HADMÉRNÖK

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Juhász Zsolt
juhaszzsolt@gmail.hu

COMPARISON OF QUALIFICATIONS AND CONSTITUTIONAL INDEXES OF CATEGORIES T3 AND T4 IN THE CIRCLE OF THE HUNGARIAN ARMY'S STAFF APPLYING FOR FOREIGN SERVICE
(01.01.2007 – 31.12.2010.)

Absztrakt

A fizikai erőnléti állapot következetes és rendszeres vizsgálata a különböző külföldi beosztások eltérő sajátosságai, valamint az emberi szervezetre gyakorolt eltérő jellegű és mértékű negatív hatásai miatt, egyre nagyobb jelentőséggel bír. Írásomban mindezek tükrében a külszolgálatokra jelentkező személyi állomány négy év alatt mért minősítései és alkati mutatói közötti összefüggéseket kerestem. és azok segítségével, a teljesség igénye nélkül igyekeztem egy átfogó képet adni a magyar haderő 2007 és 2010 között megvizsgált külszolgálatra jelentkező állományának fizikai erőnléti állapotáról.

A consistent and regular test of physical condition owing to the different characteristics of diverse foreign military posts, as well as to their negative effects of different kinds and grade taken on human body is being of more and more importance. In my study reflecting all these I looked for a connection between the qualifications and constitutional indexes of the staff applying for foreign service measured during four years. By dint of all these figures I tried to give a comprehensive picture of the physical condition of the Hungarian Army's staff applying for foreign service in the period of 2007-2010, without aiming at completeness.

Kulcsszavak: *alkati tényezők, fizikailag alkalmas, fizikailag alkalmatlan, külszolgálat ~ constitutional indexes, physically fit, physically unfit, foreign service*

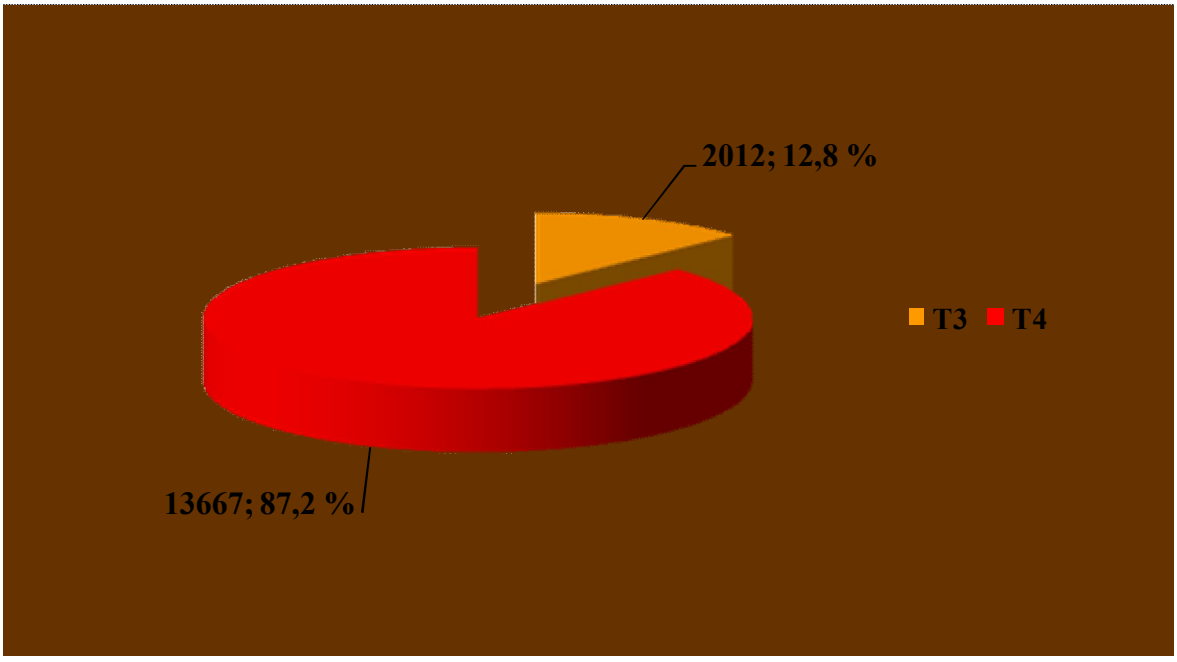
INTRODUCTION

The physical aptitude test inside the three-way medical check-up system represents an extremely important field similarly to other medical and psychological ones. Namely it is indispensable for carrying out foreign tasks successfully to have a number of such basic and specific physical motor faculties, the improper development of which can endanger the health condition of the soldiers, and thus of course it may even risk the successfulness of the military mission, as well.

