Nutritional Situation of the Elderly in the European Union: Data of the European Nutrition and Health Report (2004)

Elisabeth Fabian Ibrahim Elmadfa

Department of Nutritional Sciences, University of Vienna, Vienna, Austria

Key Words

Europe · Elderly · Nutrient intake

Abstract

Background: The European Nutrition and Health Report contains data about the nutritional situation of elderly of 11 EU countries. **Methods:** The assessment of the energy and nutrient intake was performed using different methods: 24-hour recall, (semiquantitative) FFQ, 4/7-day-weighted record, personal interview, HBS. **Results:** Compared to adults of the same country, the energy intake of elderly was on average lower. In most EU countries, the mean proportion of protein intake was within the recommended range while the share of carbohydrates was considerable low. The mean fat intake was remarkably high, the dietary fatty acid pattern predominantly imbalanced and the intake of cholesterol exceeded 300 mg/day in most European elderly. The average intake of vitamin D and folic acid was clearly below 10 and 400 µg/day, respectively, in elderly of all countries. Sodium intake was quite high in several participating countries, whereas calcium intake remained below 800 mg/d in all investigated states. The supply of vitamin A/C, thiamine, niacin, cobalamin, and the elements: magnesium, iron, zinc, copper, and manganese could generally be regarded as sufficient. Only in some countries the intake of these nutrients had to be assessed as unsaturated. **Conclusion:** Data analysis showed that the proportions of macronutrient intake of

European elderly are not balanced. Apart from vitamin D, calcium, folate, iodine, and sodium the mean intake of micronutrients could be regarded as acceptable.

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Introduction

The European Nutrition and Health Report is the first comprehensive assessment of the present status of nutrition and health in Europe, and of the available resources and requirements for compatible and representative data from different countries. Thirteen EU member states (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Portugal, Spain, Sweden, the United Kingdom, and Hungary) as well as Norway have participated in this project, pursuing three main goals: (1) the compilation of available nutrient intake and health data, (2) the identification of major nutrition and health problems in the participating countries and EU regions, and (3) the identification of problems concerning the methods and compatibility of data collection [1]. The European Nutrition and Health Report contains important information concerning the energy and nutrient intake of different population groups (children, adolescents, adults, elderly) in many European countries. National nutrient intake data of the elderly are presented from 11 countries.

