
SEX DIFFERENCES OF SOMATIC PARAMETERS IN CZECH SENIOR POPULATION

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Keywords: *Czech adult population, somatic parameters, sex differences*

Abstract

At present the movement activities play more and more important role in the life of human being of any age. In this article are presented results of testing 569 Czech adult people (273 males and 296 females) older than 18 years. There are discussed sex differences results in 6 physical development parameters: fitness score (FS), body height (BH), body weight (BW), BMI, fat tissue percentage (%FAT) and waist hips rate (WHR), which were measured by machine Inbody 720.

Presented results show rather negative trends. Parameters of body weight, BMI, fat tissue percentage and waist hips rate seem to be mutually connected. Body weight increases according higher age in all watched periods, both in groups of males and of females, too, though the body height decreases. This influences also BMI, when most of male groups and two oldest female groups are of overweight. Similarly results can be seen in parameters of fat tissue percentage and waist hips rate. Fitness score parameters show greater decrease in male groups when the younger groups have the better results. This parameter in female groups keeps more equal balance and slightly falls after age of 49..

1. Introduction

Nowadays in the life of human being the movement activities play all the time more and more important role. The purpose of any recreational movement activity is the health increase and prolonging of active life. The care of individual health is a first-rate duty of each man. To keep needed level of health and movement performance all the life is a very difficult task. It needs systematic effort, self-discipline, endurance and strong willing. Movement activity as a mean of keeping the demanded level of physical fitness can be cannot be substituted with anything else. There is shown that lack of movement activity leads to lowering of physical fitness, this is parallel manifested by negative trends in somatic parameters and of course also the parameter fitness score is decreased; this of

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course very often negatively influences the quality of individual life (Sedlacek, 2007).

Socio-demographic analyses show in Europe and also in Czech Republic that quantity and also the quality (intensity) of sport activity among adult population are insufficient as a whole. Most Europeans state that the main reason for absence of sports activities is lack of time. One third of European Union citizens (34%) never play sport due to a lack of time. The second reason for not been involved in is a fact of not liking sport (25%). However, neither the fee (4%) nor the lack of suitable facilities (3%) seems to be significant reasons for the lack of sports activity. It was shown (Eurobarometer, 2004) that adult men exercise more than women. In 2004 41% of men claimed that they play sport at least once a week, but women stated only 35%. Regarding age the situation shows that frequency decreases as the age category rises; from 60% in age 15 – 24 it falls to 28% in age over 55 years. The practice of sports is directly linked to the level of education; the more years a man was attending school, the more time is devoting the sport and movement activities. Generally a strong majority of citizens in the European Union cite the improvement of health as being the principal benefit of sport (78%). It shows the good level of education in the field of positive influence of sport and movement activities as a benefit to one's physical and mental health and for remaining active life. Other reasons for sport practicing are the development of physical performance (46%), relaxation (43%), having fun (39%) and fact of being with friends (31%). Supports rates for other propositions are considerably weaker.

In adult Czech Republic population is prevailing overweight and obesity. Near 52% of adult Czech population have BMI over normal value. From it is 35% overweight and 17% is in the category obesity (Kunesová, 2006). Difference from last researches (6 years) is plus 3% more with overweight. To this great population overweight contribute more often men and older people. In the adult population is near 60% men with overweight, but only 46% of women. Among adults in age 18 – 44 years is with normal body weight 67%, but over 45 years it is only 30%. One fifth of population underestimates his/her overweight more often this is subjective feeling among men than among women. An analyze shows that overweight in childhood influence occurrence of overweight in adult age. It is also clear that occurrence of overweight is firmly connected with overweight in the family. Child overweight is significantly more probable if parents are also overweight. In general the time devoted by population to physical activity has been shortened. Czech population daily walks about 1 hour and 30 minutes in slower speed, 1 hour and 5 minutes devotes house works and about 41 minutes to exercise or movement. Comparison with former researches show decrease mainly in walking (2 hours 30 minutes less per week), in more challenging movement activities (loss from 4 on 3 hours per week) – recommended quantity is minimally 3 hours 30 minutes per week; this fulfill only one third of Czech adult population. Comparison with former researches, respondents devote to the most watched activities significantly less quantity of time; with the exception of sleeping and TV watching. People with overweight spend significantly more period of time with watching TV and with

housework, but significantly less time is devoted to sport and movement activities, occupation, school and self-study (FTK Olomouc, 2010).

