

**Dietary habits  
and nutritional status  
of Polish population on the verge  
of accession to European Union**

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**In 2000 National Food and Nutrition Institute carried out countrywide representative survey of dietary habits and nutritional status of male and female population.**

**The representative individual food consumption survey with the use of 24 hour recall covered 4134 individuals who were the members of the 1362 randomly selected families.**

**Energy and nutrient intakes were compared with Polish Recommended Dietary Allowances.**

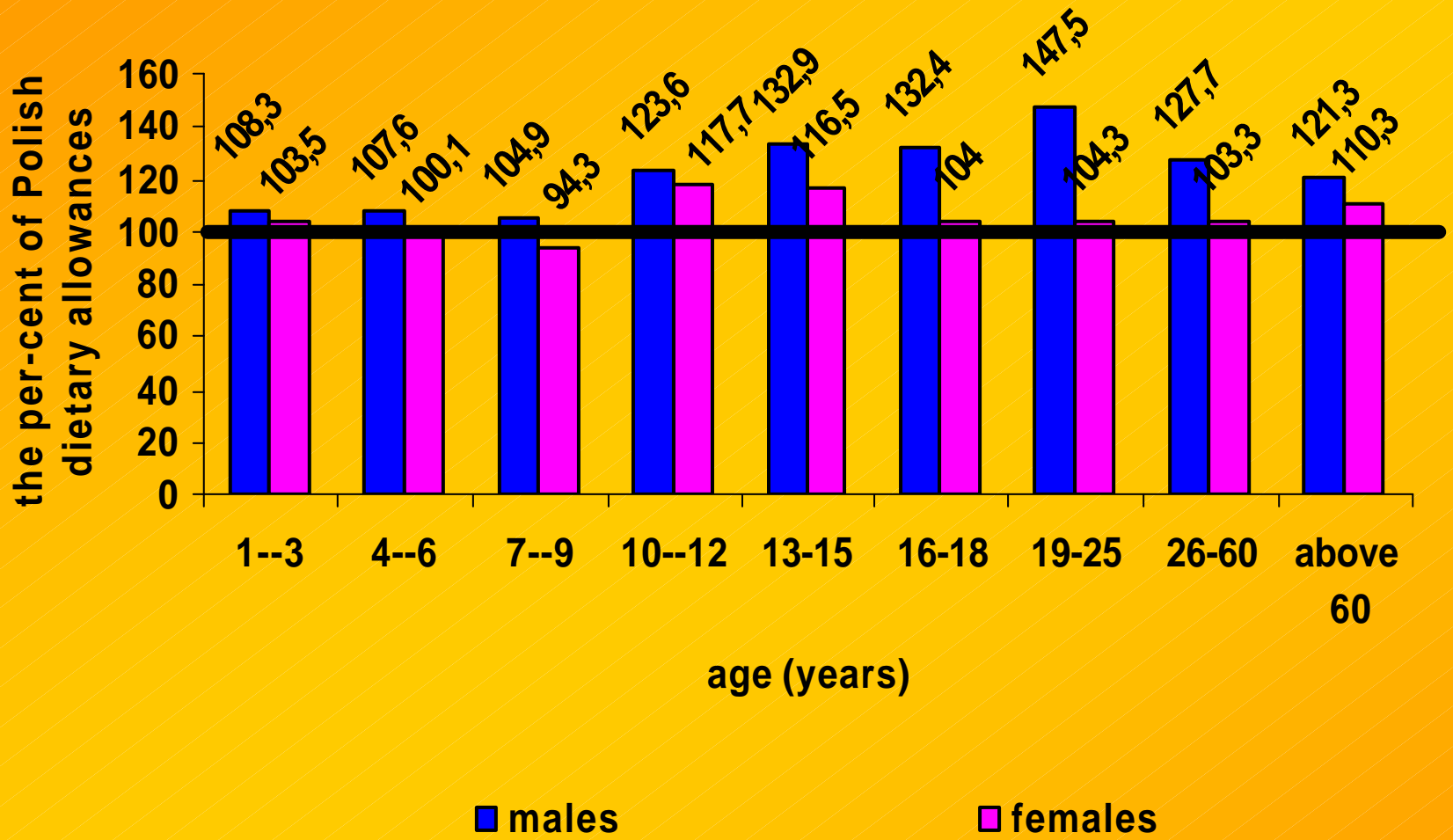
**The surveys on nutritional status covered 4041 subjects. The data on anthropometric measurements (among others body height and weight) served as the basis for the evaluation of nutritional status. The percentile charts of weight to height proportion of Warsaw population served as the basis for evaluation of frequency of underweight (severe below 3 percentile, mild between 3 and 10 percentiles), normal weight, overweight (between 90 and 97 percentiles) and obesity (above 97 percentile) in children.**

**BMI were used to assess nutritional status of the adult population: Criteria recommended by the WHO were utilized:**

- BMI<18.5 - underweight,**
- BMI from 18.5 to 24.9 - normal weight,**
- BMI from 25.0 to 29.9 - overweight,**
- BMI<sup>3</sup>30 - obesity.**

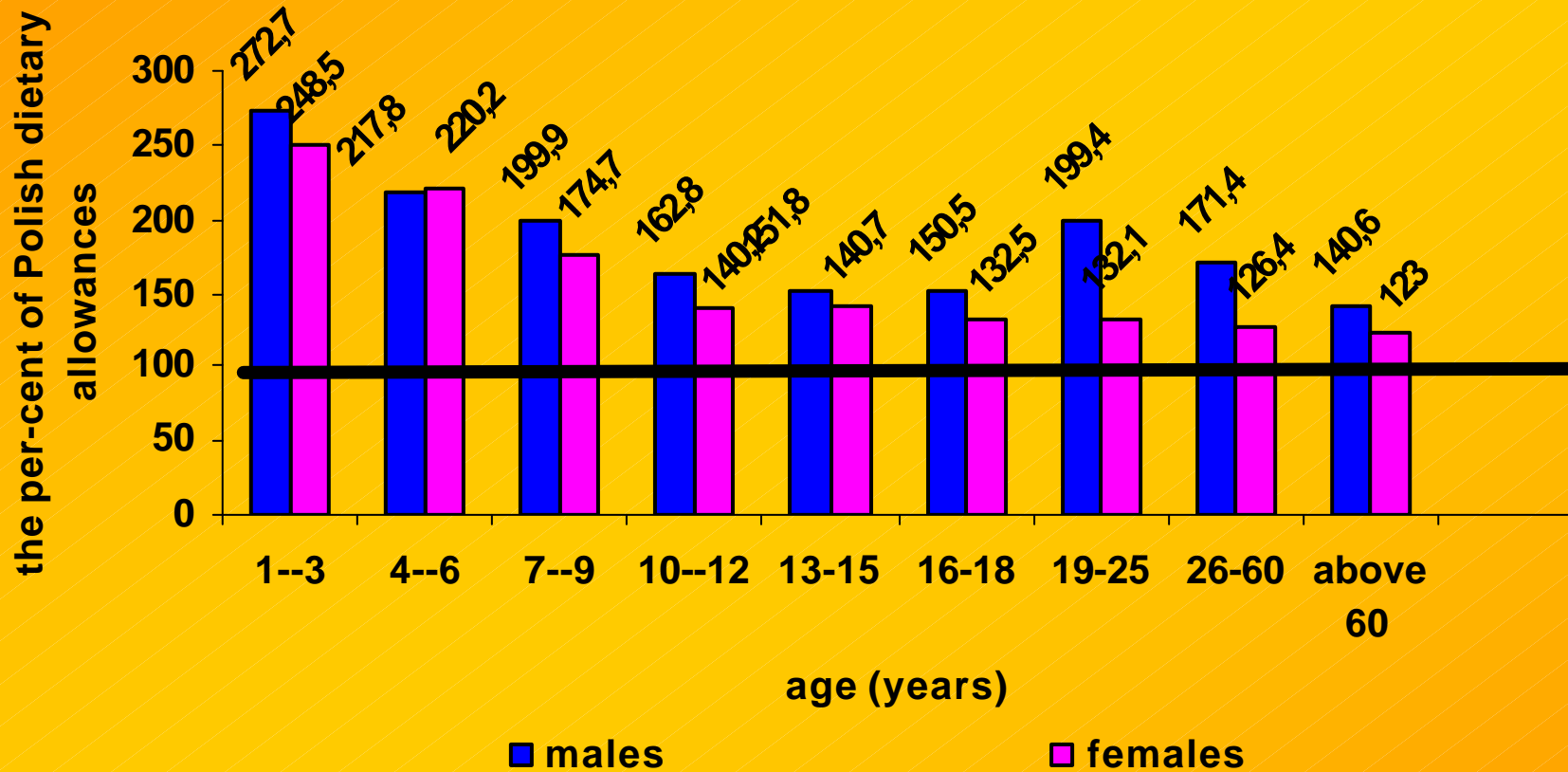
**Extreme obesity was classified as BMI<sup>3</sup>40.**