So must be both psychological and physical capacities of the body developed, and then they have to be kept on the same level, too. In fact the aim is not else but to create harmony in body and spirit, and afterwards its continuous maintenance. Therefore the physical aptitude test is making its way more and more to the direction that beyond measuring the basic conditioning faculties (strength, speed and stamina) also other specific abilities characterstic mostly of missionary activities and closely tied to those ones should be scrutinized. Should we keep in view the principle of progressivity and should be the above-mentioned motor capacities developed also under extreme wheather conditions, so may the chance increase, according to which the performance of our soldiers also in foreign service remains undiminished or decreases slightly.

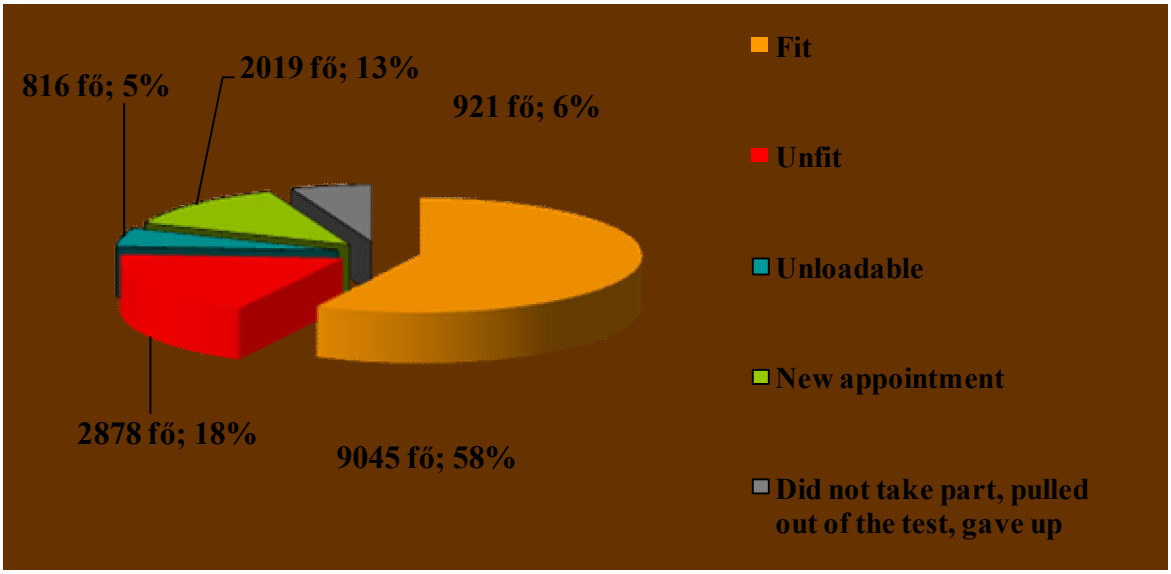
COMPARISON OF QUALIFICATIONS AND CONSTITUTIONAL INDEXES OF CATEGORIES T3 AND T4

Between 01.01.2007. and 31.12.2010. there were *15.679 professional and contractual* male soldiers ordered in by the Military Physical Aptitude Testing Department and by the Medical Physiological Department to the physical aptitude test required to their missionary service.



1. figure. Distribution of military male staff into T3-T4 ordered in to missionary medical tests; (n=15.679 persons) [1]

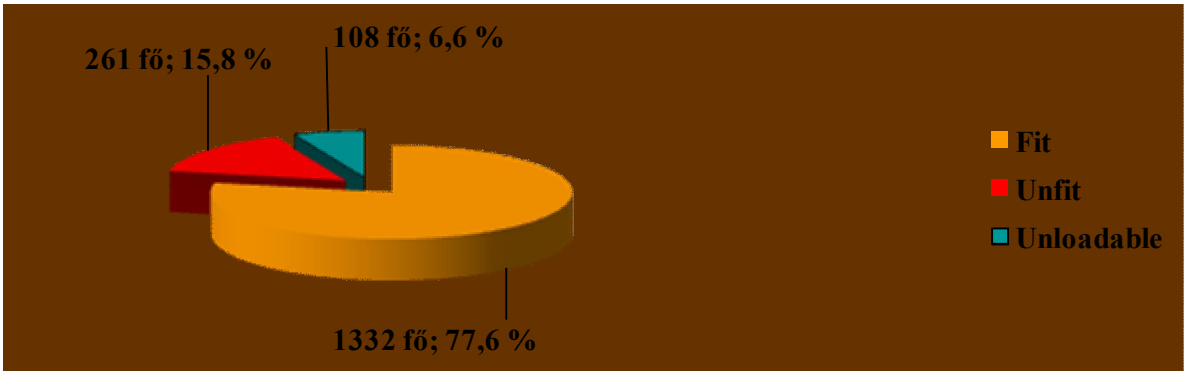
A considerable part of the staff, nearly *90%* - in accordance with the Military Order 7/2006 (III.21.) applied for military posts required extended tough condition, marked „T4". A minor part of them applied for posts required increased tough condition marked „T3". (Figure 1.)