2. Material and methods

Objectives

In this contribution we want to show on Czech adult population its' somatic parameters sex differences in accordance with age and determination of these parameters with some selected socio-cultural characteristics.

Methods

In this article are presented results of testing 569 Czech adult people (273 males - M and 296 females - F) older than 18 years. In this contribution there are discussed results in 6 somatic parameters: fitness score (FS), body height (BH), body weight (BW), BMI, fat tissue percentage (%FAT) and waist hips rate (WHR), which were measured by machine Inbody 720. We were working with fundamental statistical data, like means (\bar{x}), median, minimum and maximum, standard deviation (s) of the whole group and separately of men (M1 - M6) and women (F1 - F6) and also according to age.

- Movement activity of Czech adult population we learned by questionnaire. There were 19 various questions. In this contribution we watch influence of the whole group answers on questions about life status (single - married - divorced - widowed - registered partnership) and education level (none education - fundamental - trainee - GCE exam - university) on somatic parameters.

3. Results and Discussions

Level and sex differences of somatic parameters of present Czech adult population

Table 1. *Fundamental statistical data*

Groups	n	FS [1]		BH [cm]		BW [kg]		BMI [1]		%Fat [%]		WHR [1]	
		x	s	x	s	x	s	x	s	x	s	x	s
M1: 18-28	111	84.5	7.2	180.7	6.7	79.0	10.7	24.1	3.0	13.7	5.9	0.87	0.04
M2: 28-38	65	81.1	7.8	179.0	8.1	82.3	13.7	25.6	3.9	18.9	7.0	0.89	0.04
M3: 38-48	43	82.2	7.5	179.2	7.0	86.8	11.9	26.9	2.6	21.0	6.0	0.90	0.03
M4: 48-58	20	78.9	5.2	176.1	6.4	81.5	11.4	26.2	3.0	21.4	5.2	0.91	0.04
M5: 58-68	19	79.1	11.6	173.1	5.0	84.2	15.4	28.0	4.5	24.3	8.8	0.92	0.05
M6: > 68	15	74.4	12.5	171.4	7.0	83.0	11.3	28.2	3.5	28.9	5.0	0.92	0.04
M1 - M6	273	80.0	8.6	178.8	6.7	81.9	14.3	26.5	4.7	18.3	6.3	0.89	0.04
F1: 18-28	86	75.5	5.8	169.2	7.1	64.1	10.2	22.3	3.1	25.3	6.3	0.84	0.04
F2: 28-38	67	76.6	6.8	167.8	6.9	67.3	12.8	23.8	4.0	26.5	7.4	0.85	0.05
F3: 38-48	36	75.8	5.5	166.9	5.6	67.3	9.8	24.1	2.9	28.7	5.7	0.87	0.03
F4: 48-58	23	74.3	7.3	164.2	6.0	67.6	12.3	24.9	3.9	30.6	6.6	0.88	0.06
F5: 58-68	54	72.2	10.3	161.1	7.0	70.0	12.4	26.9	4.3	34.2	7.8	0.90	0.05
F6: > 68	30	75.5	15.2	159.6	6.6	69.1	11.2	27.1	4.1	35.9	7.5	0.90	0.05
F1 - F6	296	75.0	8.5	172.1	6.5	74.1	11.4	25.0	3.7	30.2	6.9	0.88	0.05

