

## FEATURES IN THE COMPOSITION AND WELL-FED BODY IN DIFFERENT CATEGORIES OF WORK

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**ABSTRACT.** The objective of the present working out is to be analyzed and evaluated in comparative aspect the quantity and topical distribution of the subcutaneous fat tissue among men from different professional categories, as well as the characteristics in their composition and well-fed body to be studied. 860 men at the age of 30-50 years, representatives of five types of labour activity – casters, carpenters, fitters, drivers and programmers have been studied caliperometrically. The subcutaneous fat tissue has been evaluated through 9 standard skinfolds. The most frequently studied features of composition and well-fed body have been analyzed also. The material has been worked out statistically with the programme SPSS-9 by using the Descriptive Analysis, ANOVA analysis, ANCOVA analysis. In the professional groups we have studied we do not ascertain big differences in quantitative interrelations between the separate tissues, as well as with regard to the generalized morphological feature – the body weight. Along all SF of both limbs, men with static motor activity and similar working position – drivers and programmers have higher average values in comparison with the rest of the groups. The topography of the subcutaneous fat tissue among men from the five professional groups is similar – it is concentrated most frequently on the human body trunk and more rarely on the lower limbs.

**KEY WORDS.** subcutaneous fat tissue, skinfolds, well-fed body, workers

### INTRODUCTION

It is known that the changes occurring in human organism with regard to its adaptation to different living and working conditions are possible due to the eco-sensibility of a number of his physical characteristics. One of the most dynamic morphological features reacting to the different environmental factors are the features characterizing composition and well-fed body. The quantity and distribution of subcutaneous fat tissue in different parts of the body and limb, as well as the

proportion between the two body contents – fat tissue and active body mass are studied mainly as a constituent part of the common anthropological status of different populations. The dependences on individual age and sex ( Nacheva, A., E. Lazarova, L. Yordanova, 2003, Mladenova, S., 2003 ), the physical activity ( Toteva M., St. Petkova, E. Milosheva, L. Kraydzhikova, 1999 ), living and working conditions ( Nacheva, A., M. Koleva, 1999, Nacheva, A., E. Lazarova, 1999 ), alimentary regime ( Handzhiev, S., 2000 ) and others have been searched for. The results of similar studies have not only a theoretical but also an important practical significance for the evaluation of the health status of the population studied.

The objective of the present working out is to be analyzed and evaluated in comparative aspect the quantity and topical distribution of the subcutaneous fat tissue among men of labour-active age from different professional categories, as well as the characteristics in their composition and well-fed body to be studied.

### **MATERIAL AND METHODS**

860 men at the age of 30-50 years, representatives of five types of labour activity – casters (C<sub>1</sub>), carpenters (C<sub>2</sub>), fitters (F), drivers (Dr) and programmers (Pr) have been studied caliperometrically. The subcutaneous fat tissue has been evaluated through 9 standard skinfolds: SF – SF Subscapular, SF X-th rib, SF Suprailiac, SF Abdomen, SF Biceps, SF Triceps, SF forearm, SF Thigh, SF Calf. The data for the body weight, as well as the most frequently studied features of composition and well-fed body have been analyzed also (under M. Möhr and M. Milev) - % fat tissue (%FT), absolute quantity of fat mass (FT), active fat mass (AFT). The material has been worked out statistically with the programme SPSS-9 by using the Descriptive Analysis, ANOVA analysis, ANCOVA analysis.

### **RESULTS AND DISCUSSIONS**

The comparative juxtaposing of the data for body weight and skinfolds of limbs in the five professional groups is illustrated in Figure 1. The body weight is an important biological characteristics and a basic indicator for individual physical development. The results of ANOVA test indicate absence of statistically significant differences between the professional groups / $P > 0.05$ /, which means a kind of homogeneity and similarity by this feature. Yet, we may state that on the first and last place in the inter-group juxtaposing may be arranged the two groups of physical labour – C1 and C2. More significant inter-professional differences we find in the SF thickness along the body and in the limbs. Along all SF of both limbs Dr and Pr are with the highest values / $P < 0.05$ /. The ascertained greater thickness of SFT among men from these two professional groups would be related to the nature of the working position and the static efforts of limbs and hence with the necessity of more SFT over the muscles in these areas. The data confirm also the results of other authors (Nacheva A., Lazarova E., 1999), which also indicate that the static efforts are a stimulus for a higher SFT accumulation.

The comparative analysis of the data for the body SF also ascertains reliable inter-group differences (Figure 2). The quantity of fat tissue in the central abdominal area

is greatest among C1 and Dr, in the suprailiac area – among Dr and C2, in subscapular area – among C1 and Dr. Regarding SF X-th rib the inter-professional differences do not reach statistic significance / $P>0.05$ /.

