

Food Availability at the Household Level in the European Union¹

The DAFNE Network (Only for the Countries Participating in the ENHR 2009 and Presented in This Report)

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Introduction

Data for nutrition surveillance can be derived from: Food Balance Sheets (FBS), Household Budget Surveys (HBS) and specifically designed Individual Nutrition Surveys (INS). The Food and Agriculture Organization assembled FBS have traditionally been used by countries with no routine information on food consumption or those interested in undertaking worldwide comparisons of overtime trends in the supply of food commodities at the population level [FAO, 2007a]. Household budget surveys are systematically conducted by National Statistical Offices in country representative samples and aim at collecting, among others, data on food availability at household level. Like FBS, the HBS allow inter-country comparisons on a regular basis but, moving from total population to household level, they further allow the description of the current and developing structure of dietary patterns at national or regional level and of population sub-groups defined on the basis of their socio-demographic characteristics [Trichopoulou, 1992]. Individual-based surveys, when participants' intakes are recorded as adequately as possible, constitute the optimal method for assessing dietary patterns and quantifying determinants and consequences of food choices. Being expensive and labor intensive, however, representative individual-based surveys are regularly undertaken in some countries. Furthermore, differences in study design and data analysis reduce the comparability of results at an international level.

The use of the national HBSs for nutrition monitoring purposes has been evaluated through the EU-supported Data Food Networking (DAFNE) initiative, which built up a regularly updated food-based databank allowing the: (a) identification of dietary patterns prevailing in Europe and of their sociodemographic determinants; [Trichopoulou et al., 2002; Naska et al., 2006], (b) follow up of time trends in food habits; [Trichopoulou and Naska, 2003], and (c) evaluation of nutrition action plans and strategies implemented at national or international level [Trichopoulou, 2001]. The DAFNE network is coordinated by the Department of Hygiene and Epidemiology of the University of Athens Medical School and currently interrelates 26 European countries (Albania, Armenia, Austria, Belgium, Croatia, Cyprus, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Montenegro, Norway, Poland, Portugal, Serbia, Spain, Slovak Republic, Slovenia, Sweden and the UK).

The DAFNE Methodology

Data Collection

Through the standardized and nationally representative HBSs, members of the participating households are asked to record in open questionnaires all foods and beverages available during a reference period, including purchases, contributions from

own production and food items offered to members as gifts. Data on food quantities consumed in restaurants, canteens and similar establishments are, however, not consistently available. Data collection is accomplished within one year, with due attention to capture seasonal variation in food intake. Trained interviewers visit the households regularly to assure complete data recording and to collect further information on socio- demographic and lifestyle characteristics of the household members through standardised interviewer-administered questionnaires [European Communities, 2003].

Integration of the National HBS Data in the DAFNE Databank

The collected national datasets are centrally analyzed according to the methodology developed and validated in the DAFNE project (fig. 5.1) [Trichopoulou and Naska, 2001]. Briefly, data are read, cleaned and managed to a format suitable for a common between countries analysis. To improve comparability, food and socio demographic data are post-harmonized. In particular, the national HBS food data are classified under 56 detailed common subgroups, which can be further aggregated to 15 main food groupings [Health and Consumer Protection Directorate General, 2005]. With respect to sociodemographic characteristics, focus is, up to now, put on the *locality of the dwelling* (classified as rural, semi-urban and urban), the *educational level of the household head* (elementary, secondary and higher), the *occupation of the household head* (manual, non-manual, unemployed and retired), and on the *household's composition*, defined on the basis of the number and the age of the members.

Food quantities available for consumption to each household member are calculated by dividing the household availability by the product of the referent time period and the mean household size, under the assumption of equal distribution of food during the survey period and without making allowances for inedible parts, preparation losses, spoilage on the plate or food offered to domestic pets. Weighting factors are incorporated, whenever necessary, to accommodate national sampling schemes.

Conversion of Expenses to Food Quantities

Since the primary aim of the HBSs is the derivation of national price indices, attention is given to ensure the complete recording of expenses, while data on food quantities (in terms of kg or liters) could be missing or incomplete.

The method for converting food expenditure to quantity was applied in three cases (Cyprus, Ireland and Sweden) and included the application of retail prices per unit weight, sought from various sources including national and governmental statistics, food organizations, retailers and consumer surveys. Since collection of the prices was made using various sources from differing years, adjustment was made to equivalent prices for the year of HBS data using national Consumer Price Indices. Simple models were devised and validated into which the expenditure data and retail prices were fitted and resulted in the estimated quantity of food item available in each household [Friel et al., 2001].

