



# FOOD PATTERNS AND DIETARY RECOMMENDATIONS IN SPAIN, FRANCE AND SWEDEN

## *Addendum*



## INTRODUCTION

In September 2012, the Swedish National Food Administration (Livsmedelsverket) published a new dietary survey (Riksmaten 2010-11) [1]. This made it necessary to update our findings for Food patterns and dietary recommendations in Spain, France and Sweden (2012), as we based them on the rather outdated 1997-98 survey.

The studied population were men and women aged between 18 and 80. In total 1,005 women and 782 men recorded their intake of food and drink during four consecutive days. The level of detail in the report is less than in the previous survey – for instance pork and beef aren't reported separately, and fruit and vegetables aren't specified further. A direct comparison of both surveys is hampered by the fact that ingredients from composite foods – such as meat stew and fish dishes – are counted in a different way.

This doesn't affect the general conclusions we can draw, but less detailed information is a serious limitation for calculating the environmental impact. Foods within a certain category such as red meat may have a wide range of carbon footprints.

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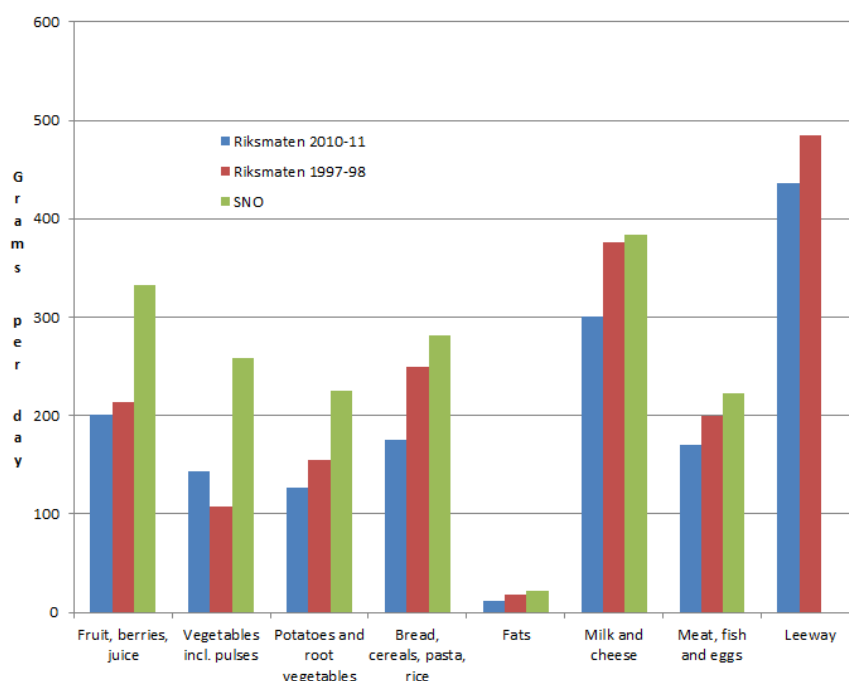
## RESULTS

### FOODS

When we compare the data from the new survey with the Swedish recommendations (SNO) [2], there's still a huge gap between the actual intake and the SNO reference diet that supplies sufficient nutrients. Figure 8 (our numbering here corresponds with the original report) shows the recorded intake of foods from the groups in the Food Circle (the Swedish government's visual presentation of a healthy, balanced diet that meets nutritional requirements) among Swedish men and women, compared with the guideline amounts (average for men and women). Figure 1 shows the results for Riksmaten 2010-11 alone.

**Figure 8:**

Intake of foods by adult Swedish men and women (Riksmaten 2010-11 and Riksmaten 1997-98) compared with SNO recommendations. The food groups correspond to the Food Circle and SNO.



The Leeway bar contains foods and drinks that contribute to calorie intake, but apart from that have a low nutrient density in comparison with the recommended foods. The Swedish National Food Administration (NFA) itself concludes that there are positive trends with respect to the intake of fruits and berries, vegetables, roots, pulses, fish and shellfish. This conclusion is based on the intake per 10 Mega joules of consumed energy (Annex 1).

**Figure 1**

Intake of foods  
(grams per day) in  
the Food Circle  
recorded in  
Riksmaten 2010-11.  
The amount of food  
and drinks in  
Leeway is also  
shown.