On the basis of all groups studied, Dr are with the greatest total measured SFT thickness and average thickness of SFT layer / $P<0.05$ / (Figure 3). This gives us grounds to reckon that most probably the hypodynamics in their profession is reflected more negatively and sets mark on a total greater quantity of fat tissue. This tendency is found also when considering the indicators reflecting the specificity of composition and well-fed body - % FT, FT, ABM. Although that differences in the values of these indicators between groups do not reach a statistic significance / $P>0.05$ / we can state the fact that leading in the inter-group comparison with regard to the mass component are Dr, and regarding the non-fat tissues – C1.

A topographic distribution of SFT for each professional group under Nikityuk, Kozlov, 1999 method has been made in the present work (Figure 4). In all professional categories SFT is concentrated under the waist as most frequently it is on the human body trunk and more rarely on the lower limbs. The fat layer above the waist is weakly expressed – in 8,11% of the programmers, 2% of the fitters and 1,58% of the casters and more in the trunk and in a very small percentage from the individuals in the upper limbs.

The obtained results give us grounds to make the following **conclusions**

1. In the professional groups we have studied we do not ascertain big differences in quantitative interrelations between the separate tissues, as well as with regard to the generalized morphological feature – the body weight.
2. The basic informer about the influence of the physical activity nature on the specificity of composition and well-fed body is SFT thickness.
3. Along all SF of both limbs, men with static motor activity and similar working position – drivers and programmers have higher average values in comparison with the rest of the groups.
4. The type of drivers' physical activity is a specific morphogenic factor stimulating also for the accumulation of fats on other parts of the body – chest, abdomen, suprailiac area. As a whole, this professional group shows a greater obesity degree.
5. The topography of the subcutaneous fat tissue among men from the five professional groups is similar – it is concentrated most frequently on the human body trunk and more rarely on the lower limbs.

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Figure 1. Weight and Skinfolds limbs – Absolute values