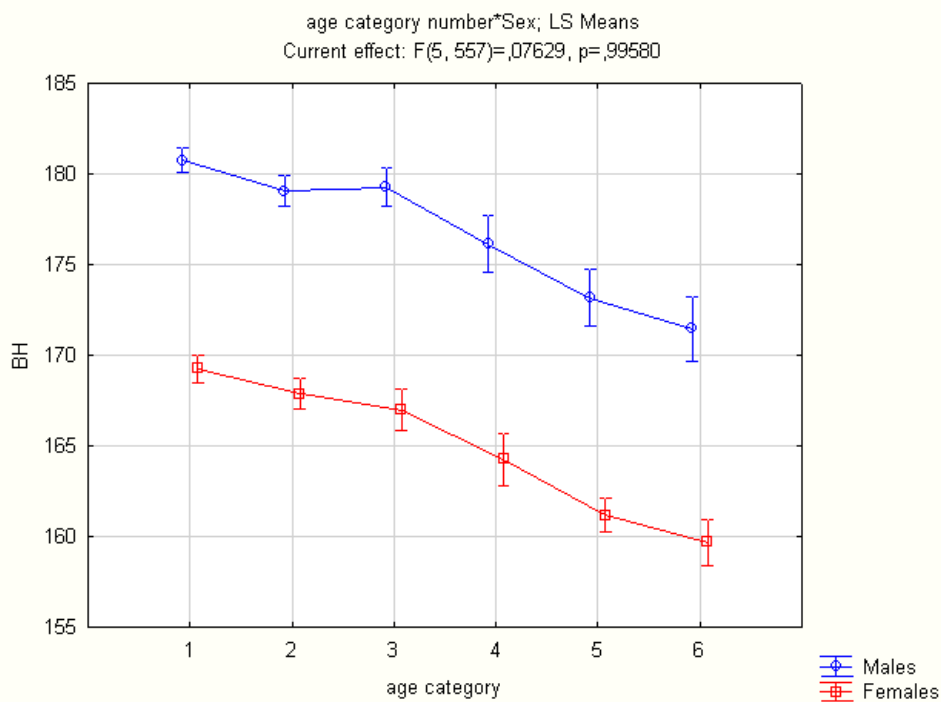


Figure 1. Body height sex differences in Czech senior population

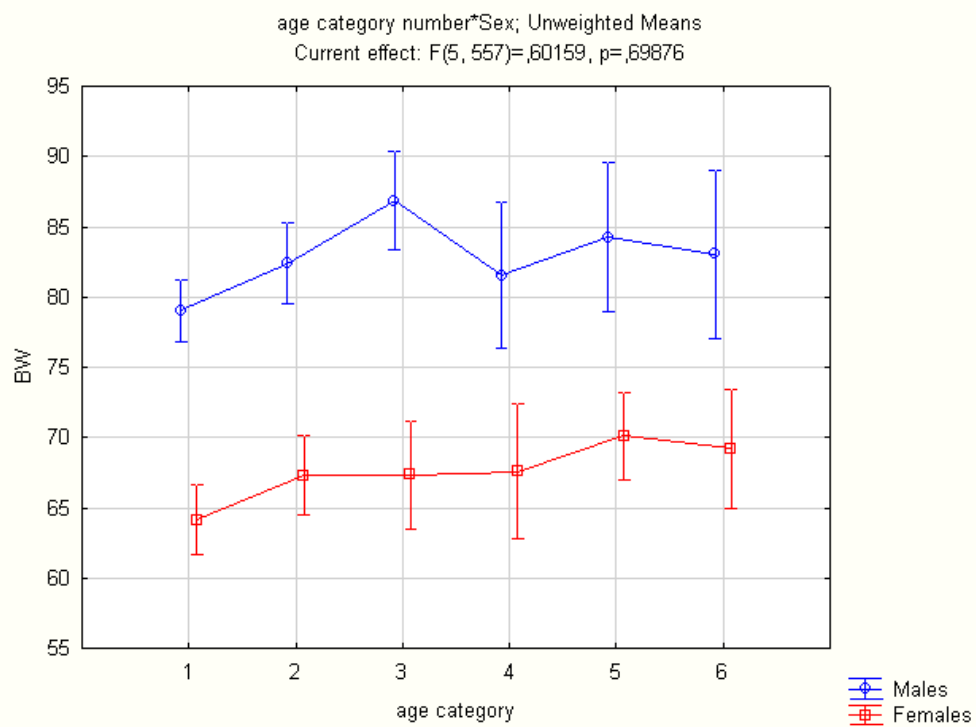


Figure 2. Body weight sex differences in Czech senior population

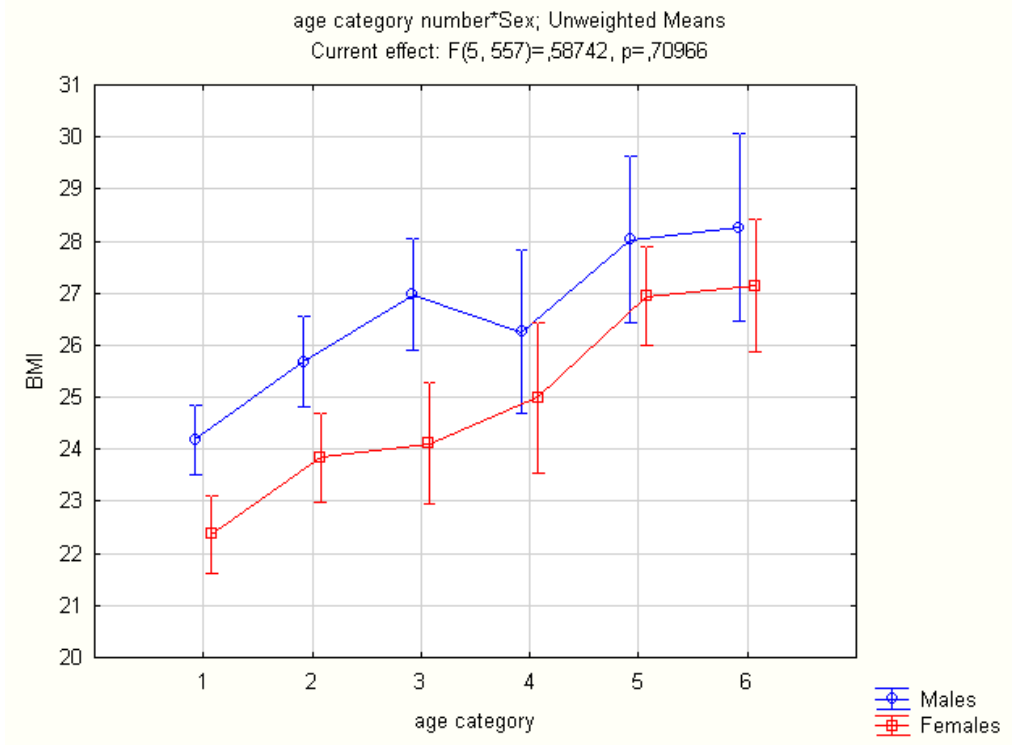


Figure 3. BMI sex differences in Czech senior population

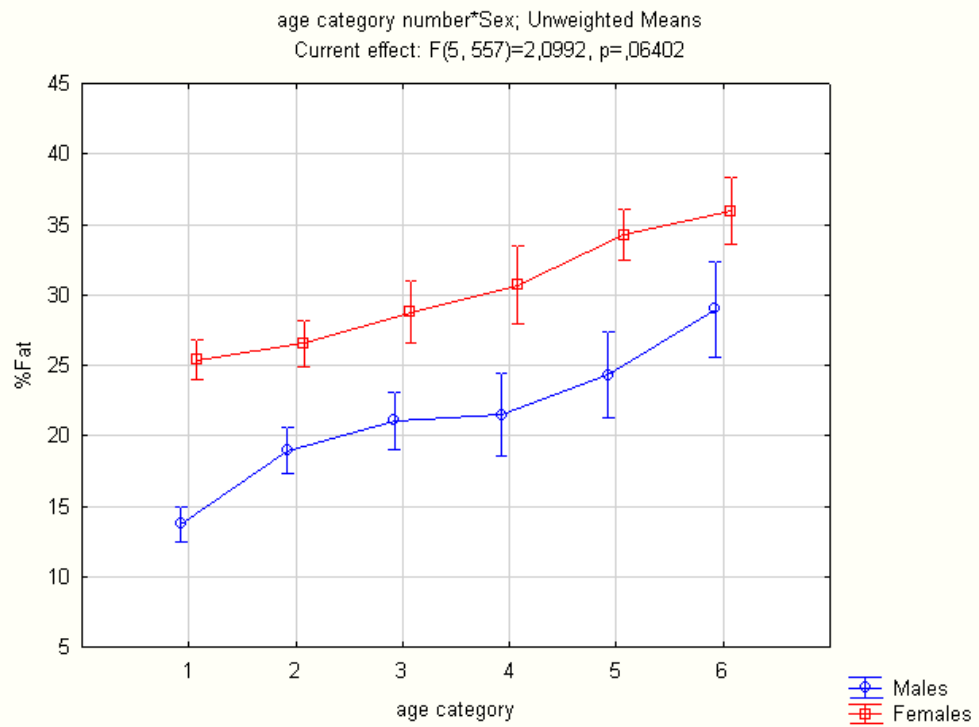


Figure 4. %FAT sex differences in Czech senior population

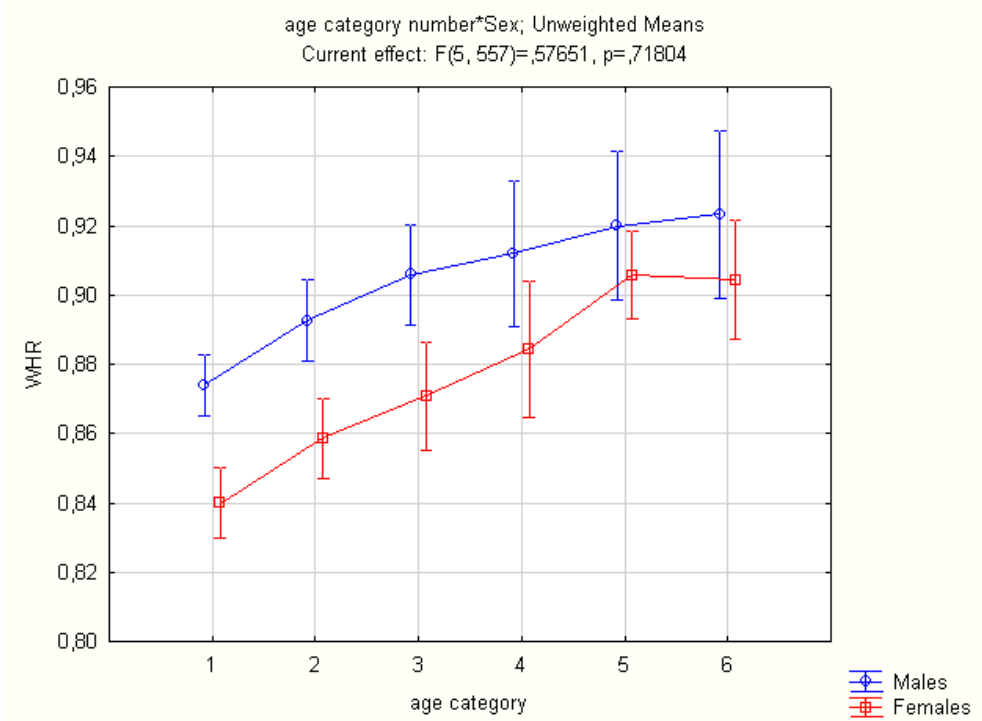


Figure 5. WHR sex differences in Czech senior population

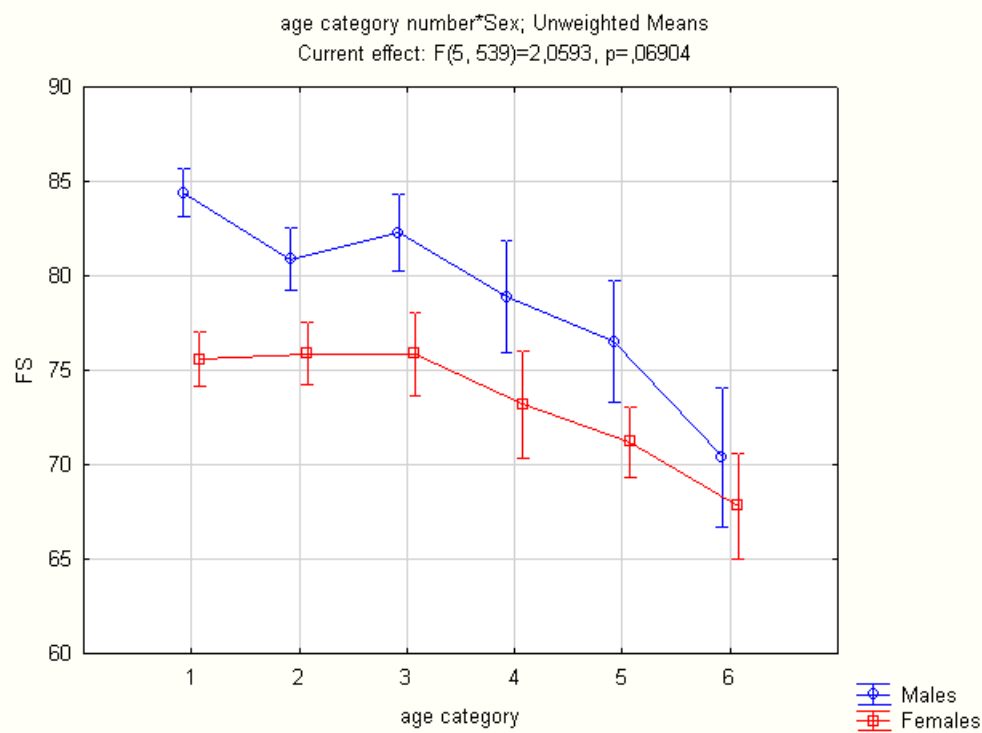


Figure 6. FS sex differences in Czech senior population

Body height shows us the tendency of slowing down the secular trends that were watched from 50-ies to 90-ies, when youths accelerated each 20 years for 2 – 5 cm and after it started to be reduced. It is shown both in groups of men and women, when the youngest groups do not differ very much, while