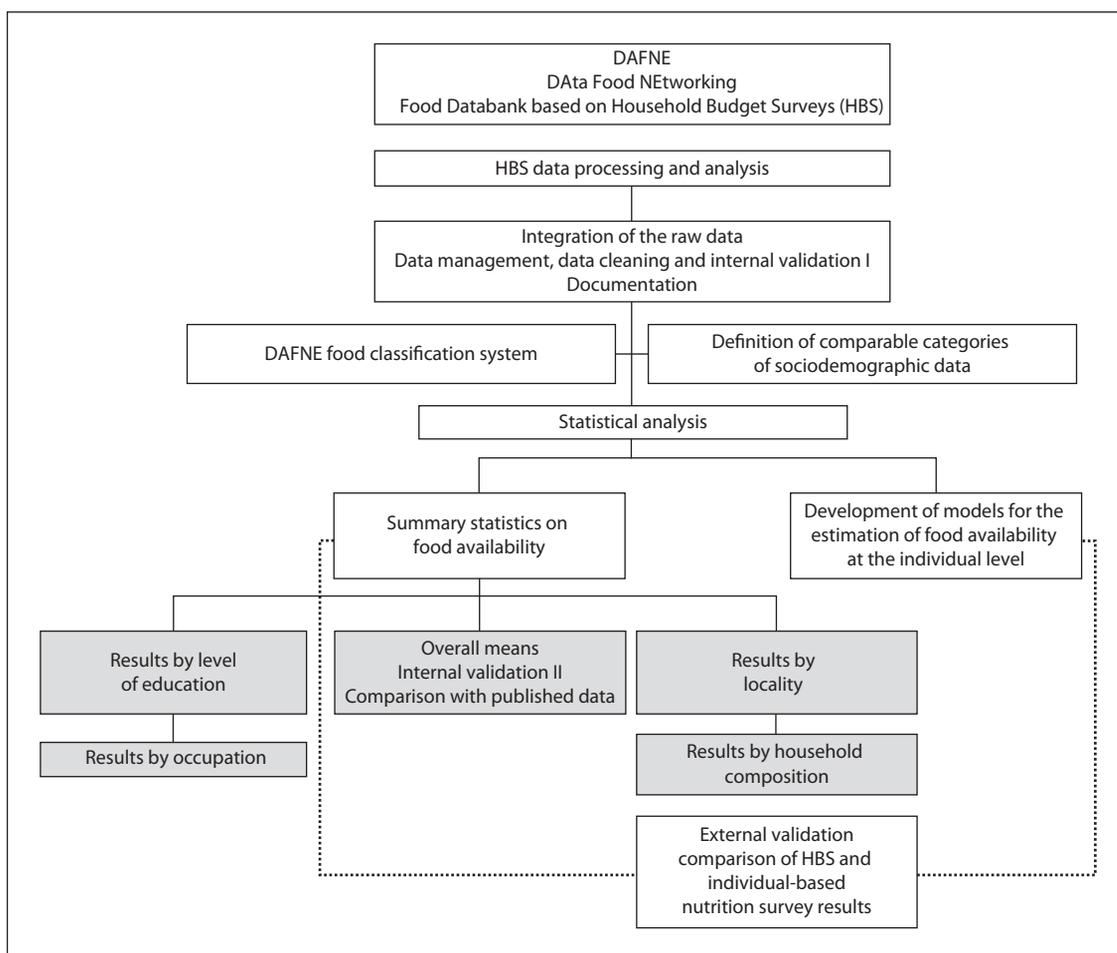


Fig. 5.1. The Household Budget Survey data processing and analysis in the context of the DAFNE initiative.

The DafneSoft Application Tool

Results on the mean daily per person food availability, based on the DAFNE data, are freely accessible through *DafneSoft* (<http://www.nut.uoa.gr/dafnesoftweb/>), an application tool allowing the presentation and exporting of DAFNE data in various formats (tables, bars, pie charts, map presentations) at various levels of detail.

Results Retrieved from the DAFNE Databank – Food Availability in Europe

Tables 5.1–5.4 present the mean daily individual availability of DAFNE food groups, by European region and country. In tables 5.5–5.7, data on the daily food availability according to the educational level of the household head are also presented.