Table 1. Intake of energy and macronutrients (mean $\pm$ SD) in European elderly

Country	Age years	n	Energy MJ	Protein %E	Carbohydrate, %E		Dietary fiber g	Fat %E	SFA %E	MUFA %E	PUFA %E	Choles- terol mg
					total	sucrose						
Males												
Austria	55–64	21	9.0 ± 3.2	16 ± 5	45 ± 9	8 ± 5	20 ± 7	36 ± 6	16 ± 2	15 ± 2	5 ± 2	466 ± 232
	65–74	22	8.7 ± 2.3	16 ± 5	45 ± 10	8 ± 4	23 ± 9	36 ± 7	17 ± 3	14 ± 2	5 ± 2	323 ± 113
	75–84	22	8.7 ± 2.3	16 ± 5	42 ± 6	7 ± 3	22 ± 9	40 ± 6	20 ± 3	15 ± 2	5 ± 2	377 ± 119
	≥85	22	7.4 ± 2.4	14 ± 5	44 ± 11	11 ± 15	15 ± 5	40 ± 8	20 ± 3	15 ± 2	5 ± 2	354 ± 155
Belgium	70–75	120	10.4 ± 2.9	13 ± 3	41 ± 7	n.a.	n.a.	41 ± 7	16 ± 4	15 ± 5	9 ± 5	318 ± 140
Denmark	65–74	122	10.9	14	41	7 ⁴	25	39	17	12	5	466
	75–80	64	10.5	13	41	7 ⁴	20	38	16	11	6	415
Germany	≥65	1,509	12.3	13	45	12	31	36	14	12	7	358
Greece	65–74	2,377	8.5 ± 2.5	14 ± 2	40 ± 6	n.a.	n.a.	44 ± 5	12 ± 3	21 ± 4	7 ± 3	n.a.
	≥75	340	7.9 ± 2.3	14 ± 2	41 ± 6	n.a.	n.a.	44 ± 6	12 ± 3	21 ± 4	6 ± 3	n.a.
Hungary	≥60	55	11.8 ± 3.5	15 ± 2	44 ± 6	14 ± 6	n.a.	39 ± 6	15 ± 6	16 ± 7	4 ± 2	474 ± 212
	70–75	21	11.2 ± 4.7	12 ± 2	49 ± 12	n.a.	n.a.	32 ± 8	12 ± 3	12 ± 3	5 ± 3	333 ± 200
Italy ¹	≥65	n.a.	8.2 ± 2.0	16 ± 4	46 ± 13	14 ± 5	20 ± 7	32 ± 10	10 ± 3	13 ± 5	5 ± 3	291 ± 115
Norway	60–79	n.a.	8.8	16	52	8	25	30	12	11	5	292
Portugal	70–75	77	8.0 ± 2.5	16.4 ± 2.9	52.4 ± 9.4	n.a.	n.a.	25.7 ± 5.7	8.4 ± 2.6	10.5 ± 2.6	3.8 ± 1.3	223 ± 85
Spain	65–75	382	7.8	17	46	n.a.	19	33	10	15	5	343
UK	65–74	313	8.2 ± 2.0	15 ± 3 ²	49 ± 7 ²	13 ± 7 ²	20 ± 8 ³	35 ± 7 ²	14 ± 4 ²	11 ± 2 ²	6 ± 2 ²	302 ± 122
	75–84	360	7.8 ± 1.9	15 ± 3 ²	51 ± 7 ²	15 ± 8 ²	18 ± 7 ³	35 ± 6 ²	15 ± 3 ²	11 ± 2 ²	5 ± 2 ²	288 ± 130