**Fig. 1. Energy intake by sex and age as the per-cent of Polish recommended dietary allowances**



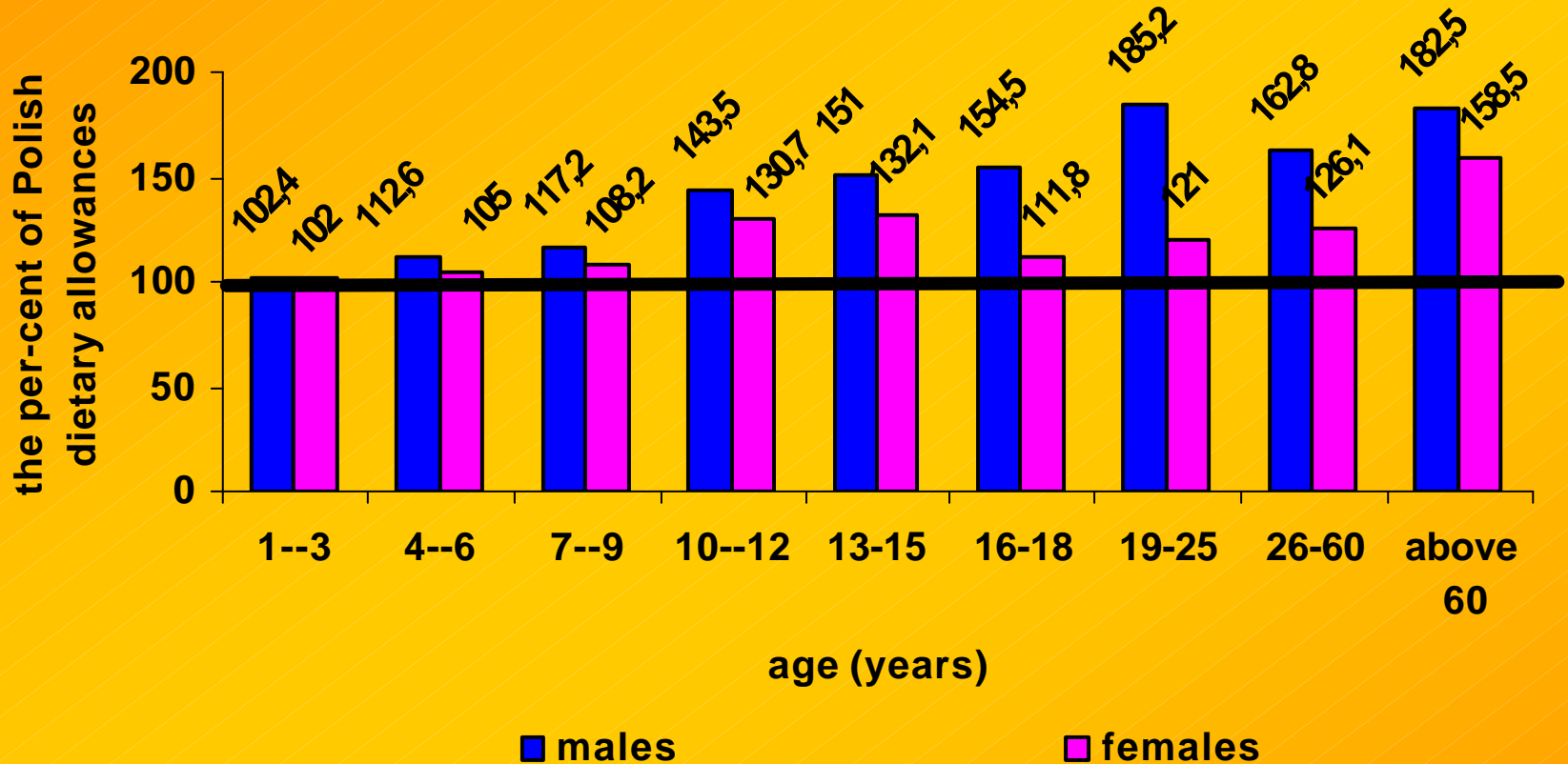
Low activity for adolescents and adults

**Fig. 2. Total protein intake by sex and age as the per-cent of Polish recommended dietary allowances**



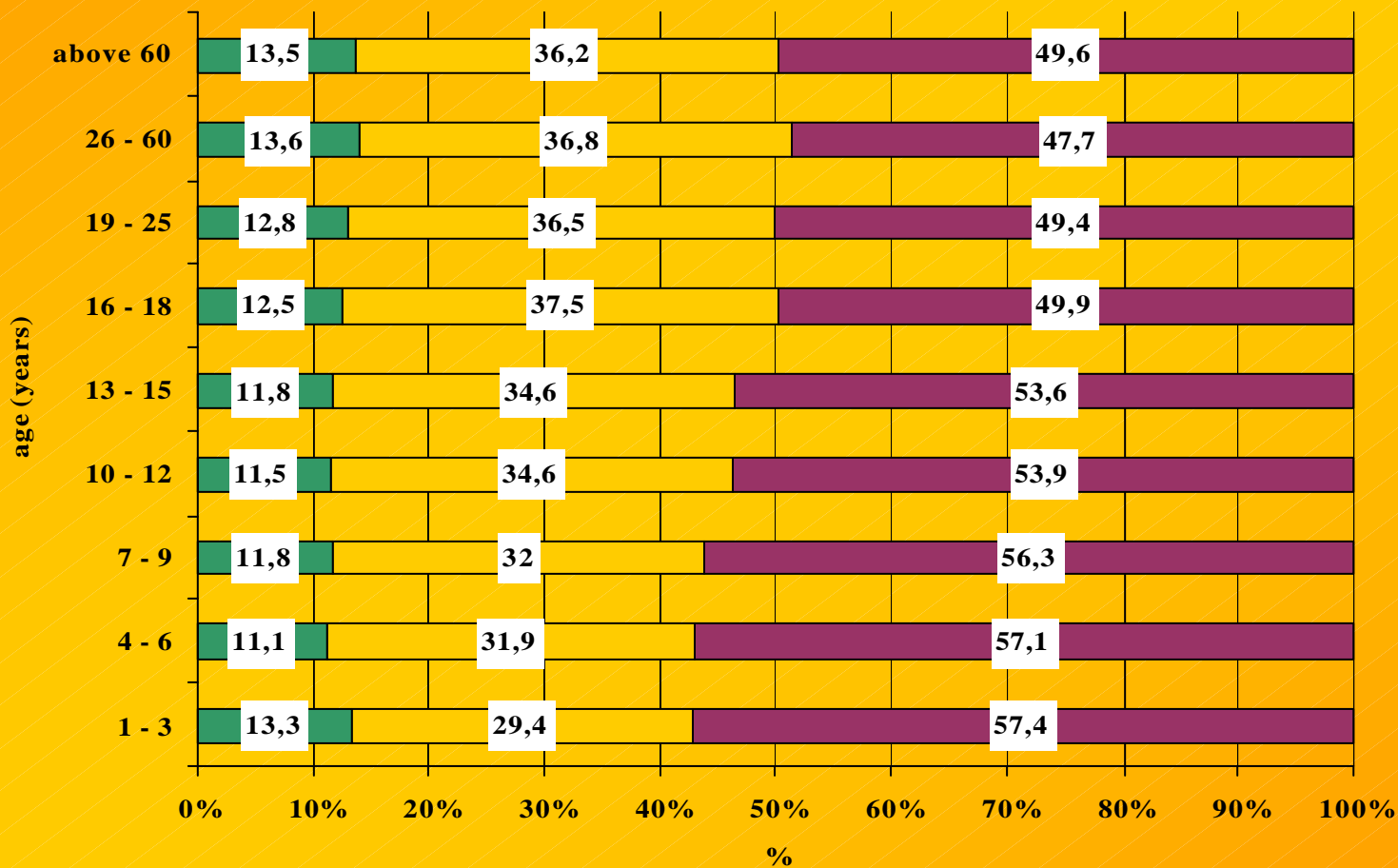
Safe level

**Fig. 3. Total fat intake by sex and age as the per-cent of Polish recommended dietary allowances**



Low activity for adolescents and adults