those older have continuously smaller values of body height. The other parameters (BW, BMI, %Fat and WHR) show us together with BH the body composition and distribution of fat tissue and also muscles mass. From this point we can value Czech adult population rather in negative way. At men only M1 group reach normal values in BMI; in %Fat and in WHR only M1 a M2 can be considered like normal, all the others male groups have overweight or over recommended values. In BMI parameter women are slightly better. Like overweight can be evaluated only groups F5 a F6. But in parameters %Fat and WHR reach similar values like male groups. It seems that especially older groups of men and women, too, reach from the point of the view of somatic parameters negative values; the older they are the more negative values they have.

The Fitness Score is an arbitrary score based on the measured muscle and fat mass for the motivation of the subjects. Normal range of it is from 70 to 90. We can see that Czech men reach in the whole group an average value, while the whole group of women have lower than central value (80,0). At groups of men the first three decades (18 – 49 years) have slightly higher values like is central value. This central value among women has only the youngest group; the rest of groups of women and those older men reach lower than central values. There can be stayed that the parameter FS shows from the point of sex differences slightly opposite results like the rest of watched parameters. If the parameters BH, BW, BMI, %FAT and WHR show better results in groups of women, the parameter FS shows prevailingly better results in groups of men. In can be also coursed by more often practicing sport activities by men comparison with groups of women. Also the length of men age is shorter (about 8 years difference in favor of women in Czech Republic) and this also can influence these controversial differences.

4. Conclusions

1. Comparison of watched somatic parameters of present Czech senior population shows generally rather negative trends more in groups of men like of women.
2. In this research there is also confirmed the slow down of secular trends in somatic characteristics mainly in parameter body height.
3. Mainly older groups of both sexes have negative values of watched somatic parameters (body weight, BMI, fat tissue percentage and waist hips rate).

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The project "Creating a research team for the purpose of determining the level of physical activity (inactivity) in selected age groups of the population of men and women in the Czech Republic" (CZ.1.07/2.3.00/20.0044) is financed by the European Social Fund and with the state budget of the Czech Republic.