Table 5.1. Mean availability of food and beverages in South European countries (unit/person/day)

Survey year	Cyprus	Greece	Italy	Spain	Portugal
	2003	2004–2005	1996	1998–1999	2000
Eggs (pieces)	0.17	0.22	0.34	0.32	0.18
Potatoes, g	94	124	76	86	180
Pulses, g	23	14	4.1	10	9.2
Nuts, g	4.6	4.4	0.9	0.9	3.0
Cereals, g	302	246	334	170	239
Milk and milk products, g	337	296	271	341	275
Cheese, g	44	55	49	15	19
Meat and meat products, g	178	159	136	139	160
Red meat, g	98	101	71	55	90
Poultry, g	62	42	38	38	44
Processed meat, g	17	13	24	35	17
Vegetables, g	284	283	184	121	137
Fresh vegetables, g	280	256	128	103	126
Processed vegetables, g	4.0	26	56	18	11
Fish and seafood, g	18	46	38	61	83
Fruits, g	252	264	233	195	198
Fresh fruit, g	248	263	232	190	196
Processed fruit, g	3.5	0.82	1.4	4.8	2.3
Fruit and vegetable juices, ml	53	37	9.6	30	11
Lipids, added, g	47	77	63	45	51
Animal fat, g	4.0	0.88	5.6	1.0	2.7
Vegetable fat, g	6.2	6.1	1.5	1.6	5.1
Vegetable oils, g	37	69	56	42	42
Beverages, alcoholic, ml	32	60	149	74	125
Beverages, non-alcoholic, ml	384	244	824	377	171
Soft drinks, ml	101	66	42	85	63
Sugar and sugar products, g	67	34	49	26	30

Source: The DAFNE databank (www.nut.uoa.gr).

Figures 5.2 and 5.3 present the mean daily availability of selected food groups by European region. Values refer to arithmetic means in each region and were calculated by summing the observations (i.e. mean daily availability in each country) and dividing by the number of observations (i.e. number of countries in each region).

The constellation of countries under study possess several interesting characteristics. Cyprus and Greece for example, are Mediterranean countries, which have for centuries been in the cross-road of several historical cultures. Hungary, Latvia and Slovenia were undergoing, to varying extent, through a transition phase during the

Table 5.2. Mean availability of food and beverages in Central and Eastern European countries (unit/person/day)

Survey year	Austria	Germany	Hungary	Poland	Slovenia
	1999–2000	1998	2005	1988	2002
Eggs (pieces)	0.50	0.36	0.48	0.61	0.38
Potatoes, g	100	115	103	301	110
Pulses, g	n.a.	0.6	3.1	3.2	5.8
Nuts, g	n.a.	7.5	2.9	n.a.	5.5
Cereals, g	302	218	253	345	315
Milk and milk products, g	284	311	220	381	355
Cheese, g	28	55	15	39	36
Meat and meat products, g	182	132	160	170	173
Red meat, g	65	48	51	62	81
Poultry, g	23	16	52	33	31
Processed meat, g	92	59	47	70	54
Vegetables, g	142	180	155	202	173
Fresh vegetables, g	114	142	137	177	148
Processed vegetables, g	28	38	18	25	25
Fish and seafood, g	9.3	16	4.9	15	13
Fruits, g	192	182	119	100	219
Fresh fruit, g	186	169	118	96	217
Processed fruit, g	6.2	13	1.0	4.6	2.6
Fruit and vegetable juices, ml	90	123	40	n.a.	108
Lipids, added, g	42	37	50	59	54
Animal fat, g	12	15	13	41	7.03
Vegetable fat, g	11	15	9.7	12	6.7
Vegetable oils, g	20	6.4	27	5.4	41
Beverages, alcoholic, ml	171	200	58	n.a.	141
Beverages, non-alcoholic, ml	652	915	577	300	549
Soft drinks, ml	116	108	87	34	90
Sugar and sugar products, g	74	59	51	106	74

n.a. = Not available

Source: The DAFNE databank (www.nut.uoa.gr).

data collection period. Finland, Norway and Sweden are countries with robust economies and long-lasting national nutrition policies. Furthermore, one should not ignore the diet-related health mandates to which European populations are globally exposed, as well as the increasing prevalence of eating out, which is not considered in these data and has been reported to varying concern European populations [Orfanos et al., 2007].

With respect to plant foods, daily availability is higher in the South. Adequate quantities of fruits and vegetables were reported of being available in the Southern