**Fig. 4. Total protein, fat and carbohydrates as percent of energy in diet of men**



■ Total protein □ Fat ■ Carbohydrates

**Fig. 5. Total protein, fat and carbohydrates as percent of energy in diet of women**



Fig. 6. The percent of energy from fatty acids in daily diet of males

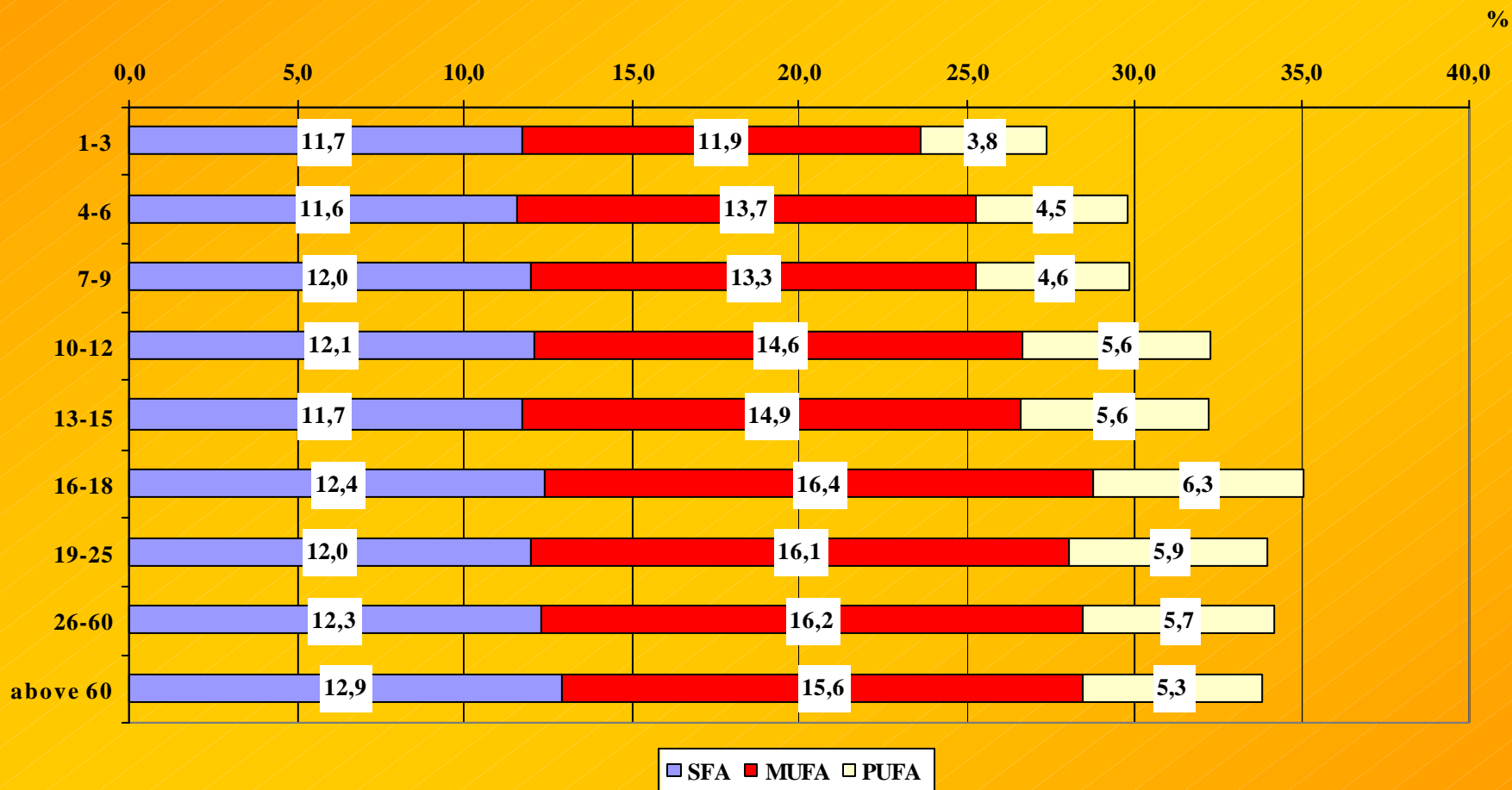
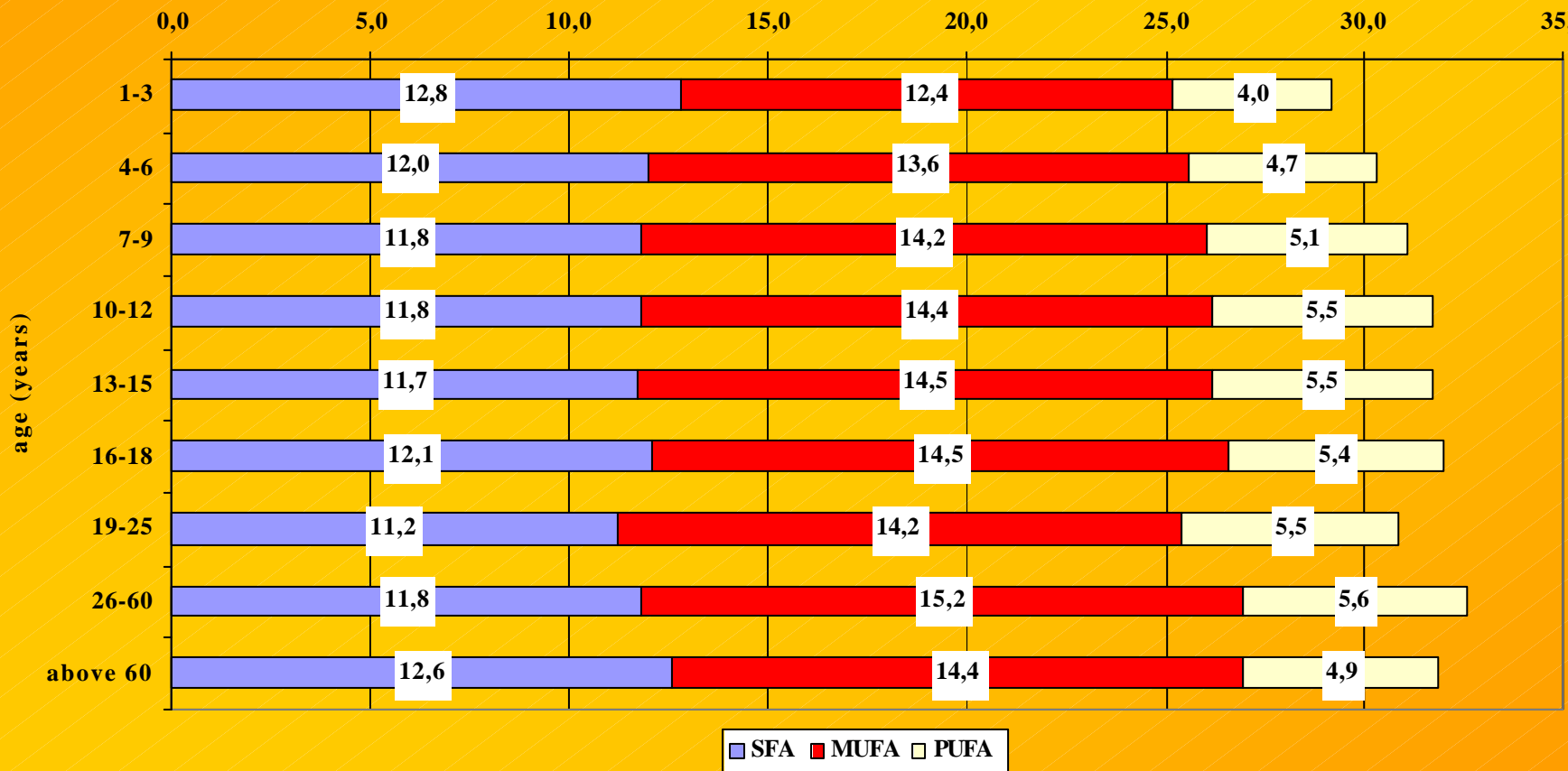
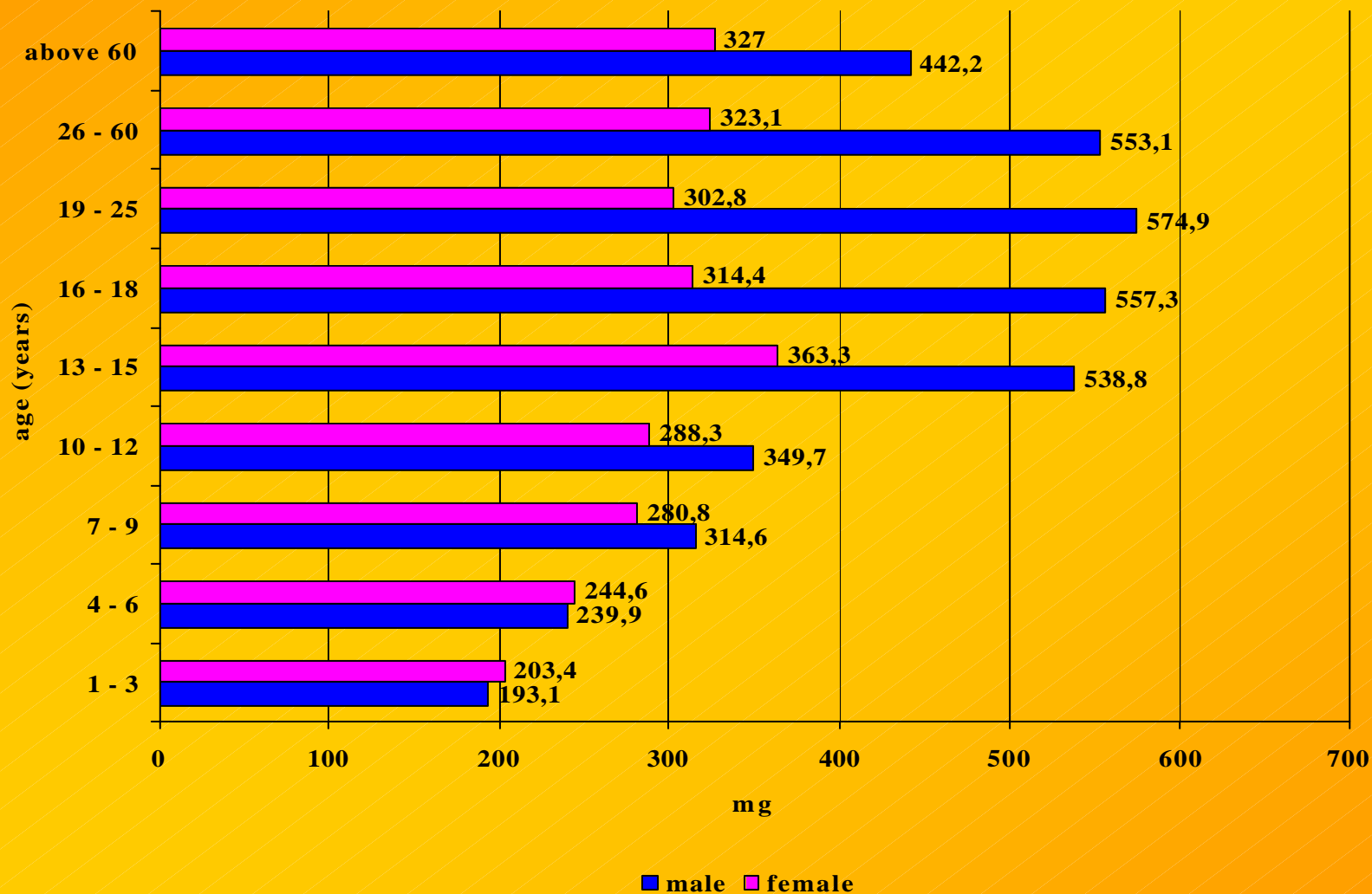