	≥85	178	7.5 ± 2.0	14 ± 3 ²	51 ± 7 ²	17 ± 8 ²	16 ± 6 ³	36 ± 5 ²	16 ± 3 ²	11 ± 2 ²	5 ± 2 ²	283 ± 119
Females												
Austria	55–64	180	7.5 ± 2.3	16 ± 4	47 ± 9	9 ± 5	21 ± 8	36 ± 9	17 ± 4	14 ± 3	5 ± 3	299 ± 172
	65–74	121	7.5 ± 2.0	16 ± 5	46 ± 8	9 ± 5	20 ± 7	37 ± 7	17 ± 3	14 ± 2	6 ± 2	325 ± 222
	75–84	160	7.4 ± 1.9	16 ± 5	45 ± 9	9 ± 5	18 ± 7	38 ± 8	19 ± 4	14 ± 2	5 ± 2	300 ± 130
	>84	93	7.1 ± 2.0	16 ± 4	43 ± 9	9 ± 5	16 ± 6	40 ± 8	20 ± 3	15 ± 2	5 ± 2	337 ± 225
Belgium	70–75	100	8.4 ± 1.9	14 ± 3	43 ± 8	n.a.	n.a.	42 ± 8	17 ± 5	15 ± 4	8 ± 4	273 ± 107
Denmark	65–74	103	8.5	16	43	84	19	39	17	11	5	382
	75–80	44	8.2	14	45	94	18	38	17	11	5	387
Germany	≥65	1,690	9.6	13	46	15	23	38	16	13	6	328
Greece	65–74	3,439	6.8 ± 2.0	14 ± 2	42 ± 6	n.a.	n.a.	45 ± 5	12 ± 3	22 ± 4	7 ± 3	n.a.
	≥75	344	6.4 ± 2.2	14 ± 2	42 ± 6	n.a.	n.a.	45 ± 5	12 ± 3	21 ± 4	7 ± 3	n.a.
Hungary	≥55	105	9.7 ± 2.6	15 ± 2	47 ± 7	17 ± 6	n.a.	37 ± 6	14 ± 5	15 ± 6	4 ± 2	375 ± 169
	70–75	26	9.7 ± 2.9	14 ± 2	51 ± 7	n.a.	n.a.	35 ± 7	13 ± 3	12 ± 3	6 ± 2	328 ± 108
Italy ¹	≥65	n.a.	8.2 ± 2.0	16 ± 4	46 ± 13	14 ± 5	20 ± 7	32 ± 10	10 ± 3	13 ± 5	5 ± 3	291 ± 115
Norway	60–79	n.a.	7.1	17	53	8	22	29	12	11	5	222
Portugal	70–75	80	5.5 ± 1.6	17 ± 3	56.2 ± 7.3	n.a.	n.a.	27.7 ± 6.2	9.2 ± 2.8	11.1 ± 3.1	4.4 ± 1.5	178 ± 87
Spain	65–75	429	6.5	18	47	n.a.	16	34	11	15	4	304
UK	65–74	278	6.1 ± 1.5	16 ± 4 ²	50 ± 7 ²	12 ± 6 ²	17 ± 6 ³	36 ± 6 ²	15 ± 4 ²	11 ± 2 ²	6 ± 2 ²	224 ± 95
	75–84	303	6.1 ± 1.6	16 ± 3 ²	51 ± 6 ²	14 ± 7 ²	15 ± 5 ³	36 ± 6 ²	15 ± 4 ²	11 ± 2 ²	6 ± 2 ²	230 ± 96
	≥85	301	6.1 ± 1.6	14 ± 3 ²	52 ± 7 ²	16 ± 8 ²	14 ± 5 ³	37 ± 6 ²	16 ± 4 ²	11 ± 2 ²	5 ± 2 ²	228 ± 102
Reference values*				10–15**	>55	<10**	>25	<30	<10		6–10	<300**