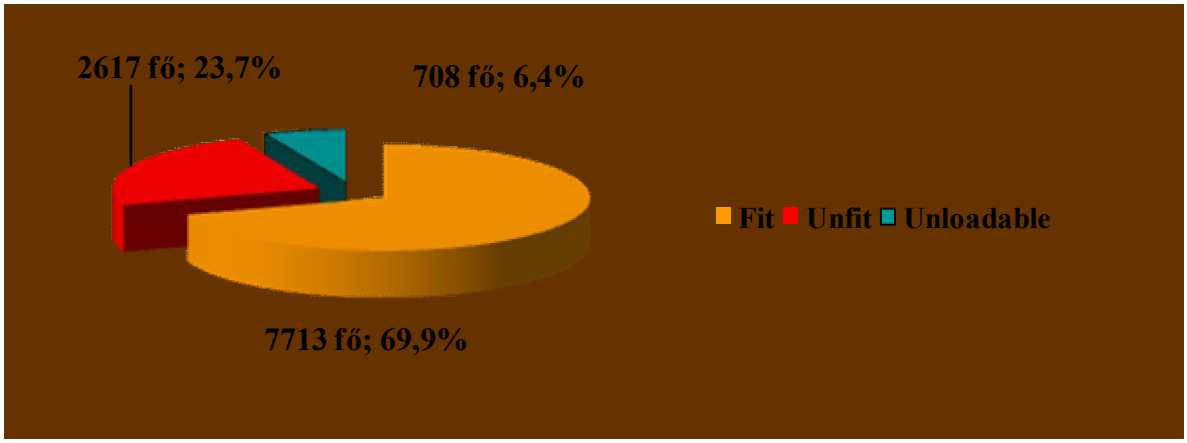
2. figure. Distribution of the military male staff „T3"-„T4" ordered in to missionary medical tests according to the qualifications between 01.01.2007-31.12.2010. (n=15.679 persons) [2]

As regards qualifications *58%* of the staff were declared *„Physically fit"***,** and *18%* were qualified *„Physically unfit"*. For health reasons *5%* of the persons ordered in *was not to be loaded.* (Figure 2.)

Alltogether *11.923 persons* took part in the tests in fact, which meant *75%* of the staff *ordered in* at the period of reference, and only *24,1%* of that got the qualification *„Physically unfit"*.



3. figure. Distribution of the military male staff „T3" appeared on the missionary medical tests on the basis of the qualifications between 01.01.2007–31.12.2010. (n=1.701 persons) [3]



4. figure. Distribution of the military male staff „T4" appeared on the missionary medical tests on the basis of the qualifications between 01.01.2007-31.12.2010. (n=11.038 persons) [4]

Average age of the staff marked „T4" with the requirement „extended tough condition" [5] was *30,3* +/-5,3 years, *that* of the staff of *„T3"* was *34* +/- 6,0 years (p<0,001). Body-mass and Body-mass Index of *„T3"* was significantly higher (p<0,001) than those of *„T4"* (*85,5*+/-12,5; *82,0* +/-12,2 kg, or rather *26,7* +/- 3,5; *26,0* +/- 3,4 kg/m^2), their body height was 178,8 +/- 0,6 and 177,5 +/- 6,9 cm alike.

77,6% of the *staff „T3"* required „increased tough condition" [6] was *„Physically fit"*, while in case of *„T4"* it was only *69,9%.* Distribution of the staff of not to be loaded was in both categories alike, but of the *„T4"* the number of the *„Physically unfit"* was *(23,7%)* was higher compared to that of *„T3" (15,8%)*. (Figures 3-4.)

On the basis of the data and figures obtained it is alltogether to be ascertained that only 58% of *the total staff „T3-T4" ordered in (15.679 persons)*, and 70% of the staff appeared and tested in fact was *„Physically fit"*.