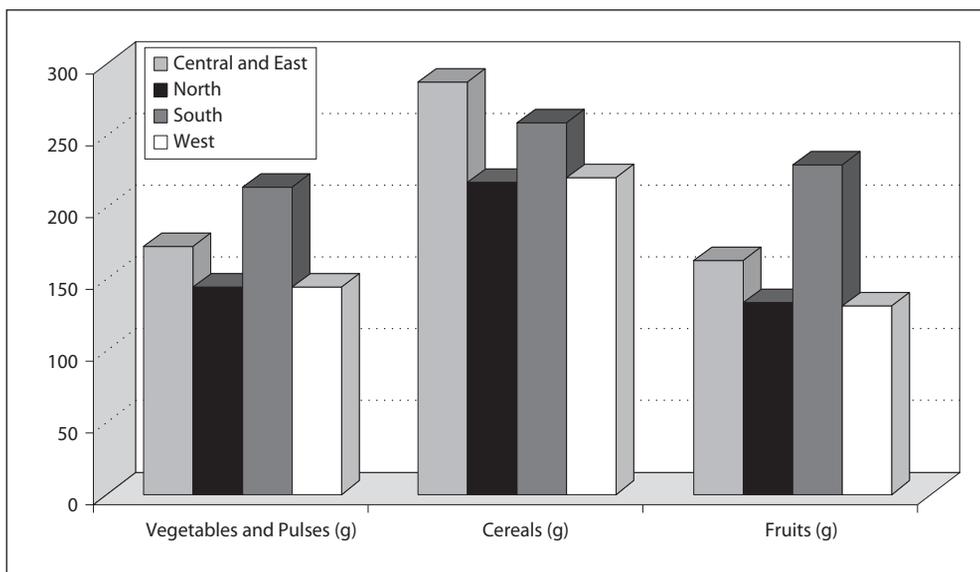


Fig. 5.2. Mean availability (g/person/day) of foods of plant origin by European region. The DAFNE databank.

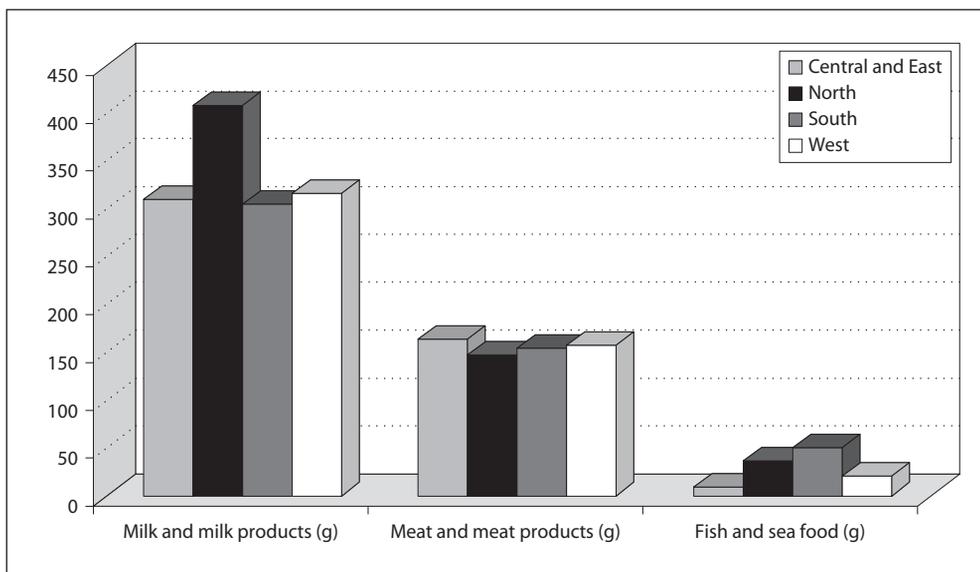


Fig. 5.3. Mean availability (g/person/day) of foods of animal origin by European region. The DAFNE databank.

Table 5.3. Mean availability of food and beverages in West European countries (unit/person/day)

Survey year	Belgium	France	Ireland	Luxembourg	United Kingdom
	1999	1991	1999	1993	1999
Eggs (pieces)	0.21	0.38	0.23	0.33	0.24
Potatoes, g	97	95	186	163	128
Pulses, g	n.a.	4.9	1.1	2.3	0.99
Nuts, g	2.6	1.7	1.2	3.1	1.7
Cereals, g	243	160	290	205	202
Milk and milk products, g	256	290	481	235	320
Cheese, g	55	48	15	55	20
Meat and meat products, g	144	163	166	185	130
Red meat, g	54	77	44	83	34
Poultry, g	25	36	58	30	33
Processed meat, g	35	33	48	51	25
Vegetables, g	168	183	144	164	150
Fresh vegetables, g	127	157	110	129	103
Processed vegetables, g	40	26	34	35	48
Fish and seafood, g	24	21	14	28	20
Fruits, g	123	157	101	170	106
Fresh fruit, g	117	153	94	165	99
Processed fruit, g	6.0	4.4	7.6	5.2	7.6
Fruit and vegetable juices, ml	54	33	57	80	41
Lipids, added, g	29	41	22	57	26
Animal fat, g	7.6	16	8.9	22	9.7
Vegetable fat, g	13	5.9	3.9	18	11
Vegetable oils, g	8.4	19	8.7	16	6.0
Beverages, alcoholic, ml	135	114	40	175	51
Beverages, non-alcoholic, ml	500	373	563	1,062	812
Soft drinks, ml	191	47	122	181	202
Sugar and sugar products, g	55	44	61	46	27

n.a. = Not available

Source: The DAFNE databank (www.nut.uoa.gr).