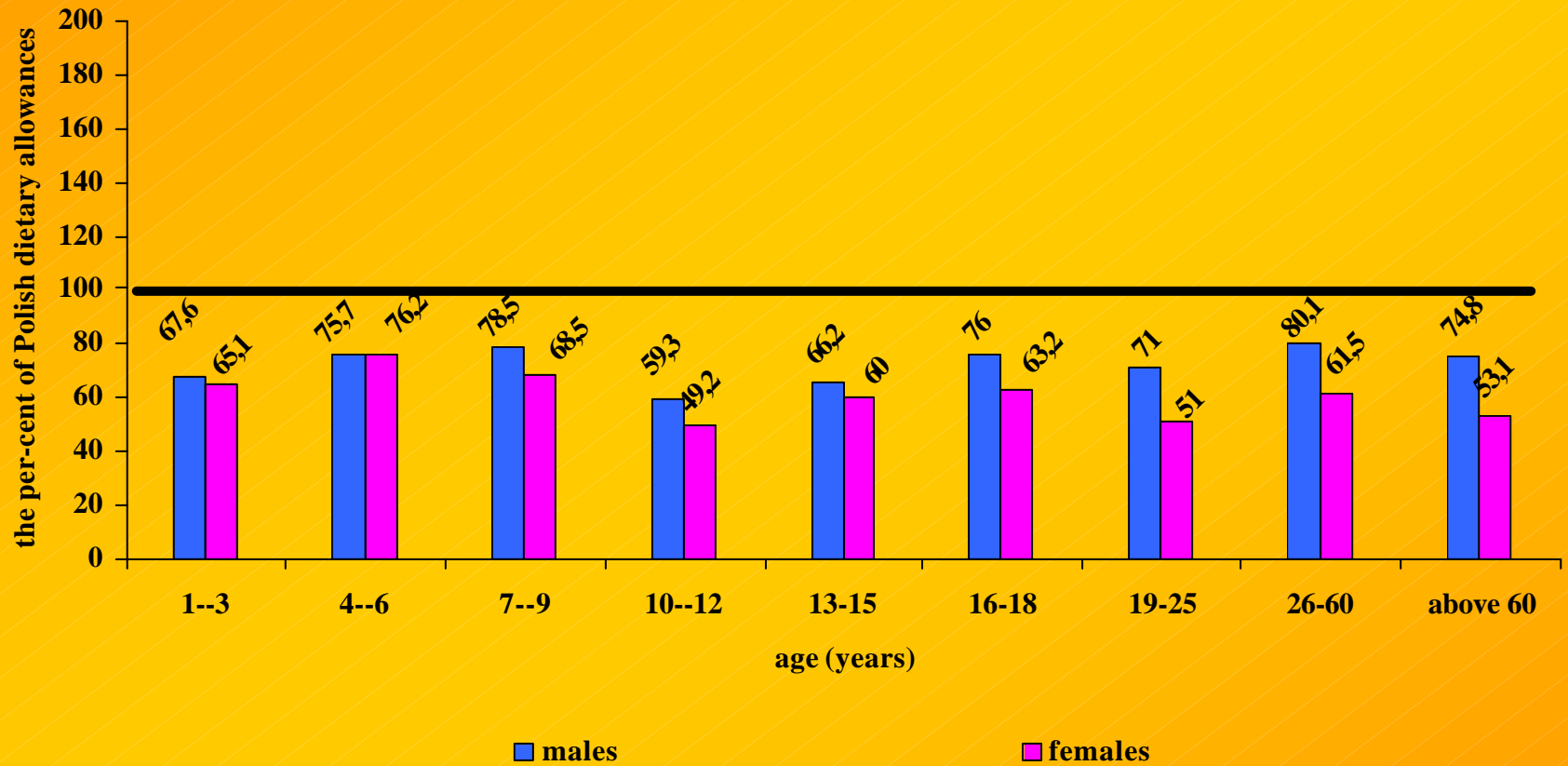
Fig. 7. The percent of energy from fatty acids in daily diet of females



**Fig. 8. Cholesterol content (mg) in daily diet of males and females**

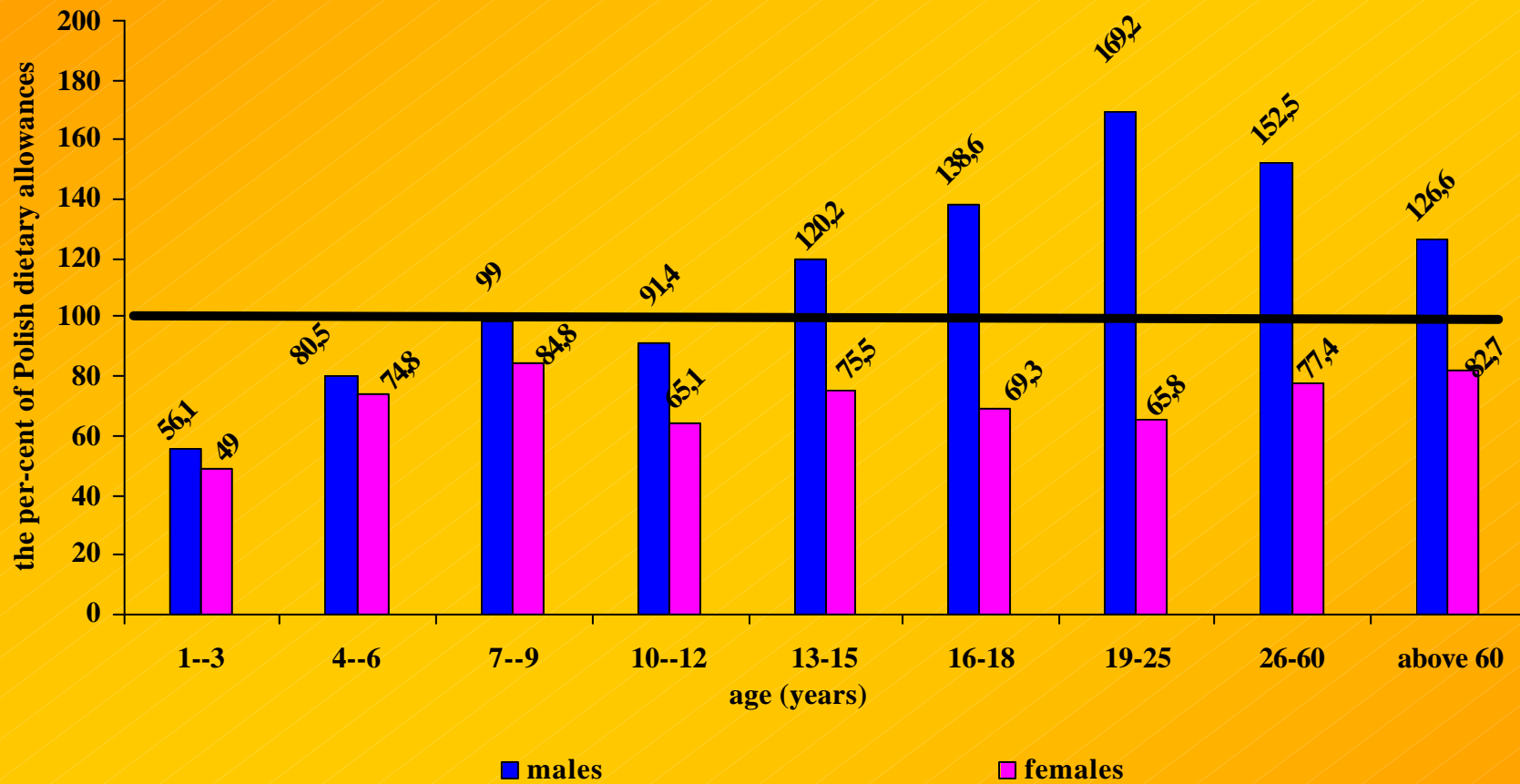


**Fig. 9. Calcium intake by sex and age as the per-cent of Polish recommended dietary allowances**



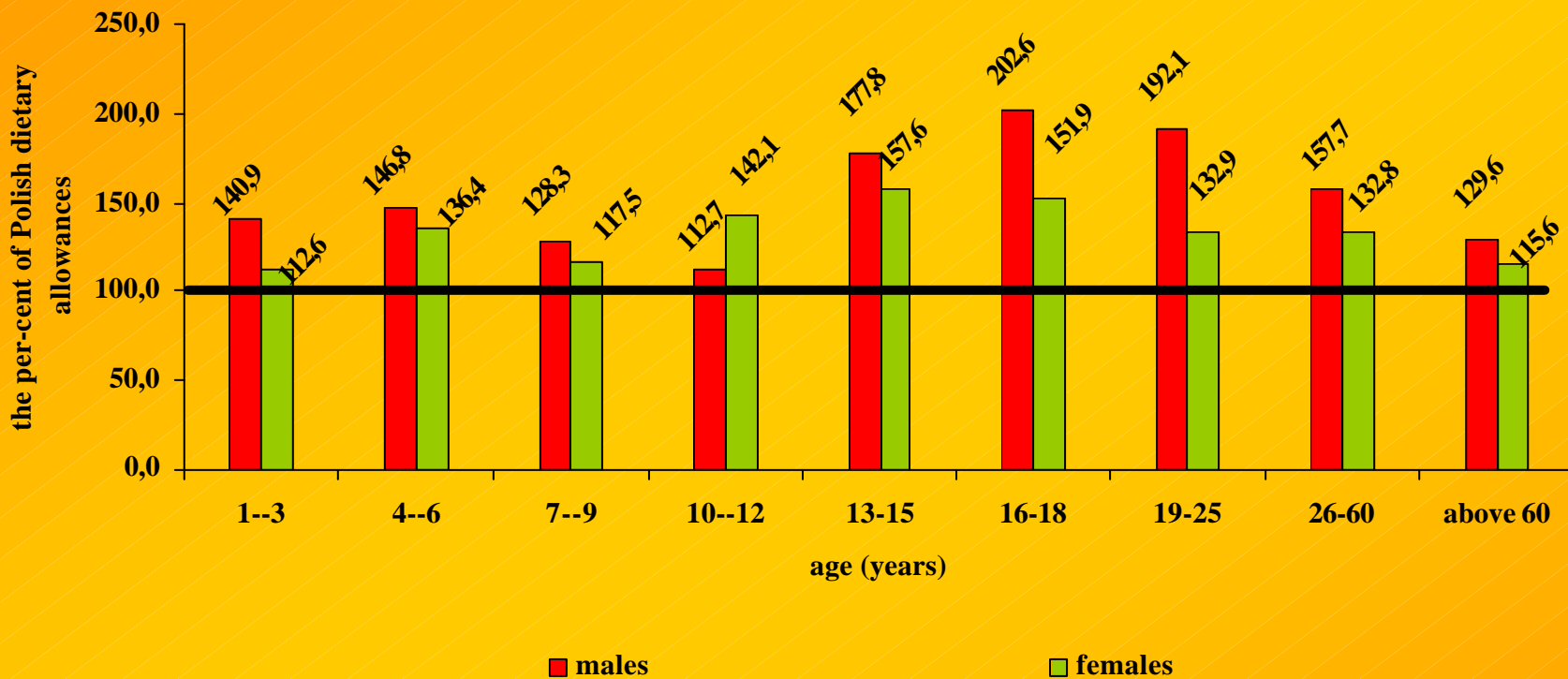
Safe level

Fig. 10. Iron intake by sex and age as the per-cent of Polish recommended dietary allowances



Safe level

Fig. 11. Vitamin C intake by sex and age as the per-cent of Polish recommended dietary allowances



Safe level

**In comparison with Polish Recommended Dietary Allowances there were found also:**

- higher intakes of sodium and vitamin A,**
- lower intakes of zinc, copper and niacin in many age groups of both genders and thiamine and riboflavin in some groups of women.**