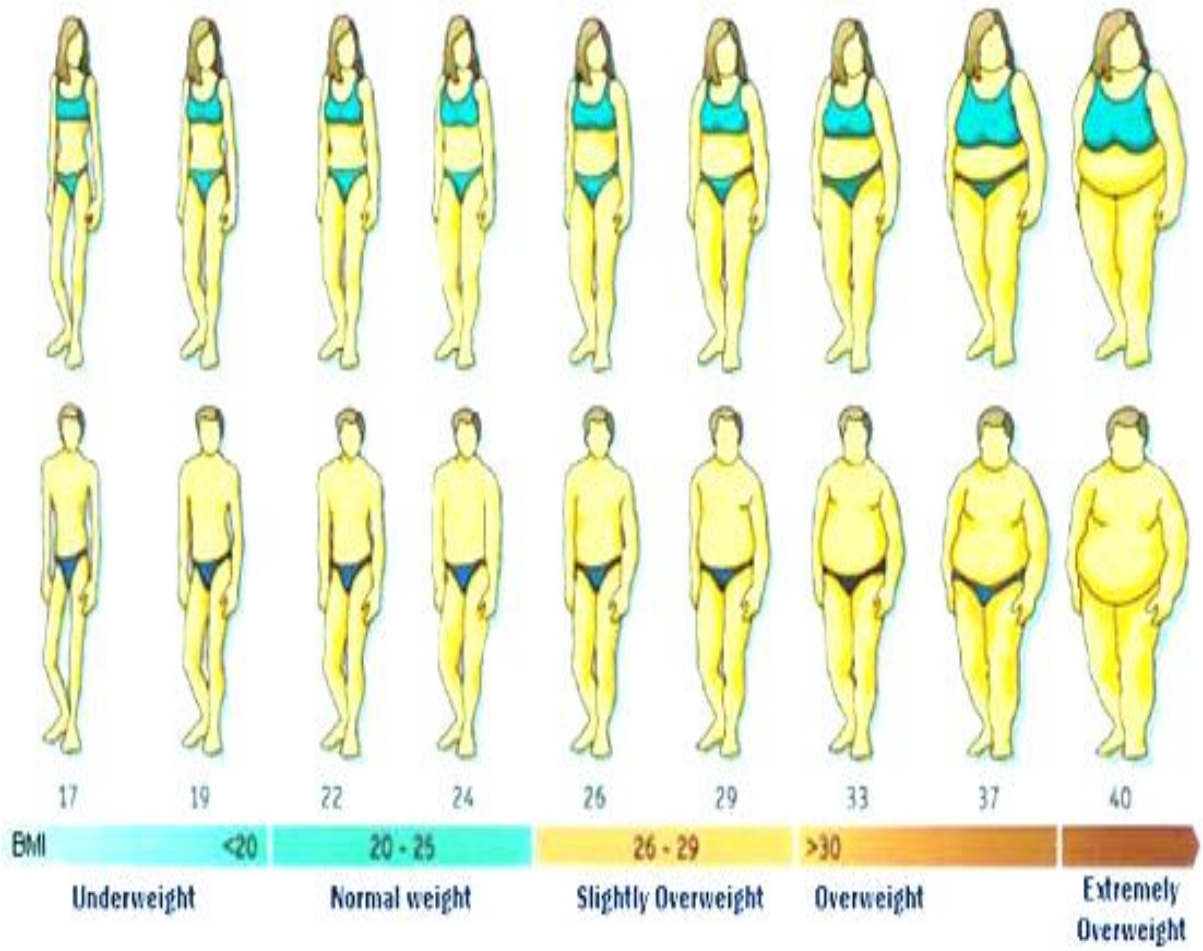
Testing anthropometrical indexes

„b) For a more precise quantity determination of obesity degree it is Body-mass Index (BMI) used. By Body-mass Index (BMI) fat excess is more accurately reflected. BMI is so calculated that body weight measured in kg is divided by the square of the body height measured in meter. „Normal" BMI is, as follows: 18,5-24,9 kg/m^2.