households and are generally purchased fresh. In Italy, Spain and Portugal and in several other European countries the daily fruit availability is higher than that of vegetables, pointing possibly to a preference for their consumption. In Central and Eastern Europe, part of the deficit appears to be compensated by increased consumption of fruit and vegetable juices. Higher daily availability of cereals and products was reported in Italy, Cyprus and Latvia; although the type of cereals consumed is different. In Italy, pasta and bakery products (incl. pizza) account for 50%, whereas in

Table 5.4. Mean availability of food and beverages in North European countries (unit/person/day)

Survey year	Finland	Latvia	Norway	Sweden
	1998	2004	1996/1997/ 1998	1996
Eggs (pieces)	0.31	0.55	0.34	0.40
Potatoes, g	111	274	114	85
Pulses, g	0.80	4.4	0.82	2.0
Nuts, g	1.6	2.1	3.8	1.9
Cereals, g	205	262	201	200
Milk and milk products, g	507	292	387	445
Cheese, g	48	35	39	25
Meat and meat products, g	149	185	126	128
Red meat, g	52	67	53	50
Poultry, g	12	25	14	18
Processed meat, g	67	85	41	42
Vegetables, g	122	216	109	128
Fresh vegetables, g	102	168	84	107
Processed vegetables, g	20	48	24	21
Fish and seafood, g	30	38	50	30
Fruits, g	157	120	135	122
Fresh fruit, g	147	118	129	114
Processed fruit, g	11	2.1	6.1	8.3
Fruit and vegetable juices, ml	82	25	48	n.a.
Lipids, added, g	31	43	32	39
Animal fat, g	11	8.6	3.6	4.2
Vegetable fat, g	16	9.9	26	31
Vegetable oils, g	3.5	24	1.7	3.6
Beverages, alcoholic, ml	102	51	73	n.a.
Beverages, non-alcoholic, ml	531	394	720	492
Soft drinks, ml	81	28	177	115
Sugar and sugar products, g	54	72	79	56

n.a. = Not available

Source: The DAFNE databank (www.nut.uoa.gr).

Cyprus and Latvia bread and rolls correspond to 60% of the daily cereal availability. Potatoes are mostly a characteristic of Northern/Western diet, as pulses are a characteristic of South food choices.

Regarding added fats and oils, studies have traditionally documented vegetable oils as the lipid of preference in the South and vegetable fat in Central/Northern Europe. The DAFNE results support these findings. Nonetheless, recent data collected in

Table 5.5. Mean availability of foods and beverages (g/ml/person/day) by country (survey year) and educational attainment in Central and Eastern European countries

	Austria (1999–2000)			Germany (1998)			Hungary (2005)			Slovenia (2002)		
	II/El	Sec	C/U	II/El	Sec	C/U	II/El	Sec	C/U	II/El	Sec	C/U
Cereals and cereal products, g	339	302	305	n.a.	216	224	318	244	195	441	289	266
Meat and meat products, g	197	185	140		137	114	183	157	141	247	159	140
Red meat, g	80	67	38		51	40	59	51	38	136	70	60
Poultry, g	28	23	18		16	15	66	48	46	37	31	27
Processed meat, g	87	93	83		61	52	48	47	47	66	52	49
Fish and seafood, g	7.1	9.0	12		16	18	3.6	5.0	6.6	10	12	16
Milk and milk products, g	343	285	267		307	322	219	213	246	447	322	358
Cheese, g	26	28	30		53	62	9.3	14	25	38	32	46
Vegetables, g	193	140	159		176	192	178	148	150	229	161	154
Fresh vegetables, g	162	112	123		138	151	161	130	128	205	135	130
Proc. vegetables, g	31	27	36		37	41	17	18	21	23	26	24
Fruit, g	260	191	191		177	197	114	116	139	241	208	230
Fresh fruit, g	255	185	182		165	183	113	115	137	239	205	226
Processed fruit, g	4.9	5.9	9.9		13	14	0.57	0.93	1.6	2.3	2.4	3.4
Fruit and vegetable juices, ml	94	87	117		120	134	22	38	71	94	99	146
Potatoes, g	151	103	67		117	103	127	100	83	156	102	84
Pulses, g	n.a.	n.a.	n.a.		0.59	0.79	4.3	2.9	2.1	8.6	5.6	3.9
Lipids added, g	67	43	30		37	34	59	48	41	88	48	39
Animal lipids, g	14	12	11		15	15	20	12	7.1	12	6.0	4.6
Vegetable fats, g	12	11	6.2		16	13	10	9.4	9.8	8.9	6.1	6.1
Vegetable oils, g	40	20	13		6.5	5.9	29	27	24	67	36	28
Beverages, alcoholic, ml	172	174	142		199	212	56	56	70	175	139	114
Beverages, non-alcoholic, ml	684	660	551		925	887	565	562	648	644	517	545
Soft drinks, ml	121	119	86		117	81	104	87	65	83	93	88
Sugar and sugar products, g	97	75	57		59	56	61	50	41	105	69	57

