



Recruits physical fitness and health assessment after the 4 month military training

Lt-Col A. BURCON (Poland),
Advisor of sports medicine
in the Physical Education and Sport Department
of the General Staff of the Polish Armed Forces

1. Introduction

Health and physical fitness are very important considering the young soldiers training program and their adjusting to the needs of military service. In that respect we can say that the higher physical fitness recruits gain before they were drafted, the faster they will adapt to the hardship of military service with the minimal adverse effects to their health.

For the first time in the Polish Armed Forces, Cooper test was used to check the physical capacity of soldiers.

The following factors were assessed: strength, speed, muscle endurance, strength of lower extremities and agility.

The following exercises were conducted as physical fitness measure:

- push-ups,
- sit-ups,
- pull-ups,
- run 10 x 10m

The above mentioned exercises are possible to carry out under any conditions and they do not need special sports facilities. It is particularly important in small units, which are often situated far away from bigger parent units or city centres. This set of exercises is easy to administer by non-professional instructors of physical education, or commanding officers (leaders) of smaller units (troops). It seems to be diagnostic enough to assess the general level of physical fitness.

420 recruits were tested during the winter military training (from November to February). The first test was carried out during the first two weeks of drafting. The second, which was the part of the final exam - seven days before the end of the 4 month training. Physical fitness test followed medical examinations and the measurement of the body height and weight, chest measurement, spirometry, pulse rate and blood pressure.

All tested recruits were generally healthy what was earlier confirmed by military medical boards which accepted their conscription.



In this context, the results of the first stamina and physical fitness tests should be reconsidered.

We must remember that tested soldiers are about 20 years old so they are on the verge of their maximum fitness and endurance.

Here are some remarks concerning the results of motor abilities tests with reference to the standards for professional soldiers, who are over 40 years old. As it turned out, the average recruit passes the fitness test for professional soldiers, scoring satisfactory mark.

2. Results

2.1. Physical endurance (Cooper test)

Distance covered during 12 min. run was about 2361 m long. Such distance corresponds with the third ("poor") category in 6 point scale. Category "good" is 2.501 - 2750 m.

Please, pay attention to the lowest value, 1100 m in the first test and 2000 m in the second test (the same soldier). The best result of 3000 m in the first test was scored by 2 soldiers, and 34 in the second test (8 soldiers ran 3300 m).

We should emphasize that physical endurance is the most important indicator of man's general stamina and creates basis for building the general fitness (all motor features and skills).

2.2. Arms and shoulder girdle's strength

1) pull-ups - the average score was 4,9 (7 - good), in the first test.
In the second test it was 8,4.

2) push-ups - the average score was 28,8 (35 - good), in the first test.
In the second test it was 51,6.

The weakest soldiers did not pull up at all, and they performed 8 push ups only.

2.3. Abdominal strength

Sit-ups - the average score of the first test was 43,2 (50 good) and it was 59,6 for the second test.

Such results are barely satisfactory for Armed Force's requirements.

2.4. Speed

Speed was measured by timing the completion of the 10 x 10 m run.

In the first test only one soldier needed less than 30,0 s (29,1 s) to cover the distance. 53 soldiers needed more than 32,0 s (The worst score was 36,2 s).

In the second tests 28 soldiers needed less than 30,0 s (the best score was 28,6 s) and there were only 19 soldiers who needed more than 32,0 s (the worst score was 33,4 s).

2.5. Lower extremities muscle power (dynamic)

Muscle power was measured by the long jump distance (from the situated position).

The average distance in the first test was 208,3 cm (220 cm - good). This result is barely satisfactory.



The average distance in the second test was 227,3 cm and that was a good result.

The final results of all above mentioned abilities tests are illustrated graphically by Figure 1.

2.6 Pull-up with turning over the bar

It was completed by 27,2% of examined persons in the first test and 76% in the second test.

Note: The ability to perform this exercise is required of high-school students.

3. Discussion

Presented results prove that the physical fitness of most recruits is very poor. It means that physical education in high schools and mass sport (in the period before the conscription) is not adequate. That situation needs proper compensation activities in order to catch up with the general physical fitness in the army. That makes difficult and holds back the realization of the physical education for soldiers, which is vital for further military program training. Given all these factors we can say, that the physical education program must be realized in a way that is possible in units.

Tested soldiers went through 4 month training according to the new physical education programs prepared for schools of younger specialist of armoured and mechanized units. It turned out, that regular and well organized physical exercises improved physical endurance, all tested motor features and skills.

These programs included 4 hours of physical training classes during a week and mass sport activities in free time.

In these conducted tests, units were divided according to programs included morning exercises (drill) and those which did not. Pay attention to the difference in improvement of stamina tested with Cooper test.

Thus, stronger and fitter (what was confirmed by the first Cooper test and results of the motor features test) went to armoured units. But soldiers of this unit did not have morning exercise.

The second figure concerns soldiers directed without selection to mechanized units. These soldiers marched and run 4 km 5 times a week during so called "morning hardening". Pay attention to the fact, that the results of Cooper test in both groups after 4 months of military training, are actually identical. It proves that systematic endurance training may compensate the differences in physical level which are created before conscription.