Degree of overweight and obesity:

BMI	WHO
• <18,5	lean
• 18,5-24,9	normal
• 25,0-29,9	overweight
• 30,0-34,9	Obesity I
• 35,0-39,9	Obesity II
• > 40,0	Obesitiy III

c) Degree of obesity may serve us merely as informative data. Final qualification can be given only after being evaluated the individual load-bearing capacity, as well as over 25,0 BMI according to the determination of body-fat percent." [7]

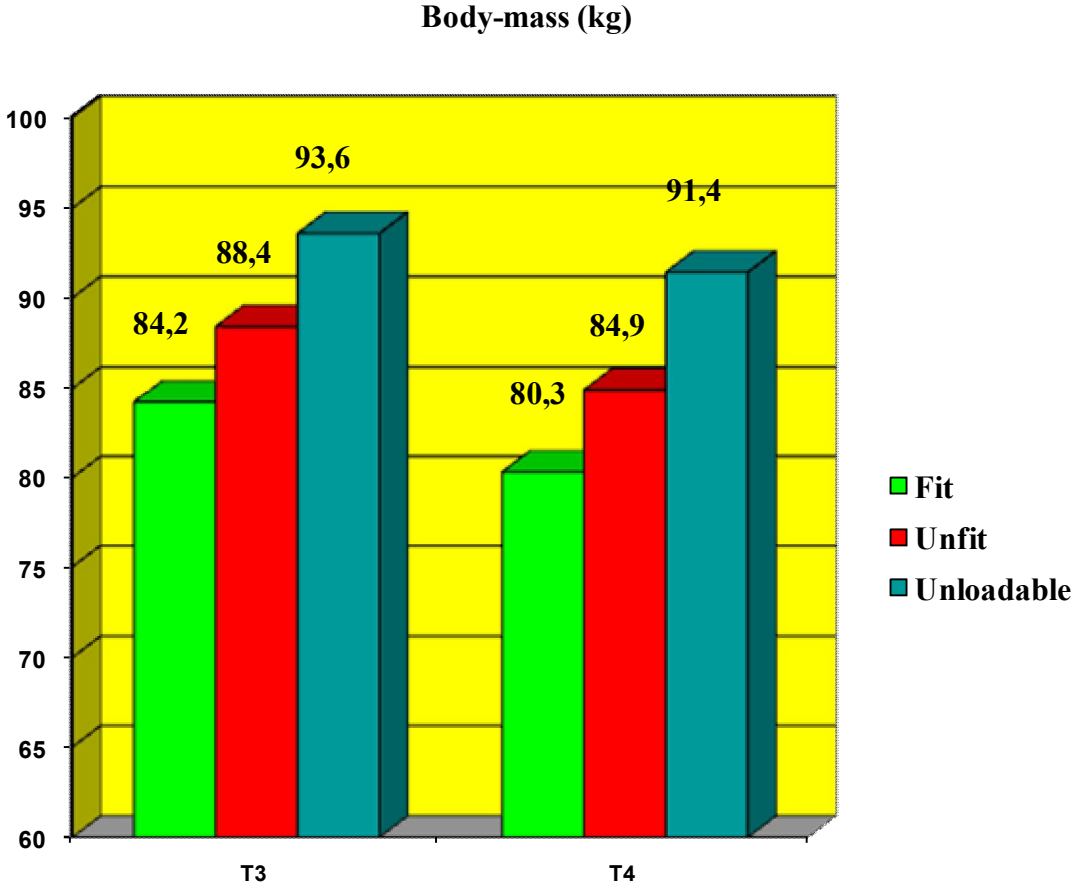


Lean	Normal	Overweight	Obesity I	Obesity II	Obesity III

5. figure. About morphological changes taken as a function of BMI values [8]

Body-mass testing

In the course of body-mass testing we found a clear difference not only between the examination categories (T3-T4) but also inside them there was an expressed difference between the groups *„Fit", „Unfit"* and *„Unloadable".* (Figure 6.) Both in the category of *„T3",* and that of *„T4"* the *„Unfit"* and the *„Unloadable"* had a significantly higher body mass ($p<0,001$) compared to the category *„Fit".* The body-mass of the tested persons *„Unloadable"* was significantly higher ($p=<0,001$) compared to that of the *„Unfit".* At the same time comparing body mass of the same qualified groups to those of *„T3"* and *„T4",* so will the staff *„T3"* possess a significantly higher value ($p=<0,001$).



