
obstacles, in grenade throwing and performing practical
military activities. Training is performed on specially built
tracks or in terrain with overcoming natural obstacles.
Based on our experimental study this kind of means can
be recommended to soldiers for the improvement of their
endurance.

The content of exercises should include:
(a) Overcoming of horizontal, vertical and inclined
obstacles
(b) Grenade throwing on target
(c) Performing special exercises and drills on equipment,
dummy hardware and with a burden
(d) Fulfilment of the tasks of the control exercises on obstacle
tracks.

The above presented methods and techniques of
performing the obstacle track are fully recommended for the
physical preparation of professional soldiers. It is up on the
commanders and governors in the armed forces how they decide
to organize physical preparation of soldiers to improve their
physical preparedness and psychic resistibility. The goal is to
build well prepared soldiers capable of making fast decisions, showing creative attitude, goal-orientation, braveness, physical fitness and psychic resistibility inevitable for any member of the Slovak Armed Forces.

REFERENCES


CONTRIBUTORS

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