

CHANGE IN BODY SIZE AND BODY COMPOSITION OF HUNGARIAN UNIVERSITY STUDENTS BETWEEN 1976 AND 1990

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Abstract

The mean height, mean weight and mean body mass index (BMI) are reported for two samples (n=11766) of first-year students at the Technical University in Budapest. The first sample was investigated in ten consecutive classes between 1976 and 1985, and the second one in five consecutive classes between 1986 and 1990. The values of the two body measurements and the BMI were larger in the second sample than in the first, which revealed the positive secular trends among Hungarian university students.

Key words: height, weight, BMI, university students, secular trends, obesity.

Introduction

The term "secular trend" has generally been used to denote the increases in height and weight during childhood and adolescence, the decrease in the age at menarche, and the increase in adult stature which have occurred since about the middle of the 19th century in Europe. The secular trends are complex phenomena influenced by environmental and socioeconomic conditions (MALINA, 1990). Although there has been a general tendency for these trends to continue worldwide in the recent past, a current lack of secular trends has also been reported (GARN and FRENCH, 1967; MARESH, 1972; VAN WIERINGEN, 1986); indeed, in some developing countries, negative secular trends (decreases in stature) have been observed (TOBIAS, 1985).

From Hungary, only positive secular trends has been reported (GYENIS and TILL, 1986; EIBEN, 1988; MÉSZÁROS et al., 1992; G. SZABÓ et al., 1993; SZÖLLÖSI and JÓKAY, 1994).

Secular trends can be detected not only in body measurements, but also in body composition. The body mass index (BMI: ratio of weight divided by the square of stature) correlates reasonably well with fatness (ROCHE et al., 1981), and it can therefore be used as an indicator of obesity.

The aim of this paper is to study the direction of the secular trends and the changes in body composition among Hungarian university students, investigated in two samples of first-year students at the Technical University in Budapest. The first sample consisted

of 6 916 20-year-old male and 1 390 19-year-old female students in ten consecutive classes between 1976 and 1985, while the second sample comprised 2 289 20-year-old male and 571 19-year-old female students in five consecutive classes between 1986 and 1990.

Results

The mean height of the male students in the first sample was 176.92 cm, while in the second sample it was 178.01 cm (Table 1). Thus, the mean increase in height was more than 1 cm. The mean height of the female students showed the same tendency, the difference in mean height of the two samples (164.55 cm and 165.56 cm) again being more than 1 cm.

The mean weight in the first sample of male students was 68.87 kg, while in the second sample it was 70.86 kg; thus, the increase was almost 2 kg (Table 1). A similar tendency appeared for the female students, where the mean weight in the first sample was 56.29 kg, while in the second sample it was 58.05 kg, i.e. a difference of 1.76 kg between them.

Table 1. Mean height and mean weight of male and female students in 1976-85 and in 1986-90.

Period of investigation	Males					Females				
	n	Height (cm)		Weight (kg)		n	Height (cm)		Weight (kg)	
		M	SD	M	SD		M	SD	M	SD
1976-85	6 916	176.92	6.47	68.87	8.52	1 390	164.55	6.02	56.29	6.93
1986-90	2 889	178.01	6.40	70.86	9.23	571	165.56	5.93	58.05	7.44
Differences:		1.09		1.99			1.01		1.76	

The BMI of the male students (Table 2) showed an increase of 0.38, from 21.95 to 22.23. The increase in BMI for the female students agreed well with that for the male students, the difference between the mean BMIs of the two female samples (20.77 and 21.16) being 0.39.

Table 2. BMI for male and female students in 1976-85 and in 1986-90.

Period of investigation	Males			Females		
	n	M	SD	n	M	SD
1976-85	6 916	21.95	2.22	1 390	20.77	2.20
1986-90	2 889	22.33	2.47	571	21.16	2.39
Differences:		0.38			0.39	

Conclusions

The data presented here demonstrate that positive secular trends occurred in the height and weight of the students at the Technical University in Budapest in the period

1976-1990. The increases in both body measurements were very similar among the male and female students. There were also positive changes in the values of BMI for the male and female students. These latter suggest an increasing prevalence of overweight and obesity, as reported earlier (GYENIS, 1994, 1996).

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