6. figure. Distribution of the average body-mass of „T3"+ „T4" in terms of the qualifications between 01.01.2007-31.12.2010. (n=12.739 persons, male) [9]

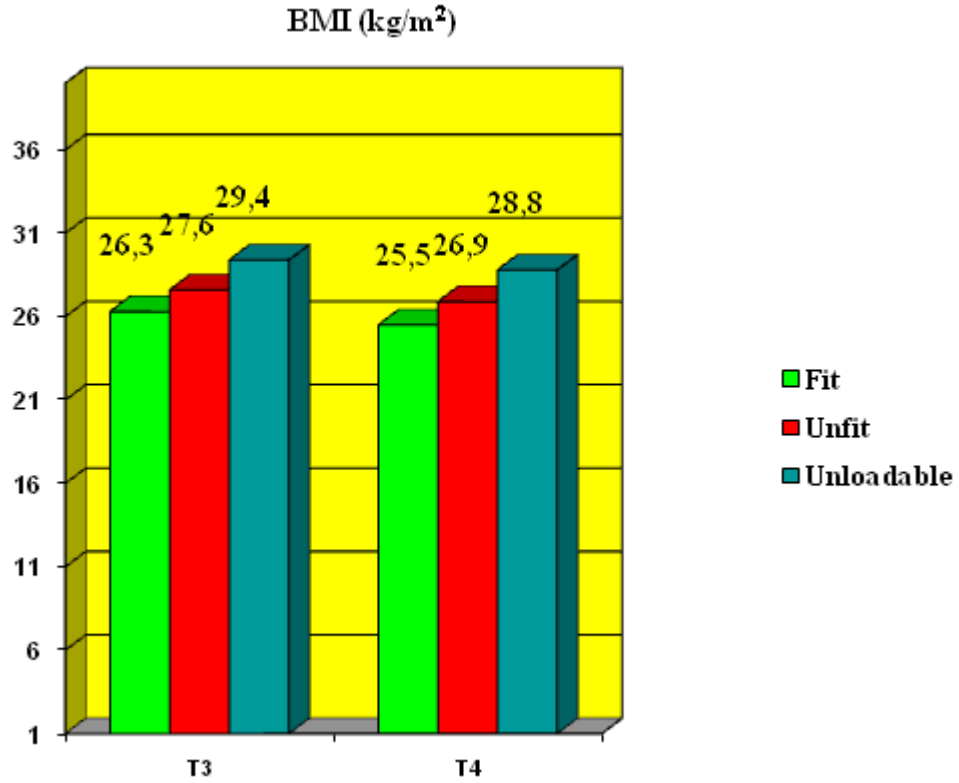
Average body-mass of the staff qualified *„Fit"* belonging to the category *„T3"* was *84,2* +/-12,2kg, that of the *„Unfit"* was *88,4* +/- 12,1 kg, and that of the *„Unloadable"* was *93,6* +/- 15,4 kg. (Figure 6.)

In contrast to that body-mass of the soldiers qualified *„Fit"* belonging to the category *„T4"* was *80,3* +/- 11,3 kg, that of the „Unfit" was 84,9 +/-12,5 kg, and that of the „Unloadable" was *91,4* +/-15,1 kg. Difference of the average body-mass of *„T3-T4"* with the qualification „Fit" was 3,9, that of the *„Unfit"* was *3,5* and that of the *„Unloadable"* was 3,2 kg.(Figure 6.)

BMI (Body-mass Index) test

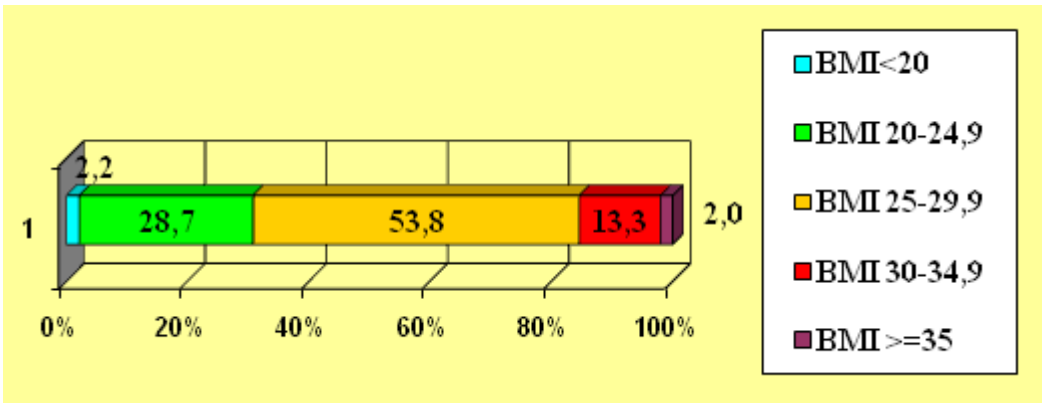
In the course of BMI a gradual rise similar to body masses was to be observed both inside the groups and after being compared the two categories.

Value of the average BMI of the staff qualified *„Fit"* belonging to the category *„T3"* was *26,3* +/- 3,3, that of the *„Unfit"* was *27,6* +/- 3,3 and that of the *„Unloadable"* was *29,4* +/- 4,5. (Figure 7.)