**Table 1. The frequency of underweight, normal weight, overweight and obesity in boys (%)**

Age (years)	N	Severe under-weight	Mild under-weight	Thinness	Normal weight	Over-weight tendency	Overweight	Obesity
1--3	65	13.8	9.2	6.2	38.5	12.3	12.3	7.7
4--6	78	9.0	9.0	10.3	26.9	23.1	10.3	11.5
7--9	97	6.2	2.1	14.4	46.4	16.5	9.3	5.2
10--12	126	4.8	7.9	11.9	49.2	15.9	8.7	1.6
13-15	113	2.7	4.4	17.7	52.2	15.0	4.4	3.5
16-18	130	2.3	6.2	11.5	50.8	20.8	6.2	2.3
<b>Total</b>	<b>609</b>	<b>5.6</b>	<b>6.2</b>	<b>12.5</b>	<b>45.6</b>	<b>17.4</b>	<b>8.0</b>	<b>4.6</b>

**Table 2. The frequency of underweight, normal weight, overweight and obesity in girls (%)**

Age (years)	N	Severe under-weight	Mild under-weight	Thinness	Normal weight	Over-weight tendency	Overweight	Obesity
1--3	44	6.8	2.3	18.2	29.5	22.7	9.1	11.4
4--6	82	12.2	6.1	11.0	48.8	11.0	2.4	8.5
7--9	102	16.7	3.9	12.7	48.0	8.8	5.9	3.9
10--12	123	4.1	12.2	27.6	37.4	6.5	10.6	1.6
13-15	135	4.4	8.9	19.3	49.6	7.4	5.9	4.4
16-18	121	1.7	5.0	19.0	52.9	9.1	9.1	3.3
<b>Total</b>	<b>607</b>	<b>7.1</b>	<b>7.1</b>	<b>18.6</b>	<b>46.0</b>	<b>9.4</b>	<b>7.2</b>	<b>4.6</b>

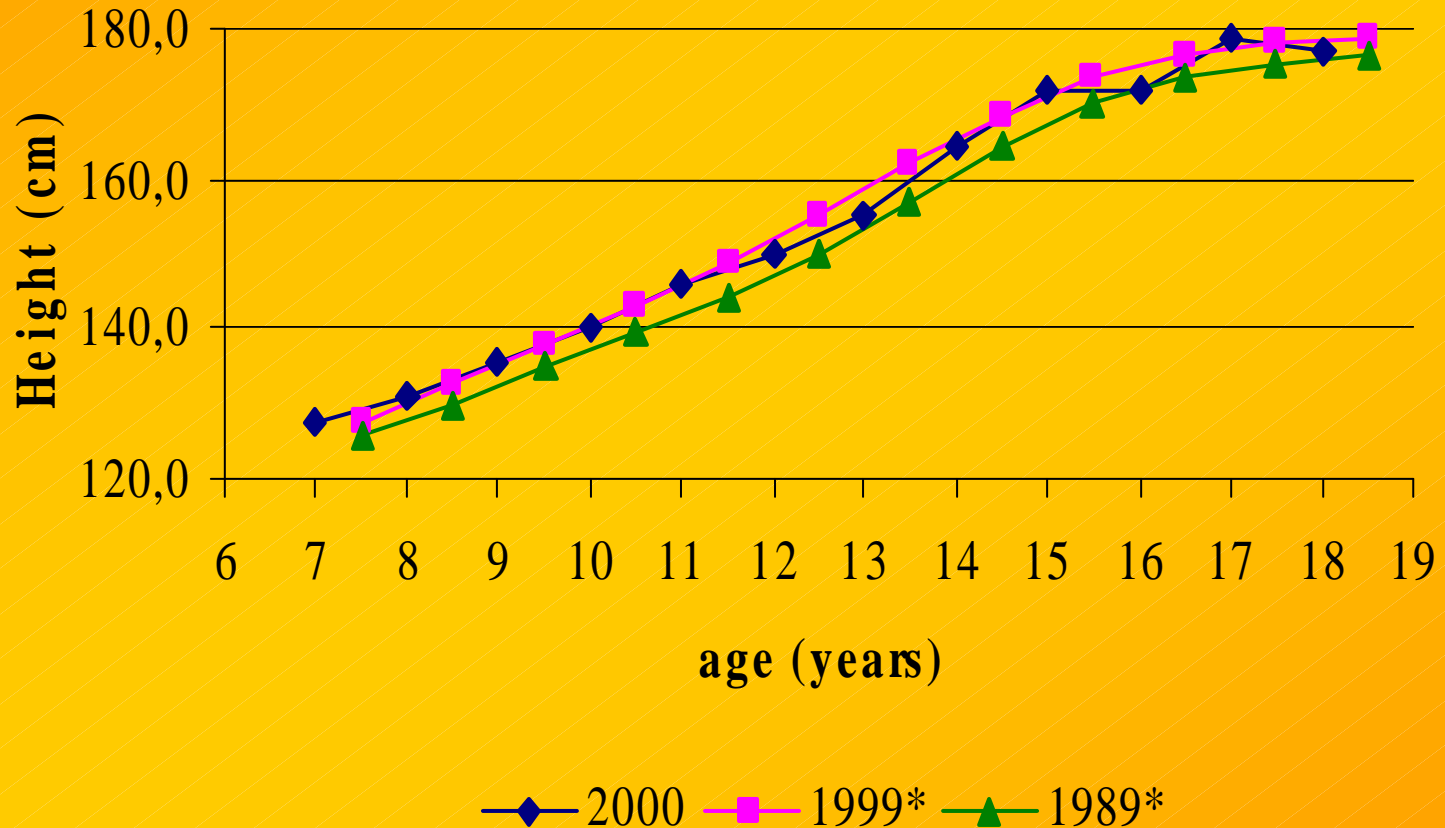
**Table 3. The frequency of underweight, normal weight, overweight and obesity in men (%)**

Age (years)	N	Under-weight	Normal weight	Overweight	Obesity	
		BMI<18.5	BMI 18.5-24.9	BMI 25.0-29.9	BMI 30.0-39.9	BMI>=40.0
19-29	279	2.2	66.0	27.6	4.3	-
30-39	232	-	44.0	44.4	11.6	-
40-49	310	0.3	36.8	42.9	19.0	1.0
50-59	206	0.5	27.2	47.1	24.8	0.5
60 and more	228	1.8	32.9	46.1	19.3	-
Total	1255	1.0	42.3	41.0	15.4	0.3

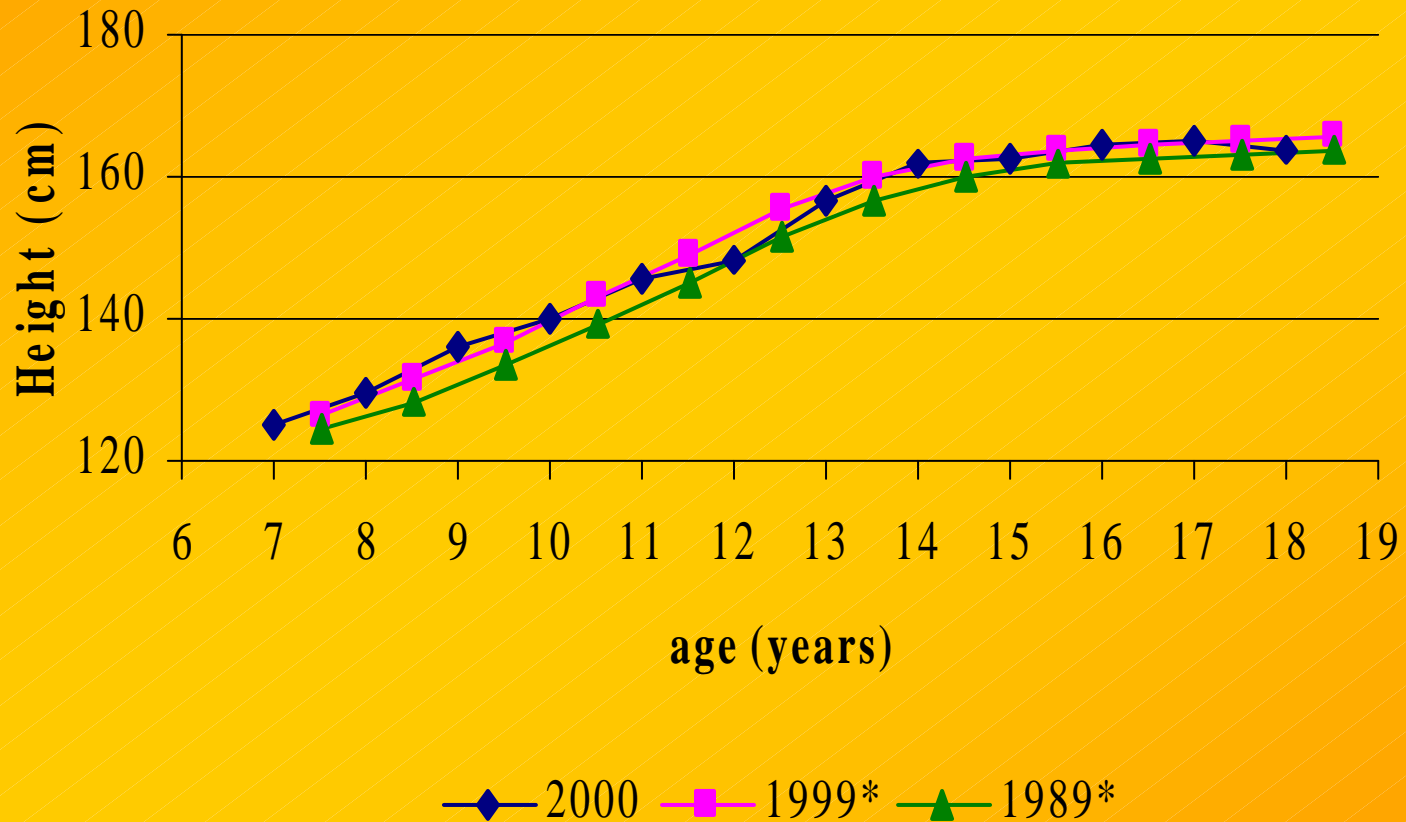
**Table 4. The frequency of underweight, normal weight, overweight and obesity in women (%)**

Age (years)	N	Under-weight	Normal weight	Overweight	Obesity	
		BMI<18.5	BMI 18.5-24.9	BMI 25.0-29.9	BMI 30.0-39.9	BMI ≥40.0
19-29	291	11.0	74.2	11.3	3.1	0.3
30-39	303	2.3	63.4	22.8	11.2	0.3
40-49	377	1.6	45.4	35.8	16.2	1.1
50-59	236	0.8	34.7	35.6	27.1	1.7
60 and more	363	1.1	26.2	35.5	35.5	1.7
Total	1570	3.2	48.2	28.7	18.9	1.0