¹ Men and women. ² % of total food energy (excluding alcohol). ³ Nonstarchy polysaccharides. ⁴ Added sucrose.

* Eurodiet, 2000; ** WHO, 2003. n.a. = Not available.

Methods

The assessment of the nutritional intake of European elderly was performed using different methods: 24-hour recalls, (semi-quantitative) Food Frequency Questionnaires (FFQ), 4/7-day-weighted records, personal interviews, and Household Budget Surveys (HBS).

Results

Energy and Macronutrients

In comparison to younger adults of the same country, the energy intake of elderly was on average lower. Except for Spanish and Norwegian women, the mean proportion of protein in total energy intake was within the recommended range in most countries, or slightly above (ta-

Table 2. Intake (mean $\pm$ SD) of selected vitamins in European elderly

Country	Age years	n	Vitamin A ¹ mg	Vitamin D μ g	Vitamin E ² mg	Thia- mine mg	Ribo- flavin mg	Niacin ³ mg	Vitamin B ₆ mg	Folate ⁴ μ g	Cobal- amin μ g	Ascorbic acid mg
<i>Males</i>												
Austria	55–64	21	1.5 $\pm$ 1.6	5.0 $\pm$ 5.7	9.9 $\pm$ 4.2	1.4 $\pm$ 0.7	1.5 $\pm$ 0.8	31 $\pm$ 13	1.6 $\pm$ 0.6	234 $\pm$ 92	5.3 $\pm$ 3.4	97 $\pm$ 85
	65–74	22	1.3 $\pm$ 1.1	5.1 $\pm$ 5.3	9.0 $\pm$ 3.1	1.2 $\pm$ 0.4	1.5 $\pm$ 0.4	27 $\pm$ 7	1.4 $\pm$ 0.4	232 $\pm$ 70	4.9 $\pm$ 2.6	113 $\pm$ 104
	75–84	22	1.2 $\pm$ 0.8	3.4 $\pm$ 2.2	9.3 $\pm$ 4.1	1.2 $\pm$ 0.4	1.4 $\pm$ 0.3	28 $\pm$ 8	1.5 $\pm$ 0.5	232 $\pm$ 80	5.3 $\pm$ 3.2	109 $\pm$ 86
	≥ 85	22	0.9 $\pm$ 0.4	3.4 $\pm$ 3.1	6.2 $\pm$ 2.9	1.0 $\pm$ 0.4	1.3 $\pm$ 0.5	23 $\pm$ 9	1.1 $\pm$ 0.4	174 $\pm$ 61	4.0 $\pm$ 1.8	93 $\pm$ 133
Denmark	65–74	122	1.6	4.1	9.2	1.3	1.9	36	1.7	301	6.8	79
	75–80	64	1.4	3.7	10.8	1.2	1.7	29	1.5	259	5.7	69
Germany	≥ 65	1,509	1.7	4.9	19.2	1.7	1.9	39	2.4	286	7.7	144
Hungary	≥ 60	55	0.8 $\pm$ 0.6	n.a.	7.2 $\pm$ 3.4	1.1 $\pm$ 0.4	1.4 $\pm$ 0.5	19 $\pm$ 8	2.0 $\pm$ 0.7	n.a.	n.a.	91 $\pm$ 64
	70–75	21	0.3 $\pm$ 0.1	n.a.	n.a.	0.6 $\pm$ 0.5	0.9 $\pm$ 0.4	n.a.	1.3 $\pm$ 0.8	n.a.	n.a.	66 $\pm$ 31
Italy ⁵	≥ 65	n.a.	1.2 $\pm$ 1.2	2.5 $\pm$ 1.8	10.9 $\pm$ 4.4	1.0 $\pm$ 0.3	1.5 $\pm$ 0.5	18 $\pm$ 5	1.9 $\pm$ 0.5	295 $\pm$ 166	n.a.	109 $\pm$ 60
Norway	60–79	n.a.	1.6	5.8	n.a.	1.5	1.7	17	n.a.	n.a.	n.a.	117
Portugal ⁶	70–75	77	0.64	n.a.	n.a.	1.08	1.65	n.a.	1.38	n.a.	n.a.	87
Spain	65–75	382	1.2	4.1	7.9	1.1	1.5	19	1.8	311	7.4	124