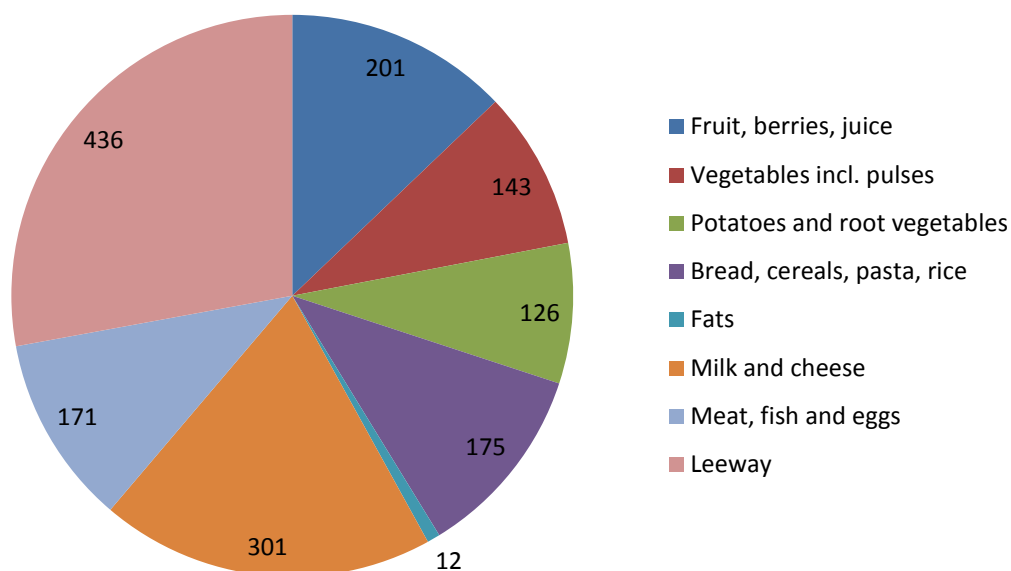


Table 3 shows the differences between SNO recommendations and actual intake in more detail for both Swedish men and women. In general, they ate too little of the basic staple foods. As in the older survey, cheese consumption is above the recommended level, but this compensates for a lower intake of milk and yoghurt, which are important sources of several nutrients, among them calcium. Still, this is unfavourable because cheese contains more saturated fat than low-fat milk and low-fat yoghurt.

The intake of blood products and offal such as liver has decreased since the late 1990s. The reason these products are recommended is that they are rich in iron and this is of particular importance for women of reproductive age.

The consumption of red meat, poultry and sausage also seems to have dropped significantly since the previous survey, but part of this decrease is caused by the way in which meat from composite dishes is counted. When this is taken into account, a less significant drop is still visible (Annex 1). Part of the meat is eaten as sausage, which was also consumed less than in the older survey. On the other hand, the intake of fish products has increased.

**Table 3**

Intake of foods according to Riksmaten 2010-11 compared with SNO recommendations. Colours highlight trends: orange (too high), yellow (too low) and green (about right). The SNO combines both roots/vegetables and porridge/gruel/breakfast cereals/muesli. These are allocated proportionally to the intake.

Food group	Women			Men		
	Riksmaten 2010-11	Riksmaten 1997-98	SNO	Riksmaten 2010-11	Riksmaten 1997-98	SNO
Margarine spread	9	12	19	13	23	25
Cheese	26	28	20	25	31	22
Milk, yoghurt	228	311	320	269	376	375
Bread	74	85	165	101	116	205
Potatoes	73	116	175	133	168	210
Roots	23	14	28	20	12	39
Vegetables	147	113	222	136	84	270
Fruit and berries	147	148	214	105	104	250
Juice	52	88	86	64	87	114
Porridge, gruel	36	37	25	43	38	36
Breakfast cereals, muesli	10	6	4	14	8	7
Pancakes	8	12	0	10	14	0
Pizza, pie, pirog	27	20	0	46	27	0
Rice	20	24	18	26	31	25
Pasta, couscous, bulgur	26	34	36	34	47	43
Legumes	12	8	10	12	11	13
(Red) meat, poultry	70	97	95	103	129	120
Eggs	14	15	21	14	15	26
Fish, seafood	38	35	45	45	34	64
Blood products	1	2	5	1	2	8
Offal	2	4	15	3	5	15
Sausages and dishes	15	25	14	28	36	18
Nuts, snacks	8	6	0	8	8	0
Sweet bakery products	30	42	0	33	44	0
Ice cream, parfait	7	12	0	9	14	0
Cream	9	4	13	7	2	17
Sweet soups, desserts	18	14	0	16	16	0
Marmelade, jam	9	10	0	11	10	0
Soft-drinks, fruit syrups	96	138	0	132	206	0
Chocolate and candy	13	13	0	10	13	0
Sugar, sirup, honey	2	3	0	3	6	0
Alcoholic beverages	96	129	0	219	254	0
Coffee, tea, water	1099	1230	0	941	980	0
Sauces, soups	54	12	0	64	13	0
Dietary supplements	28	-	0	35	-	0

Another upward trend mentioned in the report is the increased use of liquid margarine and vegetable oils for cooking, although this is not shown in Table 3.

The survey also recorded the use of dietary supplements, and found multivitamins, omega-3 fatty acids and fish oil to be the most popular.

The authors saw differences between different parts of the population. On average, older people and people with a better education ate more wholesome food, while alcohol consumption was highest among middle-aged people (aged 45 to 64). These trends are also recognised in other countries.