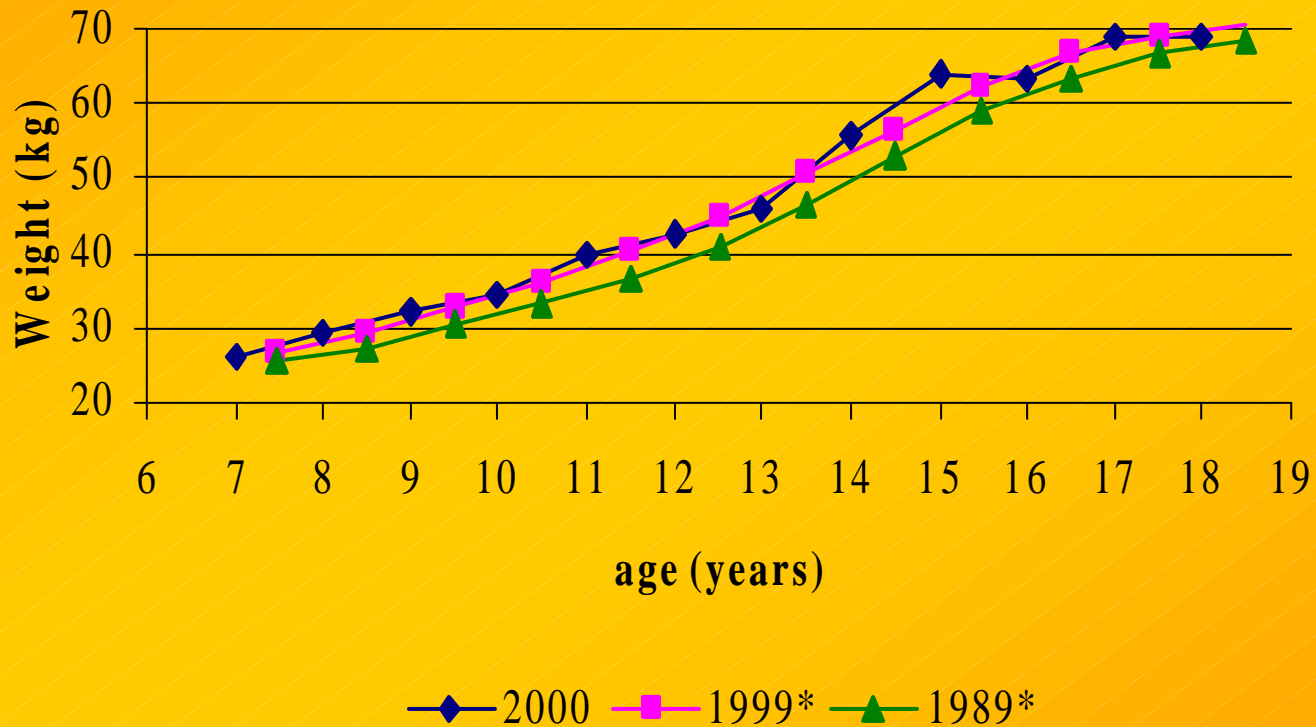
**Fig. 12. Height of boys in Poland in 1989-2000**



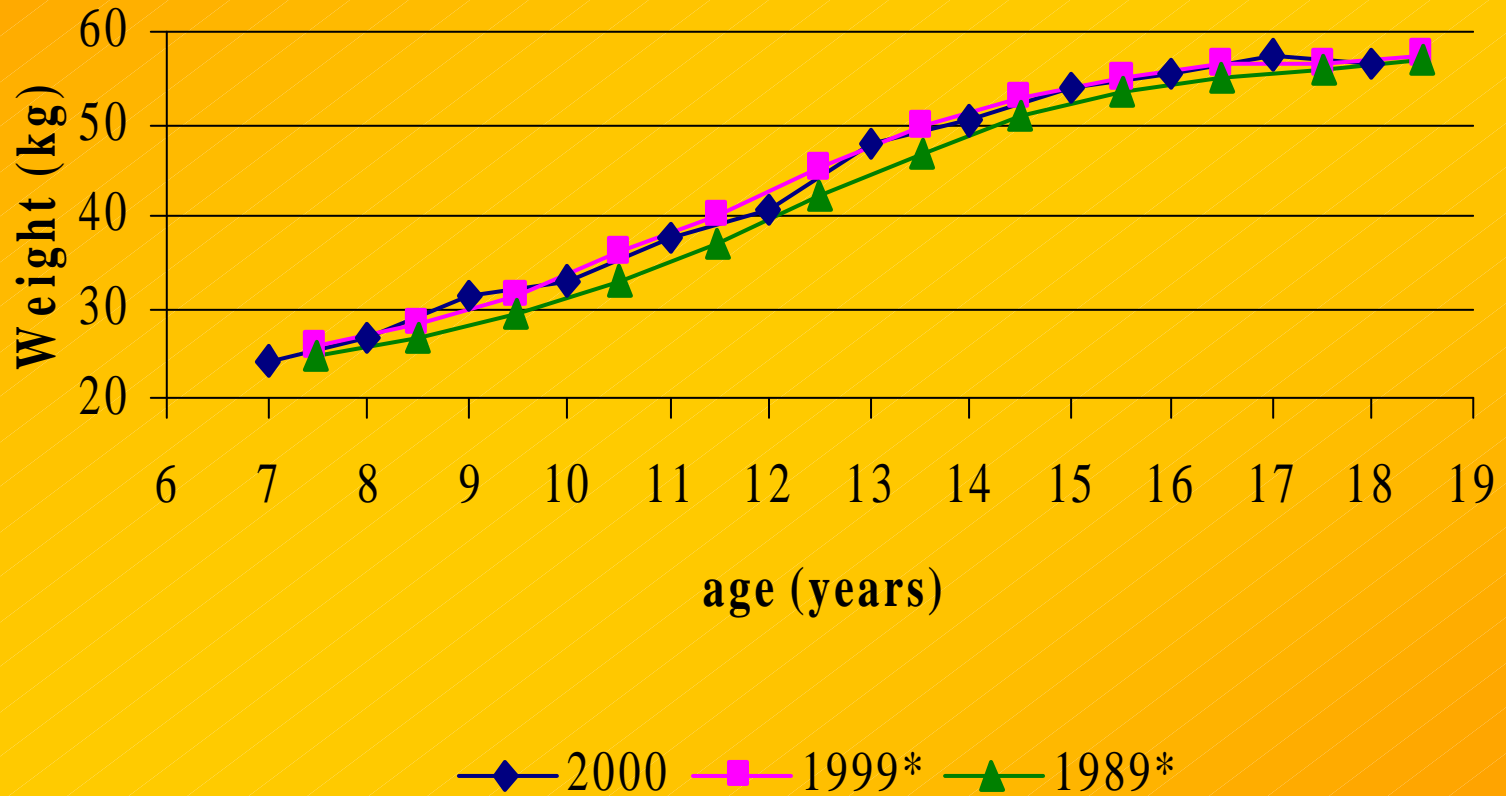
**Fig. 13. Height of girls in Poland in 1989-2000**



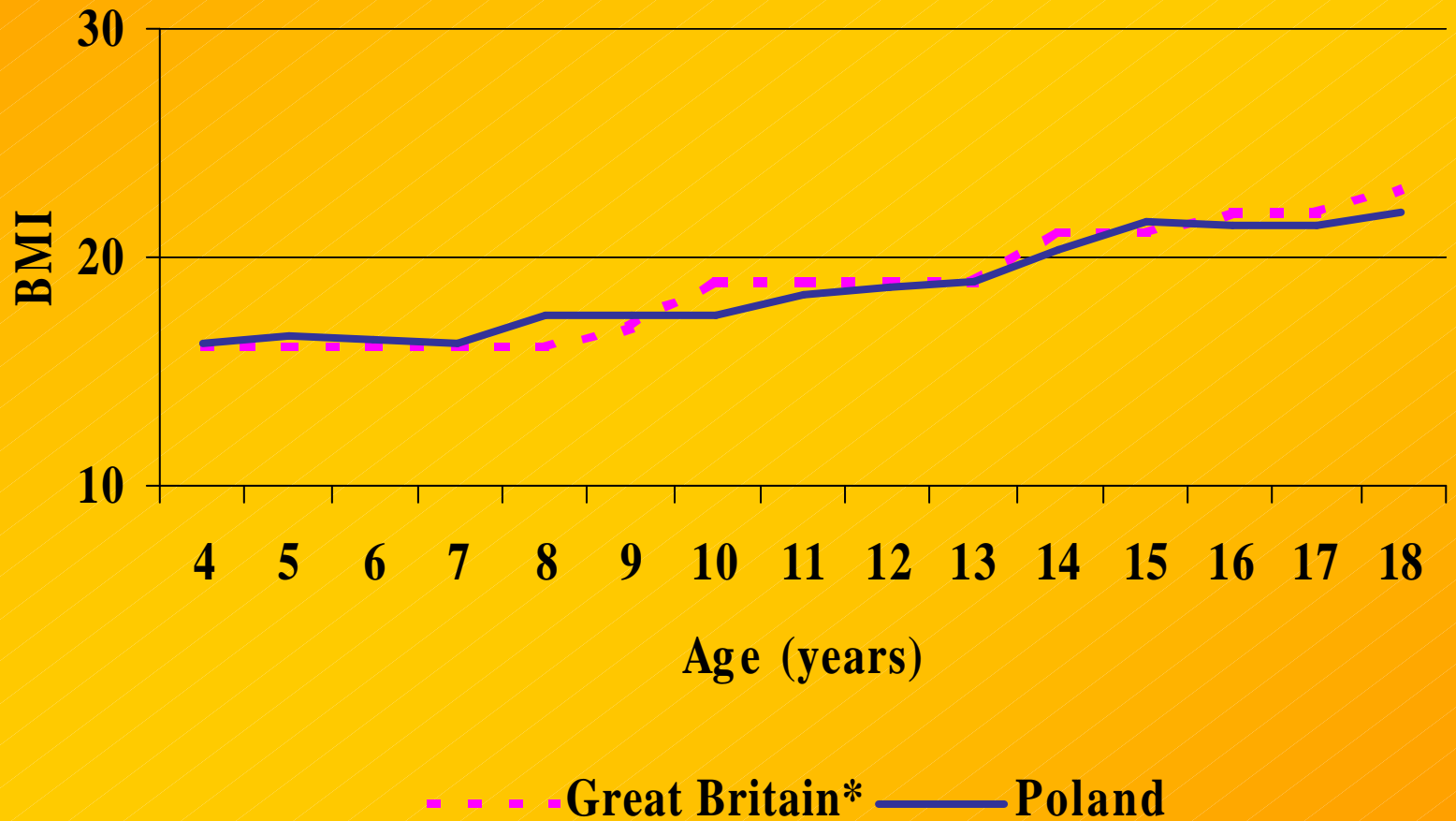
**Fig. 14. Weight of boys in Poland in 1989-2000**