n.a. = Not available.

II/EL = Illiterate/Elementary education; Sec = Secondary education; C/U = College/University.

Source: The DAFNE databank (www.nut.uoa.gr).

newly emerging markets, such as Slovenia, Latvia and Hungary, indicate higher household availability of oils than fats (animal and vegetable).

In relation to foods of animal origin, the highest daily availability of milk and products, but not cheese, was recorded in Finland, Sweden, Norway and Ireland. Fish and seafood are items whose consumption is shaped through various factors, among which availability/proximity to the sea and cost are dominant. According to the DAFNE data, higher daily fish availability was recorded in Portugal, Spain and Norway. With respect to meat, all countries recorded substantial household acquisitions. The type of

Table 5.6. Mean availability of foods and beverages (g/ml/person/day) by country (survey year) and educational attainment in South EC

	Cyprus (2003)			Greece (2004–2005)		
	II/EL	Sec	C/U	II/EL	Sec	C/U
Cereals and cereal products, g	349	290	262	284	228	209
Meat and meat products, g	221	162	152	172	151	152
Red meat, g	123	91	80	112	94	95
Poultry, g	80	53	54	47	40	39
Processed meat, g	17	17	17	11	14	15
Fish and seafood, g	17	17	20	51	41	48
Milk and milk products, g	356	333	318	278	298	327
Cheese, g	52	39	43	56	51	59
Vegetables, g	348	251	260	320	257	264
Fresh vegetables, g	343	247	256	294	232	236
Proc. vegetables, g	4.9	3.7	3.5	26	25	29
Fruit, g	282	236	240	273	249	279
Fresh fruit, g	278	233	236	272	248	278
Processed fruit, g	3.8	2.9	4.0	0.80	0.71	1.1
Fruit and vegetable juices, ml	47	57	54	28	38	49
Potatoes, g	139	81	63	138	121	105
Pulses, g	32	21	16	19	12	10
Lipids, added, g	66	43	33	90	70	65
Animal lipids, g	4.2	3.9	4.1	0.9	0.8	1.0
Vegetable fats, g	6.2	6.0	6.3	6.1	6.0	6.4
Vegetable oils, g	56	32	23	83	63	58
Beverages alcoholic, ml	37	29	31	66	55	59
Beverages, non-alcoholic, ml	374	377	407	234	245	254
Soft drinks, ml	106	100	97	63	67	70
Sugar and sugar products, g	86	60	53	38	31	32

II/EL = Illiterate/Elementary education; Sec = Secondary education; C/U = College/University.

Source: The DAFNE databank (www.nut.uoa.gr).

meat is, however, region-dependent. Red meat is more common in the South (Greece, Cyprus and Portugal) and processed meat is preferred in Central/Eastern European countries, Latvia and Finland. In most cases, the daily availability of poultry is less than half of that of red meat, indicating possible room for recommending the substitution of red with white meat. Exceptions are Hungary and the UK where poultry availability equals that of red meat.

Although out of home consumption of beverages is more common than the in-house one, the DAFNE data point towards a prevalent acquisition of non-alcoholic