UK	65–74	313	0.9 $\pm$ 1.6	4.6 $\pm$ 3.7	10.2 $\pm$ 9.8	1.6 $\pm$ 0.6	1.8 $\pm$ 0.8	33 $\pm$ 9	2.2 $\pm$ 0.8	283 $\pm$ 108	6.3 $\pm$ 5.7	74 $\pm$ 62
	75–84	360	0.8 $\pm$ 1.6	4.1 $\pm$ 2.9	8.7 $\pm$ 5.1	1.4 $\pm$ 0.6	1.7 $\pm$ 0.8	30 $\pm$ 9	2.0 $\pm$ 0.7	248 $\pm$ 103	5.3 $\pm$ 5.8	61 $\pm$ 51
	≥ 85	178	0.8 $\pm$ 1.1	3.7 $\pm$ 2.4	7.9 $\pm$ 9.1	1.4 $\pm$ 0.5	1.8 $\pm$ 0.8	28 $\pm$ 9	1.8 $\pm$ 0.7	238 $\pm$ 96	5.0 $\pm$ 4.3	59 $\pm$ 80
Reference values*			0.7	10**	–	1.1	1.6	18	1.5	200/400**	1.4	45
<i>Females</i>												
Austria	55–64	180	1.1 $\pm$ 0.9	3.4 $\pm$ 4.4	8.6 $\pm$ 5.2	1.2 $\pm$ 0.5	1.4 $\pm$ 0.6	25 $\pm$ 8	1.4 $\pm$ 0.6	223 $\pm$ 88	3.9 $\pm$ 2.1	109 $\pm$ 73
	65–74	121	1.2 $\pm$ 1.2	4.7 $\pm$ 6.2	9.3 $\pm$ 5.5	1.1 $\pm$ 0.5	1.5 $\pm$ 0.6	25 $\pm$ 10	1.4 $\pm$ 0.6	210 $\pm$ 68	4.4 $\pm$ 2.9	98 $\pm$ 66
	75–84	160	1.1 $\pm$ 1.1	3.6 $\pm$ 6.1	7.2 $\pm$ 3.2	1.0 $\pm$ 0.4	1.4 $\pm$ 0.5	24 $\pm$ 8	1.3 $\pm$ 0.5	189 $\pm$ 67	4.1 $\pm$ 2.5	87 $\pm$ 63
	>84	93	1.0 $\pm$ 1.0	3.1 $\pm$ 3.5	6.3 $\pm$ 2.7	0.9 $\pm$ 0.4	1.3 $\pm$ 0.6	23 $\pm$ 8	1.2 $\pm$ 0.5	166 $\pm$ 60	3.9 $\pm$ 2.3	71 $\pm$ 62
Denmark	65–74	103	1.6	3.3	7.8	1.1	1.6	29	1.4	261	6.1	79
	75–80	44	1.6	3.2	7.8	1.0	1.6	24	1.3	273	6.2	77
Germany	≥ 65	1,690	1.5	3.1	13.1	1.2	1.6	30	1.6	231	5.5	123
Hungary	≥ 55	105	0.8 $\pm$ 0.6	n.a.	7.1 $\pm$ 3.7	1.0 $\pm$ 0.4	1.2 $\pm$ 0.4	17 $\pm$ 6	1.8 $\pm$ 0.6	n.a.	3.8 $\pm$ 4.8	94 $\pm$ 62
	70–75	26	0.4 $\pm$ 0.2	n.a.	n.a.	0.8 $\pm$ 0.5	1.2 $\pm$ 0.7	n.a.	n.a.	n.a.	n.a.	56 $\pm$ 34
Italy ⁵	≥ 65	n.a.	1.2 $\pm$ 1.2	2.5 $\pm$ 1.8	10.9 $\pm$ 4.4	1.0 $\pm$ 0.3	1.5 $\pm$ 0.5	18 $\pm$ 5	n.a.	n.a.	n.a.	109 $\pm$ 60
Norway	60–79	n.a.	1.6	4.0	n.a.	1.2	1.5	14	n.a.	n.a.	n.a.	123
Portugal ⁶	70–75	80	0.51	n.a.	n.a.	0.62	1.24	n.a.	0.93	n.a.	n.a.	62
Spain	65–75	429	1.1	2.9	n.a.	1.0	1.6	17	1.5	272	6.2	118
UK	65–74	278	0.8 $\pm$ 1.2	3.4 $\pm$ 2.7	11.1 $\pm$ 37.6	1.7 $\pm$ 6.0	1.9 $\pm$ 6.1	27 $\pm$ 10	2.3 $\pm$ 6.9	226 $\pm$ 92	4.6 $\pm$ 4.2	73 $\pm$ 58
	75–84	303	0.8 $\pm$ 1.2	3.4 $\pm$ 2.7	9.1 $\pm$ 35.6	1.3 $\pm$ 0.7	1.6 $\pm$ 0.9	25 $\pm$ 10	1.7 $\pm$ 0.9	213 $\pm$ 114	3.9 $\pm$ 3.3	58 $\pm$ 53
	≥ 85	301	0.7 $\pm$ 1.4	3.0 $\pm$ 2.1	7.1 $\pm$ 10.6	1.1 $\pm$ 0.4	1.4 $\pm$ 0.6	23 $\pm$ 8	1.5 $\pm$ 0.7	189 $\pm$ 86	4.3 $\pm$ 3.9	52 $\pm$ 63
Reference values*			0.6	10**	–	0.9	1.3	14	1.1	200/400**	1.4	45