**Fig. 15. Weight of girls in Poland in 1989-2000**



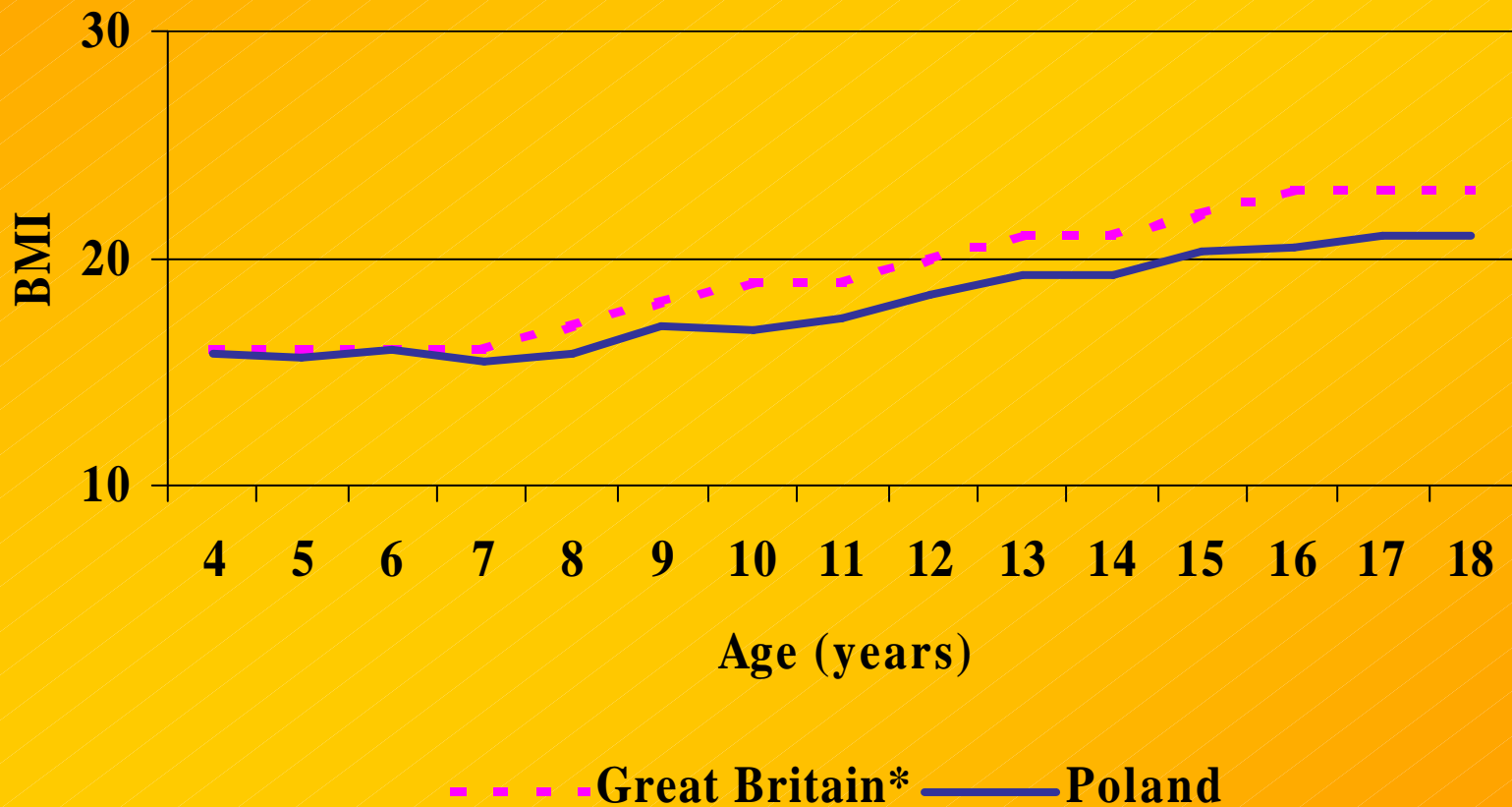
**Fig. 16. BMI of boys in Poland and Great Britain**



L. Szponar et al. National Survey on Dietary Habits and Nutritional Status of Polish Population in 2000

\* Office for National Statistics. National Diet and Nutrition Survey: young people aged 4 to 18 years. London 2000

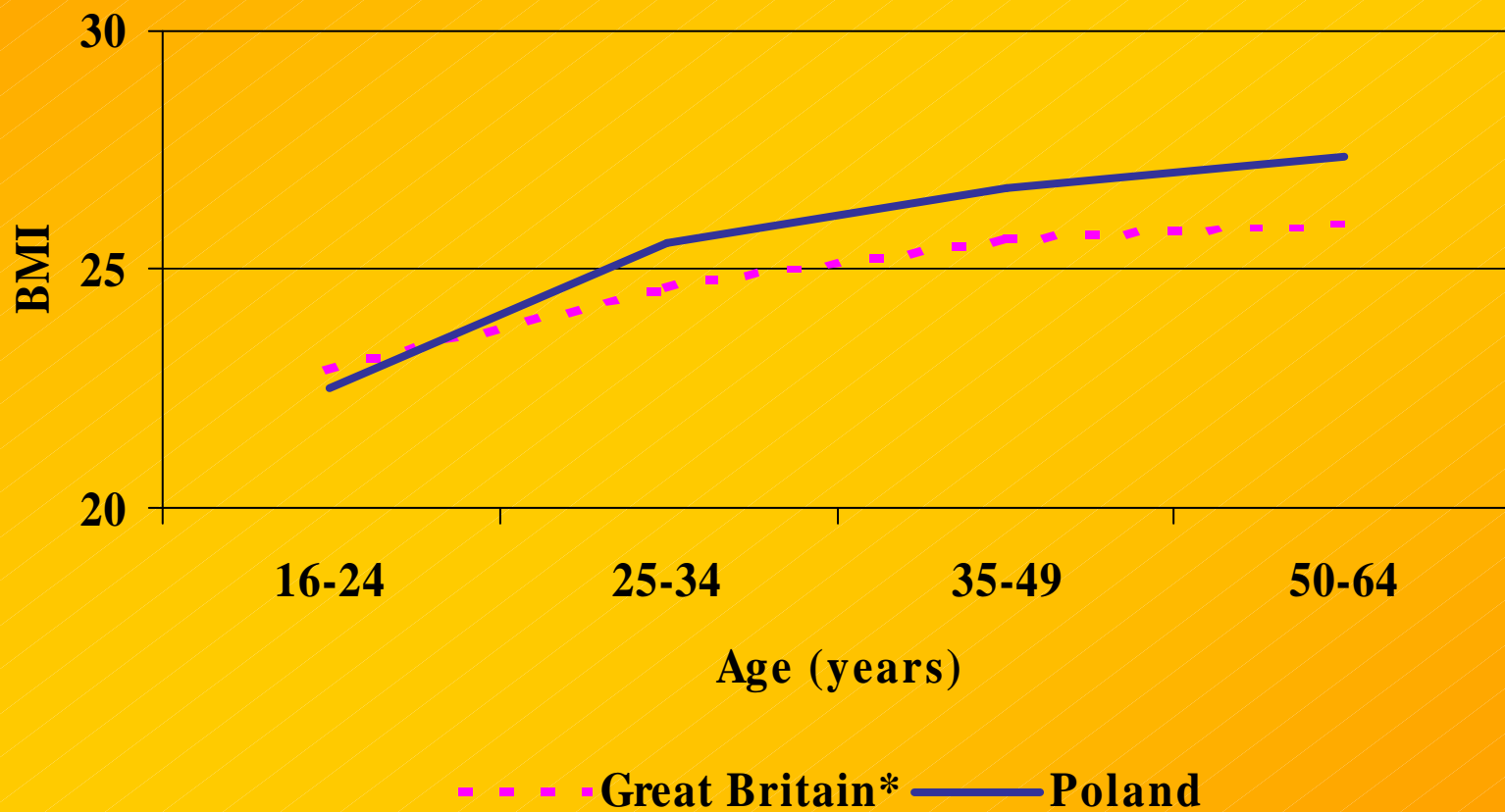
**Fig. 17. BMI of girls in Poland and Great Britain**