Italy (1996)			Portugal (2000)			Spain (1998–1999)		
II/EI	Sec	C/U	II/EI	Sec	C/U	II/EI	Sec	C/U
367	320	289	251	201	182	187	157	136
149	130	118	159	169	155	151	131	113
77	68	61	89	97	83	60	51	46
43	35	33	45	41	37	43	34	28
25	24	20	17	20	17	37	35	30
38	37	38	81	91	79	63	58	65
275	269	266	266	313	310	345	331	353
51	48	51	16	33	26	14	16	17
191	179	193	137	138	135	125	111	128
135	123	138	127	126	120	109	92	104
56	56	55	10	13	15	16	19	24
242	227	231	193	207	238	206	176	206
241	226	230	191	205	235	201	171	201
1.2	1.5	1.3	2.2	2.6	2.9	4.6	4.9	5.2
6.6	11	12	9.0	16	17	27	34	32
85	71	69	188	158	132	102	72	58
4.4	4.0	3.7	11	5.1	3.6	12	9.0	7.1
71	59	51	53	45	37	50	40	37
6.3	5.2	5.0	2.2	4.0	5.0	1.1	0.8	1.1
1.6	1.5	1.2	5.1	5.7	4.4	1.5	1.7	1.9
64	52	45	46	35	28	48	37	34
175	136	123	135	90	91	70	77	76
852	807	811	151	236	243	354	396	422
39	45	39	60	77	67	83	92	75
55	46	38	32	23	24	27	25	27

beverages (including sugary soft drinks) for household use. With respect to the daily availability of sugar and sugar products in the household, the higher values were recorded in Norway, Austria, Slovenia and Latvia.

Time comparisons, using data presented in the European Nutrition and Health Report 2004 [Elmadfa et al., 2005], were feasible for four countries: Greece (1998–1999 vs. 2004–2005), Hungary (1991 vs. 2005), Portugal (1995 vs. 2000) and Spain (1990–1991 vs. 1998–1999). In the three Mediterranean countries, household food availability was generally lower in recent years. Exceptions hold for meat, milk and

Table 5.7. Mean availability of foods and beverages (g/ml/person/day) by country (survey year) and educational attainment in North and Western European countries

	Belgium (1999)			Finland (1998)		
	II/El.	Sec	C/U	II/El.	Sec	C/U
Cereals and cereal products, g	272	239	236	223	190	202
Meat and meat products, g	163	146	135	168	145	133
Red meat, g	71	55	47	62	49	45
Poultry, g	27	24	26	11	12	14
Processed meat, g	38	36	32	78	65	57
Fish and seafood, g	24	23	26	36	26	28
Milk and milk products, g	232	235	284	564	501	449
Cheese, g	48	50	62	44	47	53
Vegetables, g	162	163	175	126	110	134
Fresh vegetables, g	122	123	135	106	91	111
Processed vegetables, g	40	40	40	19	19	23
Fruit, g	115	115	134	161	145	169
Fresh fruit, g	110	109	127	151	135	156
Processed fruit, g	5.2	5.6	6.7	10	9.4	13
Fruit and vegetable juices, ml	37	46	68	71	82	94
Potatoes, g	132	103	81	143	105	81
Pulses, g	n.a.	n.a.	n.a.	0.87	0.68	0.86
Lipids, added, g	36	29	26	39	29	25
Animal lipids, g	11	7.1	7.0	16	9.9	7.4
Vegetable fats, g	17	14	10	19	15	14
Vegetable oils, g	8.9	8.4	8.4	3.6	3.5	3.5
Beverages alcoholic, ml	127	119	155	86	107	115
Beverages, non-alcoholic, ml	463	489	524	588	476	533
Soft drinks, ml	163	209	184	74	84	85
Sugar and sugar products, g	56	55	57	65	48	47

n.a. = Not available; II/El = Illiterate/Elementary education; Sec = Secondary education; C/U = College/University
Source: The DAFNE databank (www.nut.uoa.gr).

products, vegetables, fruits and beverages (alcoholic and non-alcoholic). In particular, the daily availability of meat and meat products remained stable in Portugal and increased in Greece by 10 g/person/day, reflecting an increase in processed meat consumption. Vegetable availability increased only in Greece (from 271 to 283 g/person/day), whereas fruit availability decreased in Greece by 42 g/person/day and increased in Portugal by 23 g/person/day. The daily availability of fruit and vegetable juices increased in all countries, triggered probably by the availability of new products in the market. Regarding other beverages, the household daily availability of

Ireland (1999)			Latvia (2004)			Norway (1996/97/98)		
II/El.	Sec	C/U	II/El.	Sec	C/U	II/El.	Sec	C/U
320	275	285	333	258	220	214	198	199
185	163	151	170	193	174	138	129	114
49	43	39	57	72	60	61	55	45
57	58	62	20	26	25	9.4	14	15
61	46	37	82	86	82	46	42	36
13	13	16	45	37	35	58	50	47
537	469	443	351	281	280	429	377	387
13	14	19	35	33	43	39	38	40
169	137	135	228	214	213	107	104	118
130	103	105	178	166	165	85	80	91
39	34	30	49	48	48	22	23	27
92	96	127	74	115	171	131	129	150
85	89	118	73	114	167	126	123	143
7.7	6.7	9.8	1.1	1.9	3.7	5.2	5.7	7.1
39	57	84	8.4	24	44	32	45	63
238	177	145	359	270	213	178	111	90
1.4	0.97	0.98	7.0	3.9	3.6	1.3	0.78	0.55
26	20	20	57	42	33	40	32	27
13	7.7	6.7	12	8.0	7.6	4.2	3.2	3.8
4.5	3.7	3.7	12	12	6.7	35	27	21
8.3	8.8	9.9	33	24	19	0.9	1.5	2.3
29	36	61	44	49	60	45	71	92
686	519	516	366	386	438	896	725	637
130	123	111	20	26	38	154	193	163
73	58	52	87	69	65	90	79	76