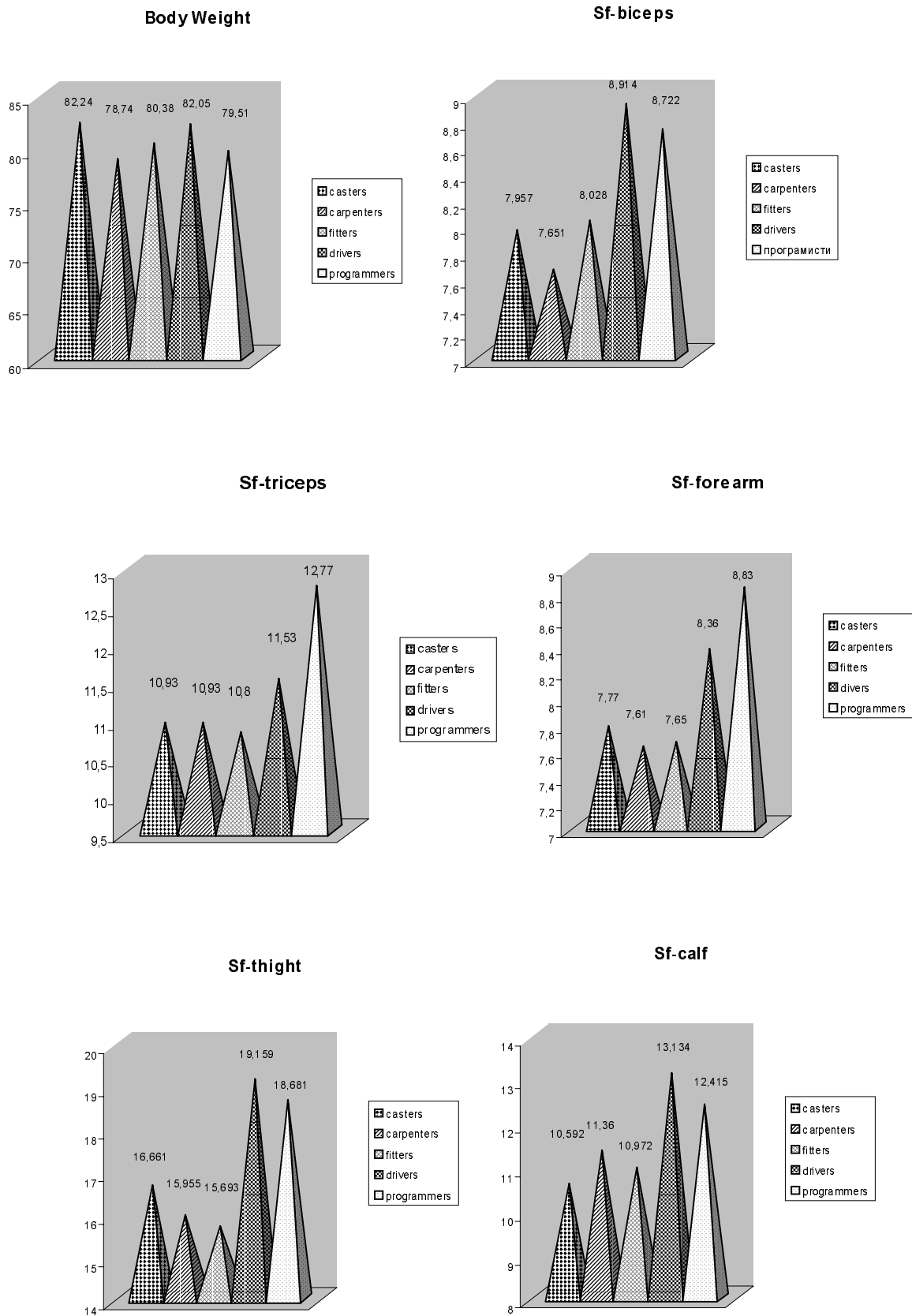
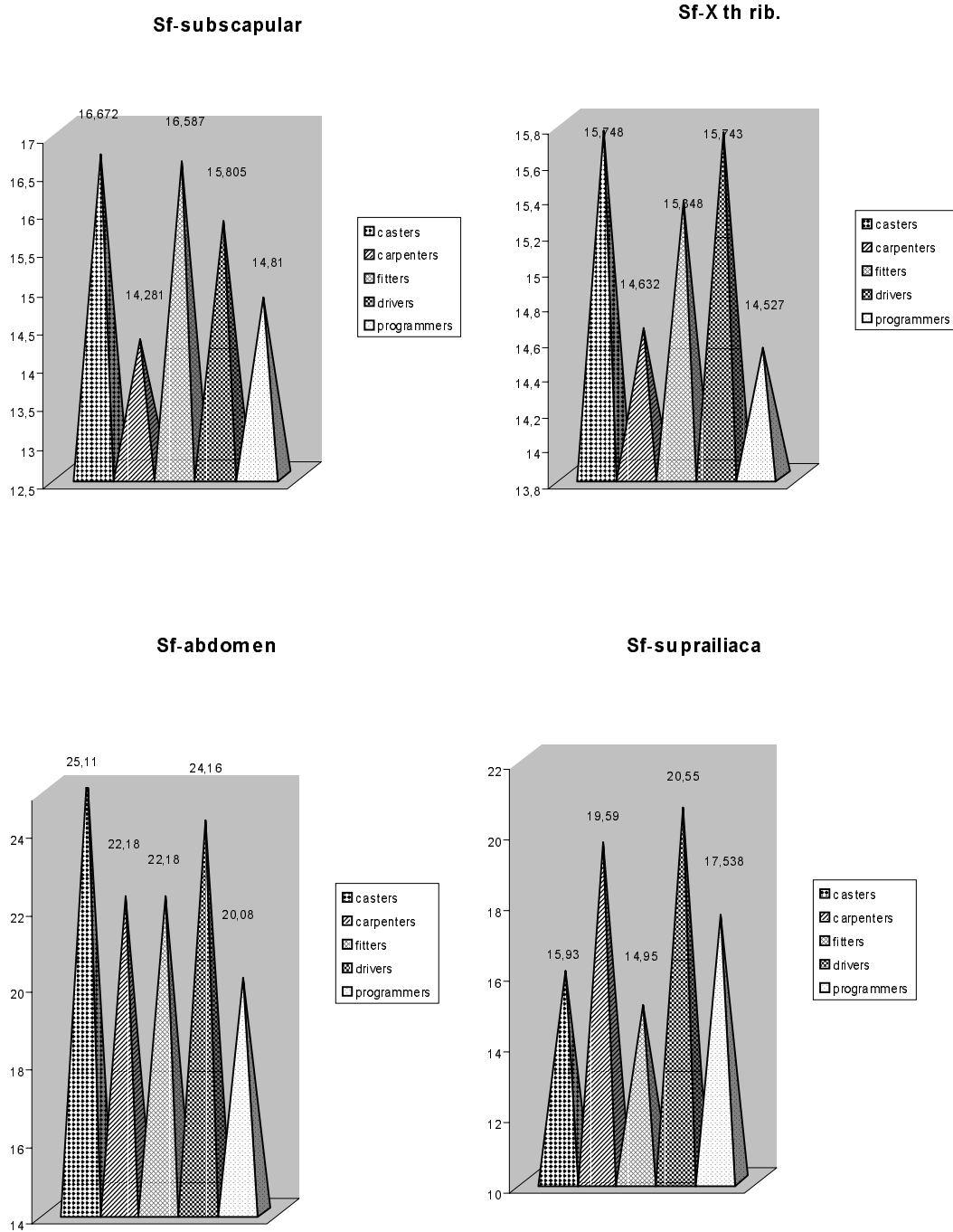
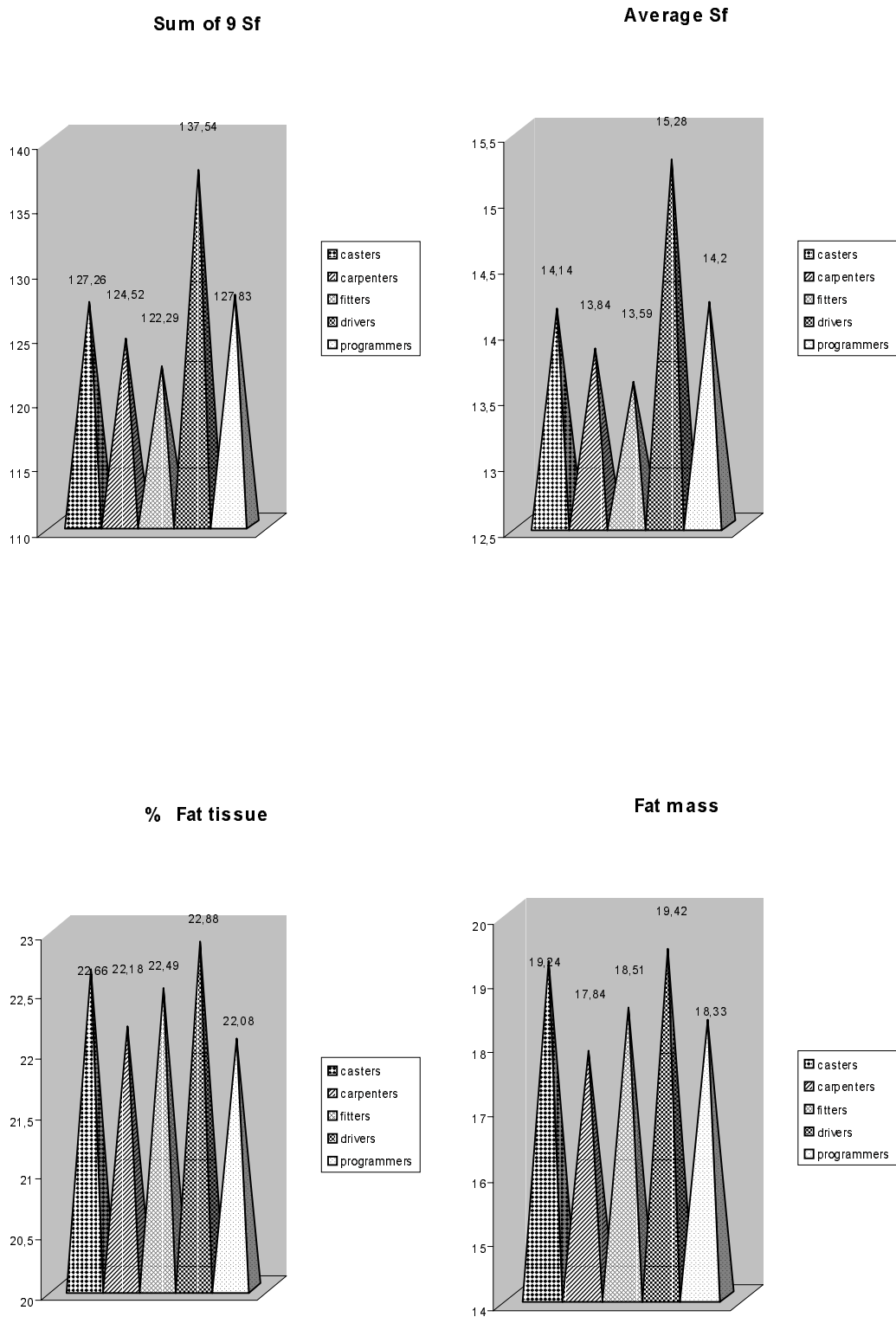


Figure 2. Skinfolds Body – Absolute values



**Figure 3. Quantity Subcutaneous Fat Tissue and Body composition**



**Figure 4.** A topographic distribution of SFT