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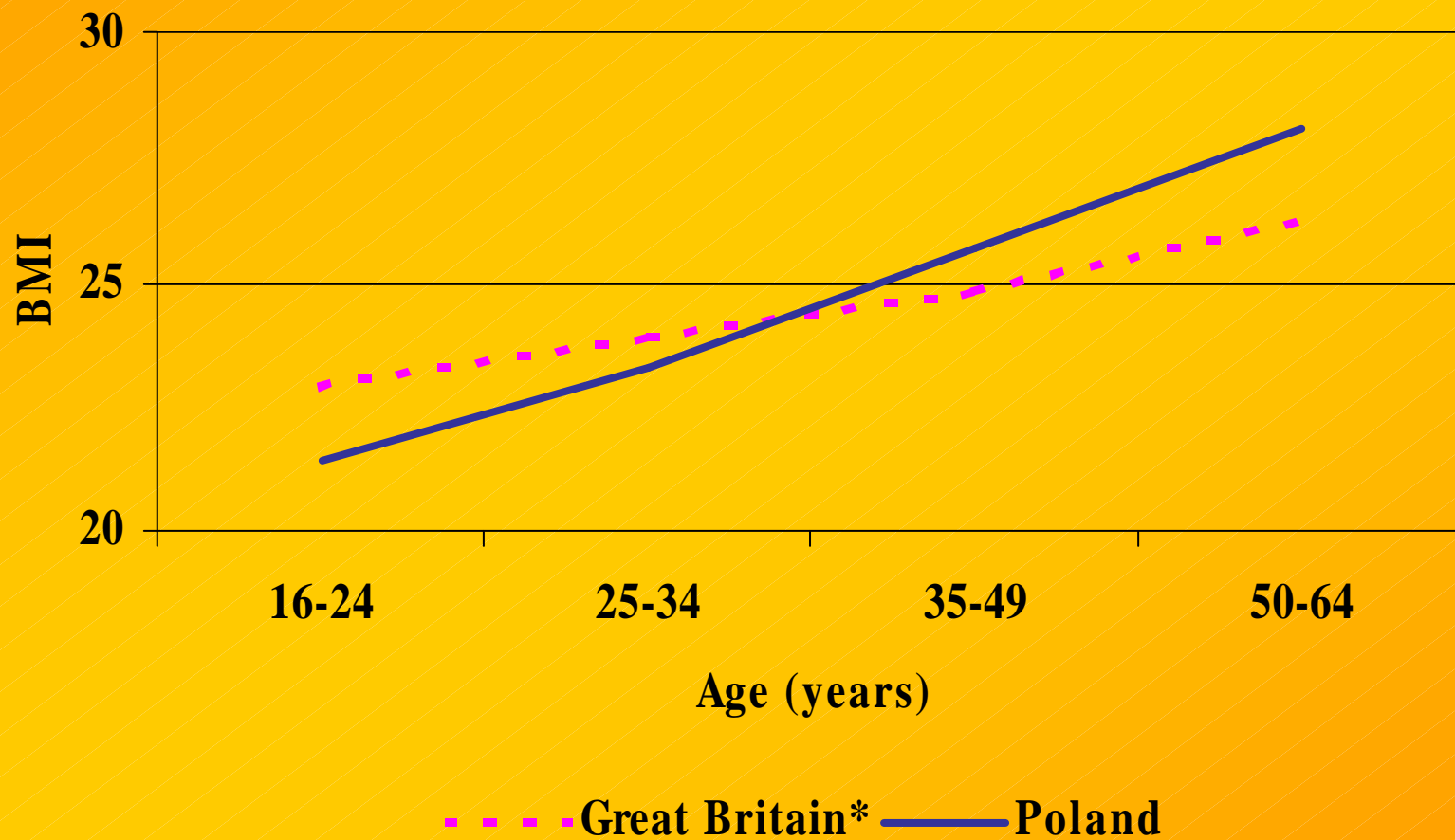
**Fig. 18. BMI of men in Poland and Great Britain**



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\* Office for National Statistics. National Diet and Nutrition Survey: young people aged 4 to 18 years. London 2000

**Fig. 19. BMI of women in Poland and Great Britain**



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\* Office for National Statistics. National Diet and Nutrition Survey: young people aged 4 to 18 years. London 2000

**In addition to 24h recall covering individual members of 1,362 households, the households recorded the data routinely collected in the Polish HBS of the *amount and cost of food purchased by the household or obtained by other means*. This provided the possibility of the direct comparison between the data obtained through the use of the two methods. Comparison covered 1,215 households as all their members provided 24h recall data. For direct comparison between the methods, food consumption data collected by the 24h recall (expressed is „as eaten” category) were converted into the „as purchased” equivalents.**

**Table 5. Average food consumption in 1215 households in September-November 2000  
assessed by the two methods.**

g/person/day

Food group	Household Budget Survey			24 - hour recall		
	$\bar{X}$	SD	Me	$\bar{X}$	SD	Me
<b>Bread and rolls</b>	232,7	103,2	213,6	171,8	84,9	162,5
<b>Potatoes</b>	566,8	997,0	250,0	267,8	204,0	262,5
<b>Vegetables (incl. process.)</b>	294,6	282,8	216,7	239,2	171,2	205,2
<b>Fruit (incl. process.) and nuts</b>	217,9	196,4	170,1	310,8	231,1	272,5
<b>Meat and meat products</b>	199,3	107,2	177,5	200,3	149,0	174,5
<b>Fish and products</b>	13,9	18,4	8,4	16,8	62,1	0,0
<b>Animal fats (excl. butter)</b>	9,0	19,4	0,0	7,0	13,8	0,0
<b>Vegetable fats and oils</b>	39,0	27,8	33,3	27,9	26,2	21,3
<b>Butter</b>	12,4	15,1	7,3	16,0	19,5	10,0
<b>Liquid milk</b>	202,7	161,2	171,5	130,9	144,4	90,7
<b>Eggs</b>	25,6	17,3	23,4	26,7	37,5	7,5
<b>Sugar</b>	60,8	68,0	44,4	39,2	26,4	34,7

**Table 6. Average food consumption in 1215 households in September-November 2000 assessed by the 24-hour recall compared to that in total household sample participating in HBS over 2000.**

g/person/day

Food group	Household Budget Survey (N=36163)			24 - hour recall (N=1215)		
	$\bar{X}$	SD	Me	$\bar{X}$	SD	Me
Bread and rolls	225,3	106,3	206,4	171,8	84,9	162,5
Potatoes	279,4	526,5	186,2	267,8	204,0	262,5
Vegetables (incl. process.)	206,0	199,4	152,9	239,2	171,2	205,2
Fruit (incl. process.) and nuts	180,0	171,3	135,2	310,8	231,1	272,5
Meat and meat products	195,9	118,3	171,9	200,3	149,0	174,5
Fish and products	16,6	23,7	9,2	16,8	62,1	0,0
Animal fats (excl. butter)	8,3	17,6	0,0	7,0	13,8	0,0
Vegetable fats and oils	36,7	27,8	30,9	27,9	26,2	21,3
Butter	11,6	14,9	6,7	16,0	19,5	10,0
Liquid milk	198,6	179,3	154,5	130,9	144,4	90,7
Eggs	26,4	19,7	23,3	26,7	37,5	7,5
Sugar	63,4	70,8	48,4	39,2	26,4	34,7

**Table 7. Average food consumption converted into energy and nutrients in 1215 households in September-November 2000 assessed by the two methods. person/day**

Contents	Unit	Household Budget Survey			24 - hour recall		
		$\bar{X}$	SD	Me	$\bar{X}$	SD	Me
Energy, total	kcal	2821,5	1310,9	2509,8	2342,9	776,5	2272,8
Protein: total	g	82,1	36,0	73,6	73,6	26,9	70,7
animal protein	g	45,5	20,0	41,3	46,7	22,1	44,5
vegetable protein	g	36,6	22,3	30,4	26,9	9,3	25,9
Fat, total	g	106,9	49,6	95,6	97,9	40,9	92,2
Assim. Carbohydrates	g	377,0	212,6	322,4	286,3	95,2	278,7
S.f.a	g	34,8	16,9	30,6	34,1	15,1	31,9
MUFA	g	44,9	21,8	39,7	40,9	18,5	38,1
PUFA	g	18,3	10,2	16,2	14,3	7,9	12,6
Cholesterol	mg	357,1	166,3	328,7	379,7	233,5	318,6
Dietary fibre	g	29,7	18,2	24,8	23,4	8,5	22,3

**Table 8. Average food consumption converted into energy and nutrients in 1215 households in September-November 2000 assessed by the 24-hour recall compared to that in total household sample participating in HBS over 2000.**

person/day

Contents	Unit	Household Budget Survey (N=36163)			24 - hour recall (N=1215)		
		$\bar{X}$	SD	Me	$\bar{X}$	SD	Me
Energy, total	kcal	2570,8	1189,0	2313,0	2342,9	776,5	2272,8
Protein: total	g	75,6	33,6	68,8	73,6	26,9	70,7
animal protein	g	45,7	22,1	41,5	46,7	22,1	44,5
vegetable protein	g	29,8	16,3	26,2	26,9	9,3	25,9
Fat, total	g	102,1	50,4	91,4	97,9	40,9	92,2
Assim. Carbohydrates	g	331,2	176,5	291,2	286,3	95,2	278,7
S.f.a	g	33,9	17,3	30,3	34,1	15,1	31,9
MUFA	g	43,1	22,1	38,3	40,9	18,5	38,1
PUFA	g	16,8	10,0	14,5	14,3	7,9	12,6
Cholesterol	mg	356,1	182,8	320,7	379,7	233,5	318,6
Dietary fibre	g	23,3	12,8	20,5	23,4	8,5	22,3

**The average daily energy value per person in households measured through the HBS carried out between Sep.–Nov. exceeded by almost 20% the value resulting from individual dietary survey. The protein and fat content were higher by 12% and 9%, respectively, while the carbohydrate content was higher by 32%.**

**Smaller differences were found when the results of the 24h recall were compared with the results of the HBS data collected over the entire year. Higher differences for Sep.-Nov. period reflected predominantly the ‘bulk’ of potato buying during the harvest season, a tradition that is still very popular in Poland.**

# Conclusions

**Nutritional pattern of Polish population is unsatisfactory in many aspects. The diets of most surveyed persons are imbalanced in terms of energy and nutrient content.**

**The nutritional pattern of males and females in Poland is characterised by:**

- higher than recommended intakes of energy, fat, particularly saturated fatty acids, cholesterol, sodium and vitamin A in most of the groups,**
- lower than recommended intakes of calcium, iron, zinc, copper and niacin in many age groups of both genders and vitamin B1 and B2 in some groups of women.**

# Conclusions

- **During the last decade Polish children and youth showed a clear improvement of the physical development and nutritional status.**
- **In comparison with British population Polish boys have similar BMI, Polish girls and young women are thinner than British ones. However the mean BMI in adult men and women over 35 years is higher in Poland than in Great Britain. Moreover an increase of BMI with age is more rapid in Polish than in British population.**

# Conclusions

- **The underweight could be a serious problem in young children (up to 6-9 years). Also in population of young women this abnormality is seen as relatively frequent.**
- **The proportion of overweight and obese children in Polish population is significant, especially in the youngest age groups. The prevalence of these abnormalities in adults is very high, especially in the groups over 40 year.**

# Conclusions

- **High prevalence of overweight and obesity in Poland, which affects over a half of the surveyed adults, is an important risk factor of cardiovascular diseases, diet-related cancers, diabetes and other food-related diseases.**