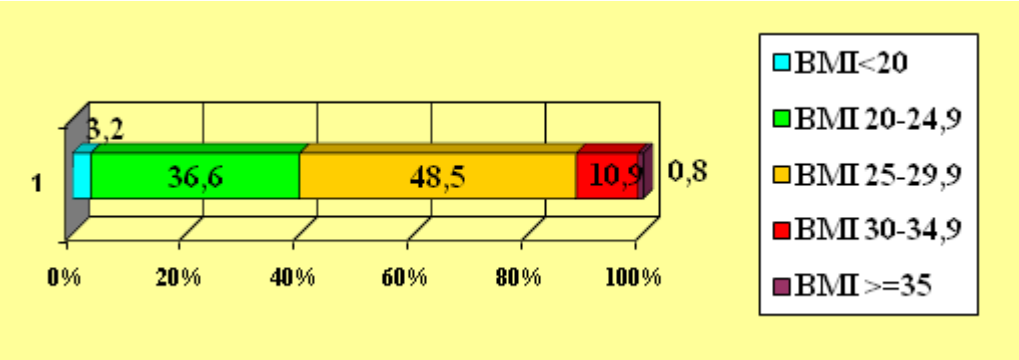
7. figure. Distribution of the average BMI of the „T3+T4" appeared in terms of the qualifications between 01.01.2007–31.12.2010. (n=12.739 persons, male) [10]

Value of the BMI of the staff qualified *„Fit"* belonging to the category *„T4"* was *25,5* +/- 3,1, that of the *„Unfit"* was *27,6* +/-3,5 and that of the *„Unloadable"* was *28,8* +/- 4,3. Both in the category *„T3"* and in the category *„T4"* the *„Unfit"* and the *„Unloadable"* had a significantly higher BMI (p<0,001) compared to that of the *„Fit"*. BMI-value of the *„Unloadable"* was significantly higher (p<0,001) compared to that of the *„Unfit"*. Comparing BMI-values of groups with the same qualification to eachother between the categories „T3" and „T4" there were *significantly higher values (p<0,001) to be found at staff „T3"*.



8. figure. Percent distribution of the BMI-values of the male staff „T3" appeared on the missionary medical test between 01.01.2007–31.12.2010. (n=1.701 persons) [11]

2,2% of the staff *„T3”* had a BMI-value under 20,0*, 28%* of the staff had a value of 20,0-24,9, *53% of it* had a value of 25-29,9, 13,3% had 30,0-34,9, and *2,0%* had a BMI-value over 35. (Figure 8.)



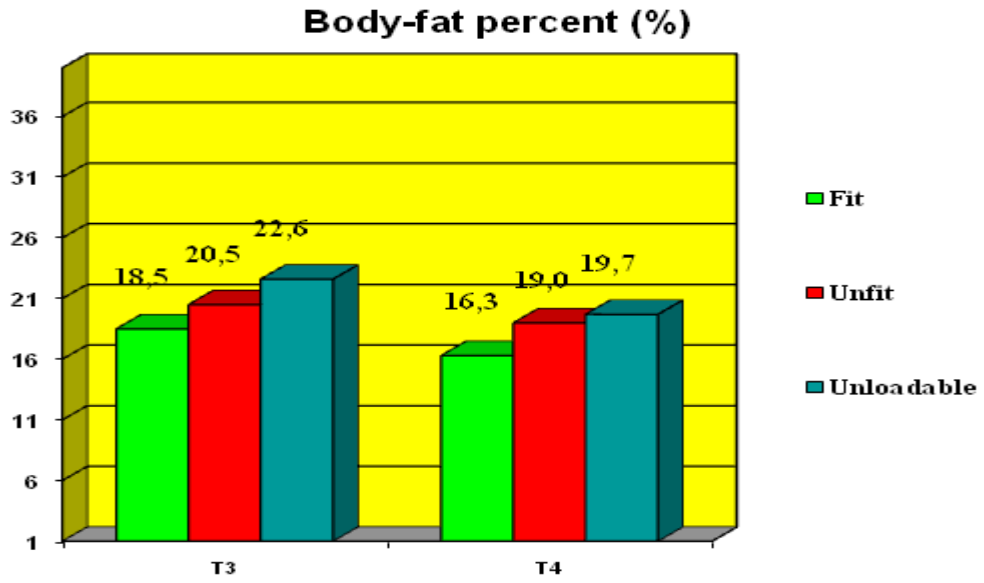
9. figure. Percent distribution of BMI of the male staff „T4” appeared on the missionary medical test between 01.01.2007.-31.12.2010. (n=11.038 persons) [12]

There were more favourable value indexes in the category *„T4”* to be found**.** *3,2%* of the staff „T4” had a BMI-value under 20,0; *36,6%* of it had a value of 20,0-24,9; 48,5% had a value of 25-29,9; *10,9%* had 30,0-34,9, and *0,8%* had a Body Mass Index (BMI-value) over 35. (Figure 9.)