¹ Retinol equivalent (= 1 mg all-trans retinol = 6 mg all-trans β -carotene = 12 mg other carotenoids). ² RRR- α -Tocopherol equivalent (= mg α -tocopherol + mg β -tocopherol $\times$ 0.5 + mg γ -tocopherol $\times$ 0.25 + mg α -tocotrienol $\times$ 0.33). ³ Niacin equivalent (= 1 mg niacin = 60 mg tryptophan). ⁴ Folate equivalent (= 1 μ g food folate = 0.5 μ g folic acid (PGA) = 0.6 μ g folic acid taken with meals). ⁵ Preformed retinol. ⁶ Values corresponded to the median (P50).

* SCF, 1993; ** Eurodiet, 2000. n.a. = Not available.

ble 1). The mean share of carbohydrate was considerably low – the recommended level (RL) of at least 55%E [2] was only reached by Portuguese women. The lowest carbohydrate intake was observed in men of Belgium, Denmark, and Greece, the highest in Norwegian, Portuguese and UK elderly and Hungarian women. The carbohydrate intake was on average higher in elderly women than in men. Apart from Germany, the UK, and Hungary the mean intake of sucrose was found to be generally below the rec-

ommended level of 10%E [3]. The highest consumption of sucrose (17 $\pm$ 6%E) could be observed in Hungarian elderly women. The consumption of dietary fiber varied strongly among the participating countries. The lowest intake was found in Austrian and UK (both sexes ≥ 85 years: 14 $\pm$ 5 g/day) as well as Spanish (women, 65–75 years) elderly, the highest in Norwegian, Danish, and German men (25–31 g/day).

Table 3. Dietary intake (mean $\pm$ SD) of selected minerals and trace elements in European elderly