alcoholic drinks increased in Greece and, interestingly, in Portugal the availability of non-alcoholic beverages in general increased from 129 ml/person/day in 1995 to 171 ml/person/day in 2000 and of soft drinks in particular from 38 ml/person/day in 1995 to 63 ml/person/day in 2000. Data available for Hungary allow comparisons between food availability in the early 1990s and mid-2000s. In most cases, the daily per person availability decreased. Notable increases were, however, noted in the case of vegetables oils (from 15 g/person/day in 1991 to 27 g/person/day in 2005) and soft drinks (from 41 ml/person/day in 1991 to 87 ml/person/day in 2005).

Socio-economic differences in eating practices are often studied in terms of the level of education achieved. Education has been reported to be the strongest and most consistent indicator in assessing socio-economic differences, as it expresses not only the individual's years of schooling, but it might also reflect occupation, income and, even more importantly when it comes to healthy dietary practice, the way an individual perceives current nutritional information [Johansson et al., 1999].

Data presented in tables 5.5–5.7 show that households with heads of higher education generally report lower food acquisitions. Nevertheless, when compared to their lower education counterparts, households of college/university education report higher daily availability of: (a) processed meat in Cyprus and Greece and poultry in Norway, Finland and Latvia; (b) fish and seafood in Central/Eastern Europe and milk, milk products and cheese in particular; (c) fruits but not vegetables in Greece and Portugal; (d) fruits and vegetables in North, West and Central Europe. In Latvia in particular, households of higher education report twice as much daily fruit availability (171 g/person/day), when compared to those of lower education (74 g/person/day). Juices and beverages (alcoholic and non-alcoholic) are purchased more by households of higher education in all countries under study.

Discussion

From the country members of the DAFNE network, this report presents data for those which are also participants in the ENHR 2009 project. The comparable between-countries DAFNE data document regional and social disparities in food habits in Europe.

The HBS are not primarily designed to collect nutritional information and the food data bear limitations, which need to be considered when interpreting findings. For example, there are different ways to estimate the per person food availability and methods range from a simple division by the number of household members (as applied in the present analysis) to the application of sophisticated statistical modeling, which have been developed and tested in the DAFNE project [Vasdekis, 2001]. Their application, however, falls beyond the scope of the present report which aims to compare average food choices among different European households. In most cases, no records are collected on the type and quantity of food items and beverages consumed outside the home and not originating from household supplies; food losses and waste, foods given to pets, and meals offered to guests are not consistently collected. Despite their limitations, however, the HBSs provide a resource for the conduct of a wide range of nutritional analyses.

In parallel to enriching the databank, the DAFNE network is also working towards advancing the HBS dietary data. In this context:

(a) The EU supported FAIR-97–3096 project was carried out with the aim to compare individualized HBS data to those collected through INS in four countries, participants

of the ENHR 2009 project (Belgium, Greece, Norway and the UK) [Trichopoulou and Naska, 2001].

(b) Greek and German DAFNE teams comparatively assessed cost-efficient methods for estimating energy and nutrient availability using HBS data [Naska et al., 2007].

(c) Food supply (FBS) and food availability (HBS) data from 18 DAFNE countries were compared to estimate the extent to which they correlate and were further examined for their ability to predict overall, coronary and cancer mortality through ecological analyses [Naska et al., 2008].

In addition, the FP6-supported HECTOR project (*Eating Out: Habits, Determinants, and Recommendations for Consumers and the European Catering Sector*) is currently in progress (<http://www.nut.uoa.gr/hector/>). The project is led by the DAFNE Coordinating Center and, among its objectives, is the exploitation of HBS data on out-of-home food expenditures in order to conceptually assess and monitor the within-home and out-of-home food choices in Europe.

In conclusion, given the potential of the DAFNE data, a system facilitating the regular update of the database, as well as the expansion of the network to embrace all European countries could provide a ready source of data for monitoring public health nutrition in Europe at reasonable cost.

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