On the basis of the data and figures of the World Health Organisation (WHO) *30,8%* of the staff *„T3”* with the requirement standard „physically fit” was of normal body weight, *53,8%* was overweight, and 15,5% of it was obese. (Figure 8.) Contrary to that *39,8%* of the staff *„T4”* was of normal body weight, *48,5%* was overweight, and *11,7%* was obese. (Figure 9.)

Body-fat percent test

In the course of the body-fat percent test (OMRON BF 306) there was a similar tendency to the body mass and to the BMI to be observed within the groups, as well as after being compared the two categories.



10. figure. Distribution of average body-mass of the staff T3+T4 appeared, in terms of the qulifications (n=12.739 persons, male) [13]

Average body-fat percent of the staff qualified *„Fit"* belonging to the category *„T3"* was *18,5* +/-5,5%, that of the *„Unfit"* was 20,5 +/- 4,9%, that of the *„Unloadable"* was *22,6* +/- 4,1%. (Figure 10.) Body-fat percent of the staff qualified *„Fit"* belonging to the category *„T4"* was *16,3* +/- 5,3%, that of the „Unfit" was *19,0* +/- 5,4%, that of the *„Unloadable"* was *19,7* +/- 4,6%. Average difference of the average body-fat percent of the staff *„T3+T4"* qualified *„Fit"* was *2,2%,* that of the *„Unfit"* was *1,5%,* and that of the *„Unloadable"* was *2,9%.* (Figure 10.)

CONCLUSION AND SUMMARY

On the basis of the measuring results during the 4 years it is altogether to be ascertained that both in the category *„T3",* and in the category *„T4"* the *„Unfit"* and the *„Unloadable"* had a significatly higher body mass, and BMI, as well as body-mass percent compared to those of the *„Fit".* Body mass, BMI-, and body-fat percent values of the *„Unloadable"* were significantly higher in comparison with those of the *„Unfit".* Comparing body mass, BMI-, and body-fat percent values of the same qualified groups between the category *„T3"* and *„T4"* to eachother, *there were significantly higher values at the staff „T3" to be found.*

It is, however, thought-provoking that there was no significant difference between the body mass average values of the staff *„T3"* qualified *„Fit"* and of the staff *„T4"* qualified *„Unfit"* (84,9 +/- 12,5; 84,2 +/- 12,2). At the same time the average age of the group *„Unfit"* of *„T4"* was *4,5 years* significantly ($p<0,001$) lower (29,7 +/-4,5; 34,3 +/- 6,1), *BMI* and the body-fat percent were significantly higher ($p<0,05$).

Over 12% of the staff applying for the mission have a BMI of more than 30. Constitutional data and figures indicate that overweight and theretrough a higher Body-Mass Index were caused unambiguously by a higher body-fat % . Body mass, body-fat per cent, and BMI of the soldiers qualified „unfit" were significantly higher than those of the soldiers qualified *„Fit".* On the basis of the anthropometrical data the *„Unloadable"* soldiers have a considerable overweight and approach the level *„Obesity I"* according to the WHO-classification. In the category *„T4"* setting higher standards the anthropometrical measuring results give us a more favourable picture.

Resources

[1-4] The author's own illustrations

[5] Magyar Közlöny, 31. szám, I. kötet, Budapest, 2006. március 21., 7/2006. (III. 21.) HM rendelet, 2460-2622. o., 2464. o., 11. §, (2) d)

[6] Magyar Közlöny, 31. szám, I. kötet, Budapest, 2006. március 21., 7/2006. (III. 21.) HM rendelet, 2460-2622. o., 2464. o., 11. §, (2) c)

[7] Magyar Közlöny, 31. szám, I. kötet, Budapest, 2006. március 21., 7/2006. (III. 21.) HM rendelet, 2460-2622. o., 1. melléklet a 7/2006. (III. 21.) HM rendelethez, 2490. o.

[8] http://t1.gstatic.com/images?q=tbn:ANd9GcTLD3Nqt1ET-NLhV-k5-

[9-13] The author's own illustrations