Country	Age years	n	Sodium g	Potassium g	Calcium mg	Phosphorus mg	Magnesium mg	Iron mg	Zinc mg	Iodine μ g
<i>Males</i>										
Austria	55–64	21	n.a.	2.6 $\pm$ 1.2	635 $\pm$ 402	n.a.	311 $\pm$ 152	14.2 $\pm$ 5.4	12.7 $\pm$ 7.1	123 $\pm$ 52
	65–74	22	n.a.	2.8 $\pm$ 1.0	959 $\pm$ 400	n.a.	341 $\pm$ 98	14.7 $\pm$ 4.3	12.5 $\pm$ 3.9	136 $\pm$ 54
	75–84	22	n.a.	2.5 $\pm$ 0.8	695 $\pm$ 266	n.a.	281 $\pm$ 85	14.4 $\pm$ 6.0	11.8 $\pm$ 3.3	119 $\pm$ 23
	$\geq$ 85	22	n.a.	1.9 $\pm$ 1.9	642 $\pm$ 642	n.a.	233 $\pm$ 84	10.0 $\pm$ 2.9	9.1 $\pm$ 3.3	102 $\pm$ 34
Denmark	65–74	122	3.6	3.8	954	1,641	380	11.9	13.5	143
	75–80	64	3.4	3.3	822	1,404	334	9.7	11.1	101
Germany	$\geq$ 65	1,509	4.3	4.2	1,031	1,657	474	17.8	13.5	127
Hungary	$\geq$ 60	55	7.4 $\pm$ 1.9	2.9 $\pm$ 0.8	699 $\pm$ 365	n.a.	381 $\pm$ 112	12.4 $\pm$ 3.8	n.a.	n.a.
	70–75	21	n.a.	n.a.	638 $\pm$ 220	n.a.	n.a.	9.7 $\pm$ 2.8	n.a.	n.a.
Italy ¹	$\geq$ 65	n.a.	5.4 $\pm$ 2.9	3.0 $\pm$ 0.8	845 $\pm$ 263	1,242 $\pm$ 295	199 $\pm$ 56	12.6 $\pm$ 4.0	10.7 $\pm$ 3.1	n.a.
Norway	60–79	n.a.	n.a.	n.a.	900	n.a.	n.a.	11.0	n.a.	n.a.
Portugal ²	70–75	77	n.a.	n.a.	766	n.a.	n.a.	12.8	n.a.	n.a.
Spain	65–75	382	1.7	3.0	714	1,218	295	12.5	n.a.	n.a.
UK	65–74	313	2.8 $\pm$ 0.9	2.8 $\pm$ 0.8	856 $\pm$ 290	1,261 $\pm$ 340	258 $\pm$ 79	11.5 $\pm$ 6.6	9.0 $\pm$ 2.7	193 $\pm$ 82
	75–84	360	2.7 $\pm$ 0.9	2.5 $\pm$ 0.7	840 $\pm$ 302	1,179 $\pm$ 331	233 $\pm$ 77	10.6 $\pm$ 3.9	8.4 $\pm$ 2.8	185 $\pm$ 80
	$\geq$ 85	178	2.6 $\pm$ 0.9	2.3 $\pm$ 0.6	847 $\pm$ 285	1,134 $\pm$ 308	214 $\pm$ 69	10.1 $\pm$ 4.1	8.0 $\pm$ 2.6	177 $\pm$ 73
Reference values*			0.6–3.5	3.1	700/>800**	550	150–500	9	9.5	130
<i>Females</i>										
Austria	55–64	180	n.a.	2.6 $\pm$ 0.9	831 $\pm$ 409	n.a.	286 $\pm$ 98	12.6 $\pm$ 6.6	10.4 $\pm$ 3.3	130 $\pm$ 56
	65–74	121	n.a.	2.6 $\pm$ 0.9	799 $\pm$ 402	n.a.	288 $\pm$ 101	12.3 $\pm$ 5.0	10.3 $\pm$ 3.7	135 $\pm$ 55
	75–84	160	n.a.	2.3 $\pm$ 0.8	780 $\pm$ 361	n.a.	271 $\pm$ 110	11.0 $\pm$ 4.1	10.1 $\pm$ 3.1	122 $\pm$ 56
	$>$ 84	93	n.a.	2.1 $\pm$ 0.8	649 $\pm$ 351	n.a.	235 $\pm$ 86	11.1 $\pm$ 7.3	9.2 $\pm$ 3.4	111 $\pm$ 42
Denmark	65–74	103	2.8	3.2	912	1,366	307	9.0	11.2	111
	75–80	44	2.5	2.8	864	1,264	276	8.5	9.8	115
Germany	$\geq$ 65	1,690	3.0	3.5	886	1,276	377	13.4	10.1	91
Hungary	$\geq$ 55	105	6.2 $\pm$ 1.8	2.7 $\pm$ 0.8	613 $\pm$ 264	n.a.	328 $\pm$ 96	10.8 $\pm$ 3.3	n.a.	n.a.
	70–75	26	n.a.	n.a.	838 $\pm$ 527	n.a.	n.a.	9.8 $\pm$ 5.1	n.a.	n.a.
Italy ¹	$\geq$ 65	n.a.	5.4 $\pm$ 2.9	3.0 $\pm$ 0.8	845 $\pm$ 263	1,242 $\pm$ 295	199 $\pm$ 56	12.6 $\pm$ 4.0	10.7 $\pm$ 3.1	n.a.
Norway	60–79	n.a.	n.a.	n.a.	800	n.a.	n.a.	9.0	n.a.	n.a.
Portugal ²	70–75	80	n.a.	n.a.	548	n.a.	n.a.	7.0	n.a.	n.a.
Spain	65–75	429	1.5	2.9	759	1,133	250	10.1	n.a.	n.a.
UK	65–74	278	2.1 $\pm$ 0.7	2.3 $\pm$ 0.6	720 $\pm$ 251	1,032 $\pm$ 275	208 $\pm$ 61	9.4 $\pm$ 3.5	7.2 $\pm$ 2.2	154 $\pm$ 62
	75–84	303	2.1 $\pm$ 0.6	2.1 $\pm$ 0.5	729 $\pm$ 270	983 $\pm$ 268	188 $\pm$ 60	8.4 $\pm$ 3.0	7.0 $\pm$ 2.8	151 $\pm$ 63
	$\geq$ 85	301	2.0 $\pm$ 0.7	2.0 $\pm$ 0.6	718 $\pm$ 273	940 $\pm$ 278	178 $\pm$ 55	7.9 $\pm$ 2.9	6.5 $\pm$ 2.3	149 $\pm$ 67
Reference values*			0.6–3.5	3.1	700/>800**	550	150–500	9	7	130

¹ Men and women. ² Values corresponded to the median (P50).