After military training, physical endurance increased to "very well" category (2 points higher).

The general health condition was also improved, what was confirmed by the results of medical examinations:

- The resulting value of spirometrical lungs test increased by 740 ml (in average) in 60% of soldiers. The remaining soldiers tested just after tank shooting, had worse results than in preliminary tests. Test repeated 1 and 2 days after the shooting, once again showed typical results, nonetheless this fact disturbed course of test;
- Decreasing the blood pressure by 13 mm Hg in average (that's the favourable effect of endurance training which proves its effectiveness and favourable influence on health condition). However the increase of blood pressure didn't occur immediately, that's why it was possible to fix the difference.



- Despite the winter time and doubled number of physical education classes, the rate of illnesses and traumas didn't go up in comparison with previous periods (terms) of military training. It proves the proper adjustment to the effort, what was assumed in training program, which graduated load and scale of difficulty of all training elements. It also proves that professional soldiers organized the programs properly.

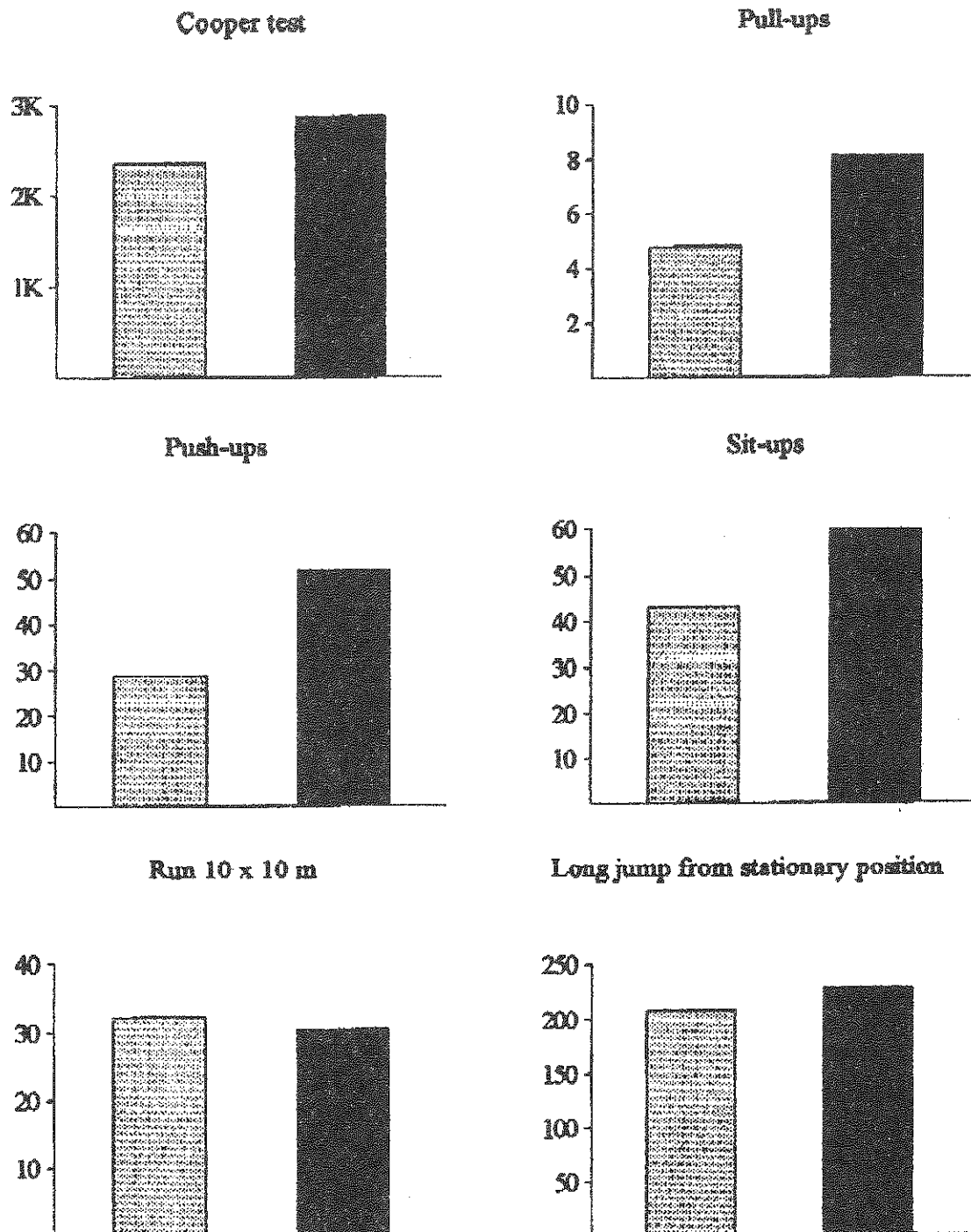


Fig 1

The average results of motor abilities tested before (light) and after (dark) 4 month training.