## ENERGY AND NUTRIENTS

The average energy intake reported by both Swedish men and women was lower than would be expected due to the normal ratio of total energy and basal metabolic rate (Table 6 below). This is caused by under-reporting – a common problem in all dietary surveys. The researchers estimated the percentage of under-reporting to be 16 percent among women and 21 percent among men.

Relatively too little energy comes from carbohydrates, while the percentages of energy from protein and fats are both near the upper end of the allowance. Alcohol intake is above the limit.

Some of the positive trends mentioned above are also visible when we look at the nutrient intake. For instance, the higher consumption of liquid margarine and vegetable oil is one of the reasons why the intake of saturated fatty acids has decreased and that of polyunsaturated fats has increased (Table 6). Still, the intake of saturated fatty acids is too high, and replacing those with unsaturated ones would be beneficial for coronary health.

The intake of dietary fibre is below the recommended level, which is caused by a lack of wholegrain and other staple foods in the diet. This is common in Western diets.

Among Swedish women the intake of vitamin D was low. Because Sweden is in the northern part of Europe, with less vitamin D coming from exposure to sunlight, this could have a worrying effect on bone health. One of the preventive measures taken in Sweden is enriching milk with vitamin D, so a low intake of milk may be one of the causes of the low vitamin D content of the average diet. As in the previous survey, folate intake is too low among both men and women. This is a point of concern for women wanting to get pregnant, because folate may prevent neural tube defects [3].

High sodium intake is on the health agenda in many countries due to its ill-effect on blood pressure [4]. When expressed as salt (sodium chloride), the intake in Sweden is 6.9 and 9.0 grams per day, for women and men respectively. This is similar to the salt intake in the previous survey. The amount of potassium, which lowers blood pressure[5], has decreased slightly.

Women of reproductive age need more iron. On average these women don't meet the elevated recommendation of 15mg/day. Whether this causes anaemia depends on the bioavailability of iron in the diet. A recent study shows that iron deficiency and anaemia are quite common among adolescent Swedish females [6].



Based on the latest Swedish dietary survey we may conclude that there are some positive trends, but that the overall intake of nutrients is still less than ideal. This is mainly caused by a lack of fruit, vegetables and wholegrain products in the diet, and too many sugary and fatty foods.

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## ANNEX 1: TRENDS IN FOOD CONSUMPTION PER 10MJ, COMPARING RIKSMATEN 2010-11 WITH PREVIOUS SURVEYS.

		Women				Men		
		Riksmaten 2010–11	Riksmaten 1997–98	Hulk 1989		Riksmaten 2010–11	Riksmaten 1997–98	Hulk 1989
Cheese	↓	34	35	51	↓	27	31	44
Milk, yoghurt	↓	304	391	447	↓	287	374	462
Bread	↓	101	107	109	↓	109	115	119
Potato	↓	98	146	147	↓	142	167	186
Vegetables*	↑	149	142	112	↑	95	84	75
Root Vegetables	↑	31	18	13	↑	21	12	8
Legumes	↑	16	10	7	↑	13	11	15
Fruit	↑	198	186	173	↑	112	104	109
Juice**	↓	70	111	87	↓	68	87	56
Porridge, gruel	-	47	47	57	↑	46	38	51
Cereals	↑	13	8	5	↑	15	8	6
Rice, rice, grains	↑	31	30	21	-	31	31	22
Pasta	↓	39	43	19	↓	44	47	16
Pancakes, waffles, crêpes	↓	11	15	16	↓	11	14	18
Pizza, pie, pirog	↑	36	25	16	↑	49	27	16
Meat, poultry *	↓	111	122	96	↓	124	128	102
Blood sausage	↓	1	3	3	↓	1	2	2
Offals	↓	3	5	8	↓	3	5	7
Sausages, brawn	↓	20	31	25	↓	30	36	30
Fish, shellfish*	↑	58	44	40	↑	54	34	35
eggs	-	19	19	21	-	15	15	20
Nuts, Snacks	↑	11	8	3	↑	9	8	3
Buns, biscuits, cakes	↓	40	53	61	↓	35	44	44
Ice cream	↓	9	15	20	↓	10	14	13
Cream, creme fraiche	↑	12	5	5	↑	7	2	3
Sweet soups, desserts	↑	24	18	35	↑	17	16	26
Marmalade, jam, puree	-	12	13	13	↑	12	10	13
Juice, soda, water ices	↓	128	174	135	↓	141	205	131
Candy, chocolate	↑	18	16	11	↓	11	13	7
Sugar, jam, honey	↓	3	4	5	↓	3	6	7
Alcoholic beverages	↓	131	162	119	↓	232	253	234

\*Also dishes included in the amounts to be comparable with previous studies. 100 g = 100 g beef stew meat.

\*\*In 1997-98 the survey included both nectar and juice, but in the 2010-11 survey nectar is placed in the juice group.



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