* SCF, 1993; ** Eurodiet, 2000. n.a. = Not available.

The mean fat intake was remarkably high (maximum: Greece 45 $\pm$ 5%E; minimum: Norway 29–30%E) in European elderly. With exception of Greece, countries with a high fat intake also had a high intake of saturated fatty acids (SFA) (up to 20%E) [2]. The mean intake of polyunsaturated fatty acids (PUFA) remained below the recommended level of 6%E, while the intake of cholesterol exceeded the upper level (300 mg/day) [3] in nearly all the participating countries (table 1).

Vitamins

The average intake of vitamin D and folate was clearly below the RLs (10 and 400 μ g/day) [2] in elderly of all participating countries. Apart from Hungary, the vitamin A supply could be regarded as sufficient [4] in all countries which took part in this study.

With exception of Hungarian (70–75 years), Italian ($\geq$ 65 years), and Austrian (men, $\geq$ 85 years) elderly the thiamine intake could on average be assessed as sufficient in all participating countries. Apart from Hungary, the mean riboflavin intake was above the RL in elderly wom-

en but relatively low in European men. The mean niacin and vitamin B₆ intake could be regarded as sufficient in all participating elderly except for Norwegian men and Austrian and Hungarian men, respectively. The supply of cobalamin and ascorbic acid was found to be sufficient in all European elderly (table 2).

Minerals

While sodium intake was quite high in all participants (maximum: Hungary 7.4 g/day), the supply of potassium was not sufficient in most European elderly. The calcium intake was below the RL of 800 mg/day [2] in several countries (Austria, Hungary, Spain). Except for Danish and UK women, the supply of iron [4] was good in all participating elderly. The mean zinc intake was found to be low in Austrian (≥ 85 years) and UK elderly. Apart from the UK, iodine intake was on average below the RL of 150 μ g/day [2] (table 3). The supply of magnesium, copper, and manganese could on average be regarded as sufficient.

Discussion

The European Health and Nutrition Report 2004 is a compilation of existing, available nutrient intake and health data and provides important information about the nutritional situation of elderly in different EU countries. However, data have to be interpreted with caution because of differences in the assessment methods and partly inadequate size and inhomogeneous age groups used in the participating countries.

Available data of the nutritional situation of elderly Europeans clearly indicate an imbalance in the intake of the macronutrients carbohydrate, fat, and dietary fiber in this population group. Additionally, the quality of the consumed fat has to be assessed as inadequate in most participating countries. Except for Belgium and Greece, the intake of SFAs exceeded the reference value of 10%E while that of PUFAs remained below the recommended level of 6%E. Consequently, the cholesterol intake was generally too high, with the exceptions being Italy, Portugal, Norway, the UK, and female Belgians.

The data evaluated for the minerals phosphorus, iodine, zinc, manganese, copper, and the vitamin cobalamin have been identified to have an alleviated explanatory power because of the incomplete intake data of these nutrients.

In order to obtain well-comparable data for future European Health and Nutrition Reports, the authors of the

report strongly advise to improve the data collection by the use of standardized methods for the assessment of nutritional status, including food and nutrient intake. Further, uniformed age, adequately sized groups and educational levels would also help to get comparable data of different EU countries.

Finally, the report points out the necessity of updating reference values for nutrient intake valid for the whole of Europe, also including aspects of health promotion and disease prevention.

Conclusion

Data assessment showed that the proportions of macronutrient intake of European elderly are not balanced and partly inadequate (low: carbohydrates/dietary fiber; high: fat/SFA/cholesterol). Apart from vitamin D, calcium, folate, sodium, and iodine the mean intake of micronutrients could be regarded as rather acceptable.

Disclosure Statement

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